GOVERNMENT OF PAKISTAN

Pakistan Export Strategy Fruits and Vegetables

2023-2027

This Fruits and vegetables sector strategy is part of the National Priority Sectors Export Strategy (NPSES) initiative which contributes to the implementation of Pakistan's Strategic Trade Policy Framework (STPF) 2020-2025.

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Pakistan Export Strategy

Fruits and Vegetables

2023-2027

Forewords

Message from the Ministry of Commerce

Increasing international trade is not only a means of boosting economic growth and the nation's welfare, but also contributing to strengthening international relations. The stabilization of economic and political affairs paves the way for reinforcing friendly relations based on mutual interests with a wide range of trade partners. Trade is thus one of the most important forms of exchange between countries and fostering this will lead to connections such as foreign investments, better employment opportunities, and scientific and technical exchanges, all of which will contribute to Pakistan's growth and prosperity.

The Government of Pakistan has taken a series of initiatives to promote exports to achieve sustainable and inclusive economic growth, poverty reduction and improvement in the living standard of Pakistani people. This is also aligned with the government's vision of the Strategic Trade Policy Framework (STPF) 2020–25 for 'Pakistan to become a dynamic and efficient domestic market as well as a globally competitive export-driven economy'. In this context, the Ministry of Commerce supported the preparation of the Fruits and Vegetables Export Strategy, a priority export sector under the STPF, which will contribute to export diversification of Pakistan. This sector export strategy has been formulated with close consultation of all the stakeholders; and the Ministry of Commerce appreciates all those involved in the process, particularly the private sector.

As a priority export product within the framework of the STPF 2020–25, the fruits and vegetables sector presents a new export avenue and an opportunity for Pakistan. The strategy encompasses trade-related factors such as ensuring export quality, greater market access and product diversification. In addition, substantial investment to expand export potential and grow foreign trade requires strategic targeting. All activities in the strategy design framework have outlined a detailed five-year plan of action to tackle issues and facilitate export procedures, and as identified by all the stakeholders of the Fruits & Vegetables sector in Pakistan.

Despite challenges in the international trade scenario and the global business environment, I am confident that this initiative will serve as an action-oriented blueprint to enhance trade performance and develop a coordinated mechanism with participation from both the public and private sector, increasing its competitiveness in the international market.

To maintain the momentum sparked by the consultations, the Ministry of Commerce is committed to play a constructive and facilitative role, while making it our top priority to execute the activities and reforms proposed in the Plan of Action in consultations with the stakeholders. We are particularly committed to continue keeping the private sector in the driving seat for the implementation process through the Sector Specific Council (SSC) on Agriculture & Food Processing. The Government of Pakistan is fully committed to promoting export-led economic growth and would encourage all to join hands and work together in making the vision of a flourishing Fruits & Vegetables sector a reality.

Message from the All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA)

The agriculture sector accounts for approximately 20% of the country's gross domestic product (GDP) and 38% employment. Approximately 60%–70% of the population is dependent on this sector for livelihood. Fruit and vegetables are important constituent of this sector. Owing to its geographical and climatic diversity and suitability, the Islamic Republic of Pakistan is capable of growing a large variety of fruits and vegetables. Overall, more than 35 types of fruits and vegetables are produced in the country, which itself is indicative of this sector's real potential. Vegetables can be easily grown in the smaller landholdings and almost all of the vegetables in Pakistan have a shorter maturity period that can bring higher yield and returns for farmers.

The area under cultivation for fruit and vegetables and corresponding production and exports have shown an increasing trend in the last decade, but the real potential of this segment of the economy has not been realized so far due to multiple factors. Pakistan's share in world exports of citrus fruits is 1.5% and of potato is 2.8%. Both can do much better if proper planning is made and infrastructure is developed, and it is the same for other items of this sector.

Of the numerous issues and challenges this promising sector is confronted with, the major are:

- Lack of research and development (improved varieties, disease control mechanisms);
- Non-availability of export intelligence during the production phase;
- Farmers are reluctant to adopt latest technologies e.g. pest free planting, climate smart innovation, drip irrigation, and mechanisation;
- Growers' unawareness on the demand of the various fruits and vegetables in the international market;
- High pre- and post-harvest loss;
- High air and sea freight costs (increasing cost of doing business is making competition stiff in the international market);
- Unavailability of high-tech scanners at the ports;
- Lack of cold storage facilities at the ports;
- High costs and longer wait times at approved laboratories to check for maximum residue limit (MRL) issues;
- Lack of capacity at laboratories for export purposes to conduct 100% MRL tests to meet the quarantine requirements of various importing countries. Currently such labs conduct only 16% MRL tests;
- Illegal trade channels and smuggling via land routes;

In order to deal with these issues, there is a need for suitable interventions to be planned at policy and operation levels. The inputs for this sector need to be made less expensive to support, especially small and medium farmers, so that they can experiment with new varieties and methods. Export-oriented policies must also be implemented. The proposed plan of action (PoA) addresses the aforementioned needs in an appropriate manner, and it contains all steps that are necessary for this sector's rapid growth. Moreover, the PoA presents a good blend of government initiatives and support of farmers' and exporters' representative bodies and associations. The association will render its full cooperation and support to achieve the goals envisaged in the PoA.

Waheed Ahmed
Patron-in-Chief, PFVA

Acknowledgments

The Fruits and Vegetables Export Strategy forms an integral part of Pakistan's STPF. It was developed under the aegis of the Government of Pakistan and the leadership of the Ministry of Commerce (MoC) and the Trade Development Authority of Pakistan (TDAP), in close collaboration with the Ministry of National Food Security & Research (MNFSR) and the All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA).

The document benefited particularly from the inputs and guidance provided by the sector stakeholders that steered the strategy's formulation, namely the following key sector institutions.[1]

Institutions
Agriculture Policy Institute
All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association
Federation of Pakistan Chambers of Commerce & Industry (FPCCI)
Ministry of Commerce
Pakistan Horticulture Development and Export Company
Pakistan Agricultural Storage and Services Corporation (PASSCO)
PCSIR Laboratories
Pakistan Standards & Quality Control Authority (PSQCA)
Small and Medium Enterprises Development Authority (SMEDA)
TDAP
University of Agriculture Faisalabad

Technical support and guidance from ITC was rendered by the following people:

Name	Designation
Tauqir Shah	Revenue Mobilization, Investment and Trade (ReMIT) project coordinator
Shoaib Zafar	Project advisor
Basit Abbasi	National sector consultant
Charles Roberge	Senior Officer Export Strategy
Alexandra Golovko	Advisor, Export Strategy and Competitiveness
Victor Deleplancque	Agriculture strategy specialist
Aishwarya Nahata	International consultant

1.– The full list of public–private stakeholders that participated in the consultations and their names is available in Annex I.

Note for the reader

In order to boost export growth, the Ministry of Commerce (MoC) has developed the Strategic Trade Policy Framework (STPF) 2020–25, which was approved in November 2021. ITC provided technical support to MoC and the Trade Development Authority of Pakistan (TDAP) to design selected sector export strategies of the STPF priority sectors. This initiative, called the National Priority Sectors Export Strategy (NPSES), focused on 10 of the 18 STPF priority sectors through a consultative process.

The Fruits and Vegetables Export Strategy was developed on the basis of a participatory approach, during which more than 35 Pakistani industry leaders, small business owners and public sector representatives held consultations to reach consensus on key sector competitiveness issues and priority activities. These inclusive consulta¬tions were held in a hybrid model owing to the travel restrictions imposed due to the COVID-19 pandemic.

Besides in-depth qualitative and quantitative research and value chain analysis, these consultations were complemented by visits and interviews by the national consultants with domestic firms to guide the strategy with insights and market intelligence as well as buyers' requirements in terms of quality standards, food safety, packaging, distribution channels and prices, etc.

The Fruits and Vegetables Export Strategy builds on the ongoing initiatives in areas of private sector development, regional integration, investment and economic empowerment of youth. Equally importantly, the sector strategy is complemented by an effort to establish the proper implementation responsibilities among key stakeholders early on to ensure timely implementation of activities, whether by the public sector, private sector or international development agencies. This strategy's principal output is an endorsed, coherent and comprehensive document with a five-year detailed plan of action (PoA) and implementation management frameworks.

This document was approved as the official export strategy for the Fruits and Vegetables Sector 2023-2017 by the Sector Specific Council on Agriculture & Food Processing and endorsed by the Ministry of Commerce of Pakistan.

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Acronyms and abbreviations

Unless otherwise specified, all references to dollars ($) are to United States dollars (USD).

CAGR	Compounded annual growth rate
CEWRI	Climate, Energy and Water Research Institute
DPP	Department of Plant Protection
EU	European Union
F&V	Fruits and vegetables
FAO	Food and Agriculture Organization
FBR	Federal Board of Revenue
FPCCI	Federation of Pakistan Chambers of Commerce & Industry
GAP	Good Agricultural Practices
GCC	Gulf Cooperation Council
HS	Harmonized System
ISO	International Organization for Standardization
ITC	International Trade Centre
MNFSR	Ministry of National Food Security & Research
MoC	Ministry of Commerce
PARC	Pakistan Agricultural Research Council
PFVA	All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association
PoA	Plan of action
PCSIR	Pakistan Council of Scientific and Industrial Research
PSQCA	Pakistan Standards & Quality Control Authority
SMEDA	Small and Medium Enterprises Development Authority
SPS	Sanitary and phytosanitary
STPF	Strategic Trade Policy Framework
TDAP	Trade Development Authority of Pakistan

EXECUTIVE SUMMARY

The present strategy outlines a proposed path for the development of the fruits and vegetables sector in Pakistan. It is a five-year endeavour that was defined through a consultative process between public and private sector stakeholders. The strategy addresses constraints in a comprehensive manner and defines concrete opportunities that can be realized through the specific steps detailed in its plan of action (PoA). The fruits and vegetables sector strategy is an integral part of Pakistan's Strategic Trade Policy Framework (STPF).

THE INTERNATIONAL DEMAND FOR FRUITS AND VEGETABLES (F&V) IS ON THE RISE

World imports of fruits and vegetables (F&V) have been multiplied almost fourfold in the past two decades to reach $213 billion in 2020 (UN Comtrade, 2020). This surge is mainly driven by consumers' increasing health consciousness in high-income countries and the growing appetite for greater variety in horticultural products offered year-round. Although developed countries dominate the current market, developing countries, especially in Asia, have increased their share of the demand, boosted by population growth, urbanization and rising per capita income. To meet this rise in demand, an increasing number of suppliers are entering the global market and offering an ever-wider array of commodities, therefore increasing the pressure on producers' prices and supply chains' efficiency to compete on an international scale.

PAKISTAN'S TREMENDOUS EXPORT POTENTIAL IN F&V REMAINS LARGELY UNTAPPED

Pakistan's F&V sector is an important direct and indirect contributor to growth and exports. Its wide variety of products is supported by a combination of natural assets and established export connections, sector organization factors and human factors. These strengths support the sector's potential to contribute to export growth, job creation and women economic empowerment, particularly in rural areas. Developing domestic F&V value chains also offers important prospects for import substitution.

Endowed with a wide range of geographical and climatic zones that support growing a variety of food crops and fruits and vegetables, Pakistan is among the largest producers of horticultural products in the world, in particular growing large quantities of potatoes, citrus, onions and mangoes. This production is traditionally geared towards the domestic market (the estimated share of the volume produced destined to the international market does not exceed 3%). With a relatively weak and volatile export growth observed in the past decade and export earnings amounting to $679 million in 2020 (UN Comtrade), Pakistan remains a minor player in the global F&V market, with a market share in world exports of 0.33% in 2020.

A NUMBER OF LIMITING FACTORS IMPEDE EXPORT GROWTH

Pakistan F&V exports are currently concentrated in a few commodities, with citrus fruit (and kinnow in particular), mangoes, dates, onions and potatoes constituting more than 80% of the export revenues generated. In addition to the lack of diversification of its export basket, the sector's trade performance is limited by the fact that the characteristics and varieties of most F&V cultivated in Pakistan do not meet the consumer preferences that the main importing markets demand.

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The low yields observed in the horticultural sector are another major limiting factor to the expansion of F&V exports, resulting in limited production surpluses and negatively impacting the price competitiveness of the domestically grown produce on the international markets. The per acre produce from the land is low, partly due to varieties that are not adapted to soil and climate, the limited uptake of good agricultural practices from fragmented small-scale farmers and insufficiently developed post-harvest infrastructure, resulting in an estimated 40% of post-harvest loss.

Exports of F&V from Pakistan are limited to a few destinations, dominated by the Gulf Cooperation Council (GCC) countries and the Islamic Republic of Afghanistan. Access to the main international markets, including high-income countries and the People's Republic of China, is currently restricted by a number of factors, chief among them the difficulties faced by most market segments to meet stringent food safety and export quality requirements. The lacks of efficient cold chain systems and insufficiently developed distribution channels also greatly limits the sector's potential to tap into promising premium markets.

THE STRATEGIC FRAMEWORK

This strategy's implementation will thus lead to increased exporting through higher yields and production surpluses, in particular focusing on growing fruits and vegetables that have global demand, strengthened traceability and compliance with international quality and food safety requirements and improved connections with high-potential markets. It will also increase efficiency and sustainability in natural resource usage and secure a sustainable income for rural populations.

> **"A modern F&V sector to better cater to the needs of international markets, in terms of quality, quantity and sustainability."**

The strategy's PoA responds to this vision by addressing the sector's constraints and leveraging opportunities comprehensively. To this end, specific efforts will be made in the following strategic directions.

THE STRATEGIC OBJECTIVES

Strategic Objective 1 Achieve higher yields to increase farm output, capitalizing on the most marketable crops	• If Pakistan is to become a leading supplier of F&V internationally, efforts and resources should be mobilized to improve yields and increase production surplus, focusing on the most demanded varieties
Strategic Objective 2 Create an enabling business environment, allowing F&V exporters to compete successfully on a global scale	• Promotion of the conditions conducive to the full realization of the sector's potential, in particular facilitating compliance with international standards for quality and food safety requirements
Strategic Objective 3 Strengthen distribution channels and improve the visibility of Pakistani F&V to expand market penetration	• Provide the sector with efficient trade logistics and strengthened export promotion and market intelligence functions to foster market penetration

IMPLEMENTATION MANAGEMENT

This strategy document has produced a pragmatic and forward-looking roadmap for upgrading and internationalization. To achieve the strategy's targets, stakeholders will need to coordinate actions, monitor progress and mobilize resources for its implementation. Providing business development support to firms, enhancing innovation and creating an enabling business environment are crucial for successful implementation. Accordingly, a public–private advisory committee for the fruits and vegetables industry is established, operationalized and empowered. The fruits and vegetables sector advisory committee is to be responsible for overall coordination, provision of rapid solutions to regulatory and procedural bottlenecks, policy guidance and the monitoring of industry development against the strategy's strategic objectives.

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The following key areas of intervention are priorities to facilitate the strategy's implementation:

- Introduce formal, standardized vocational training programmes in Good Agricultural Practices (GAP) for small-scale farmers and rural workers at grass roots level, in the form of practical on-farm training;
- Implementation of training programmes will be supported by the establishment of certified F&V model training;
- Design and enforce a horticulture policy, tentatively a national horticulture development framework, in consultation with the provincial governments and the private sector;
- Sign and enforce sanitary and phytosanitary (SPS) export protocols and a mutual recognition agreement of quality standards with key trading partners on quality and food safety requirements to improve market access and expand the export base to new destinations.

A GROWING, BUT INCREASINGLY DEMANDING GLOBAL MARKET

A growing global market

A dynamic global demand still largely dominated by European and American markets. Global trade in fruits and vegetables has been multiplied almost fourfold in the past two decades, from approximately $56 billion in 2001 to $213 billion in 2020 (UN Comtrade, 2020).[1] With $138 billion worth of imports in 2020, the fruit segment accounts for approximately two-thirds of the imported value globally. The subsector also proved to be more dynamic, with a global demand growing at a compound annual growth rate (CAGR) of 4.5% in 2016–20, outpacing the annual growth of 1.6% observed for the vegetables segment in the same period. High-income countries largely dominate the market, with European Union (EU) member states alone capturing 41% of the global trade, followed by the United States of America (15%). Altogether, the Organisation for Economic Co-operation and Development (OECD) members' market share reached 68% in 2020, boosted by increased health awareness and a rising recognition of the nutritional value of F&V products.

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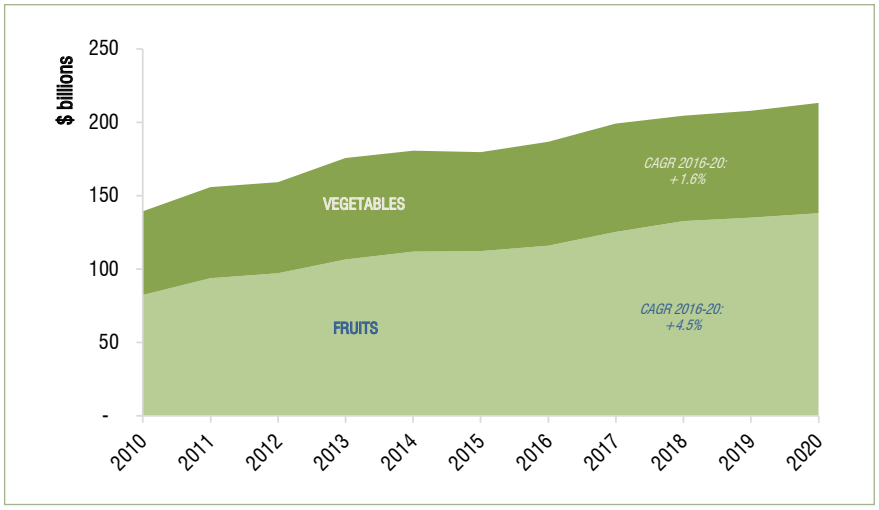
Developing countries have increased their share in the demand of F&V. Population growth, urbanization, rising per capita income and changing dietary patterns of an increasingly affluent middle class are boosting the demand for F&V in developing countries, notably in Asia. In particular, the demand for imported fruits and vegetables from Chinese consumers has skyrocketed in recent years, boosted by a middle class that continues to thrive and grow. With imports rising from $3.7 billion in 2010 to $14 billion in 2020, China emerged as the third-largest importer after the United States and the Federal Republic of Germany, accounting for 9% of world imports. The demand for F&V from the Association of Southeast Asian Nations (ASEAN) countries is also very dynamic, with imports more than doubling in the past decade, in particular from the Socialist Republic of Viet Nam, the Kingdom of Thailand, the Republic of Indonesia and Malaysia.

On the other hand, while imports from GCC countries (a traditional destination market for Pakistani exporters) progressed rapidly in 2001-06, the demand from these countries has stagnated in the past five years. Despite a growing market share, the African continent still holds a very small portion of the market.

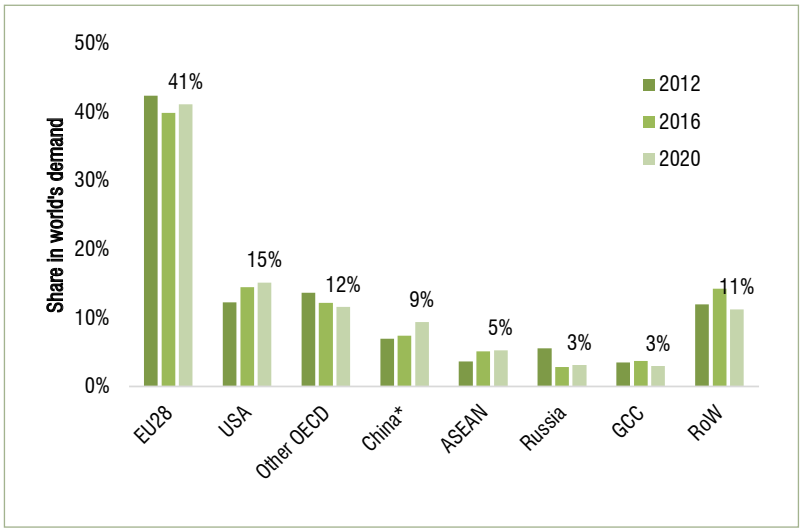
1.– Commodities classified under the Harmonized System (HS) Codes 07 and 08.

Figure 1: World imports of fruits (HS 07) and vegetables (HS 08)



Source: ITC calculations based on UN Comtrade and ITC statistics.

Figure 2: Main importers of fruits and vegetables in the world



Note: Including Chinese Taipei and Hong Kong.
Source: ITC calculations based on UN Comtrade and ITC statistics.

An ever-wider array of fruits and vegetables varieties is being offered to the consumers globally. The international market is characterized by a highly diversified offering, with more than 50 products reporting an import value exceeding $1 billion in 2020. Banana is by far the most traded fruit in the world, with an imported value of $14.5 billion in 2020, or approximately 10% of the total fruit trade. Other top traded fruits internationally that are currently exported by Pakistan include mangoes[2] (HS 080450) and, to a lesser extent, mandarins (HS 080521) and dates (HS 080410), with market shares of 2.5%, 1.9% and 1.1% respectively (see Table 1).

Looking at the vegetables segment, tomato emerged as the most traded commodity globally, capturing 13% of the world's imports of vegetables. While significant volumes of tomatoes are grown in Pakistan, the production is just enough to keep up with the domestic demand, with very small quantities currently being exported. Onions, shallots and potatoes (the top vegetable commodities exported by Pakistan) are in high demand internationally (see Table 2).

2.– In the international tariff nomenclature, mango is clubbed together with guava and mangosteens under a single HS code, HS-080450. Therefore, the global market share for mangos cannot be ascertained.

Table 1: Main fruit commodities imported in the world, in value

HS code	Product	Imported value in 2020 (USD million)	Share in total fruit imports	CAGR 2016–20
'080390	Bananas	14 460	9.7%	3.9%
'080610	Grapes	9 898	6.6%	3.8%
'080810	Apples	7 492	5%	-0.7%
'080440	Avocados	7 190	4.8%	10.5%
080131/32	Cashew nuts	6 619	4.4%	0.1%
080211/12	Almonds	6 354	4.2%	1.3%
'080510	Oranges	6 010	4%	3.9%
'081040	Cranberries, bilberries	4 330	2.9%	14.2%
'080550	Lemons	4 146	2.8%	2.3%
'080929	Cherries	3 882	2.6%	11.7%
'080450	Guavas, mangoes and mangosteens	3 737	2.5%	9.9%
…				
'080521	Mandarins	2 860	1.9%	13.5%*
…				
'080410	Dates	1 693	1.1%	0.8%

Note: In bold are fruit commodities for which Pakistan exports exceed $10 million.
***CAGR** 2017-2020.
Source: ITC calculations based on UN Comtrade and ITC statistics.

Table 2: Main vegetable commodities imported in the world, in value

HS code	Product	Imported value in 2020 (USD million)	Share in total vegetables imports	CAGR 2016–20
'070200	Tomatoes	9 657	13%	2.4%
'070960	Fruits of the genus Capsicum or Pimenta	6 111	8.2%	3.9%
'071080	Frozen vegetables (excluding potatoes)	3 864	5.2%	3.5%
'070190	Potatoes	3 614	4.9%	1.3%
'070310	Onions and shallots	3 575	4.8%	3.1%
'070999	Vegetables n.e.s.	3 063	4.1%	5.6%
'070320	Garlic	3 008	4%	0%
'070700	Cucumbers and gherkins	2 888	3.9%	3.5%
'071340	Lentils	2 799	3.8%	-0.2%
'071310	Peas	2 362	3.2%	-4.4%
'070490	Cabbages	2 038	2.7%	3.3%
…				
'071010	Frozen potatoes	373	0.5%	-2.6%

Note: In bold are fruit commodities for which Pakistan exports exceed $10 million.
Source: ITC calculations based on UN Comtrade and ITC statistics.

Competition is fierce, as more suppliers of F&V are entering the global market. The number of countries reporting an exported value exceeding $1 million from edible fruits trade rose from 114 in 2001 to 135 in 2010 and reached 147 in 2019. A similar trend can be observed in the global trade of vegetables commodities, with 139 countries exporting more than $1 million in 2020, from 109 in 2001 (UN Comtrade, 2020).

Changing consumer preferences are boosting global demand for fruits and vegetables

The global F&V market is registering record growth amid increasing health consciousness. Consumers are becoming more demanding in terms of quality and safety as demographic and income trends lead to increased demand for convenience foods, together with assurances of product safety. Growing consumer health consciousness has deeply impacted demand for convenience food, especially from the EU and the United States, with a growing demand for plant-based, healthy food. The preference for natural diets and the rising recognition of the nutritional value of F&V products also contribute to the overall growth in consumption worldwide.

The trend towards more environmentally friendly consumption can also be seen in spreading consumer awareness of the issue of food waste and the importance of reducing packaging and waste, favouring the consumption of fresh F&V and the use biodegradable packaging materials. This trend is also driven by better access to information about healthy eating habits as well as campaigns by international and national organizations to promote the consumption of fruits and vegetables. Chief among those, the United Nations marked 2021 as the International Year of Fruits and Vegetables, with an appeal to improve healthy and sustainable food production through innovation and technology and to reduce food loss and waste.

Box 1: Health and nutrition benefits of fruits and vegetables consumption

The fall of global petroleum prices will discourage output by existing projects, reduce Government revenues from natural gas exports and pause new exploration. It will also force the Government to choose between proceeding with a planned tender of 33 new blocks at likely discounted prices or waiting and postponing revenue. During any downturn in this sector's investment and production, the Government can still strengthen the sector for FDI and improve its potential to generate revenue for the public budget.

Source: Food and Agriculture Organization (FAO), 2020.

Global demand for horticultural products is expected to experience sustainable and stable growth

Global market demand is rising for convenience products, as population growth, rising disposable income and greater health consciousness have led to higher rates of F&V consumption. This indicates a positive future for the sector. The top trends that have influenced and will continue to influence the industry globally are presented in Table 3.

Table 3: Key global trends in fruits and vegetables

Trends	Implications
Population growth	The growing world population is pushing up demand for food. From an estimated 7 billion people today, the United Nations predicts that the world population will reach 9 billion by 2050. Food security thus takes on unprecedented importance. Demand for fruits and vegetables tends to increase in line with growth in the world population. **Takeaway:** Investment in F&V production holds important potential and an assured growing market if retailer and consumer preferences are taken into account.
Rising per capita income	The global growth in per capita income is also driving up the global demand for F&V. As disposable incomes grow, consumers demand larger quantities of more diverse and higher-quality food, including F&V. As income disparity decreases in developing countries and world demand for food increases, developing countries will likely increase their trade volumes and trade flows in the near future.[3] While industrialized countries still largely dominate F&V trade globally, this trend is already emerging and can be observed through changing dietary patterns of the increasingly affluent middle class in China. **Takeaway:** Export promotion efforts should be mobilized to increase the presence of Pakistan F&V in these markets. The capacity of the national plant protection organization should also be strengthened to negotiate and enforce sanitary protocols and mutual recognition rules with these partners.
Climate change	Erratic weather patterns can make it difficult to plan and grow fresh produce effectively. Poor crop yield due to adverse weather can result in produce shortages, turning to imports to fill the shortfall and subsequent price increases. **Takeaway:** Risk analysis and research on resilient varieties (especially droughts) will be required.
Premiumization	Premium positioning and higher prices are increasingly present as retailers aim to drive sales. Consumers seeking quality and indulgence are prepared to pay a premium for convenience such as pre-chopped and pre-washed fresh food. **Takeaway:** Producers might want to consider developing separate high-quality lines of production for a higher price, targeting the premium market.
Shifting market frontiers	As certain areas become saturated in terms of being over-farmed and over-populated, there is room to shift into emerging economies where the unexplored potential can contribute to growth. **Takeaway:** Pakistan has the potential to position itself as a new high-quality market for large importers such as China and Association of Southeast Asian Nations (ASEAN) member states.
Shopping reinvented	Shifting values and access to the internet are changing the way consumers shop in developed markets. Internet retailing and new concepts such as meal kits broaden retailers' reach. However, this is still niche and traditional retail channels will still dominate. **Takeaway:** Small individual packaging will be increasingly required as retailers shift to e-commerce sales. Producers are encouraged to strengthen their packaging proposition.

Source: ITC.

The global market for F&V is characterized by the following trends:

- The global demand for F&V is growing fast, boosted by changing consumer preferences and increasing health consciousness in high-income countries;
- A robust demand is emerging from developing countries, especially in Asia;
- An ever-wider array of fruits and vegetables varieties is being offered to consumers globally, in particular to make up for off-season F&V;
- An increasing number of suppliers are entering the global market, increasing the pressure on producers' prices and supply chains efficiency.

In addition to the global trends, Pakistani producers will need to integrate a number a success factors in their operations:

- A strong production capacity through excellent farming practices and increased smallholder famer cooperation;
- Improved internal production chain through the integration of marketing channels, transparent supply systems and logistics throughout the chain;
- Spread of certifications such as Good Agricultural Practices (GAP), through establishment of the right conditions of traceability and compliance;
- Coping with climate change risks through research on resilient varieties (especially droughts), as well as clear policy directives;
- Capturing consumption trends such as organic fresh fruits and vegetables.

3.– Barbosa-Cánovas, Gustavo V. and others, *op. cit*. (2003).

PAKISTAN IS A MAJOR WORLD PRODUCER, YET EXPORT POTENTIAL IS NOT REALIZED

In developing an export strategy for Pakistan's F&V sector, the starting place for analysis begins with an understanding of the existing products and markets locally. This section provides an overview of the sector's current state and highlights the most significant segments and trends of domestic and export markets.

Pakistan is a major global producer of F&V

According to agricultural statistics, the area under cultivation of fruits in Pakistan is approximately 0.87 million hectares, out of which 7.2 million tons of fresh fruits is obtained annually. The average production is 8.23 tons per hectare, which is very low compared to advanced countries (i.e. 20–25 tons per hectare.[4] Vegetables are grown on approximately 0.27 million hectares and annual production is 3.5 million tons, while potato is grown on approximately 0.23 million hectares, which gives an annual production of 4.7 million tons.[5]

The main horticultural productions in Pakistan include potatoes, citrus, onions and mangoes, with crops such as potatoes, chillies and tomatoes gaining economic importance in recent years. Potatoes, onions and tomatoes together make up approximately 65% of Pakistan's gross vegetable production. Citrus fruits production constitutes 35% of the total fruits production, followed by mango (25%) (MNFSR, 2021). Table 4 presents the production, area harvested, yields and exports (in quantity) of the main F&V species grown in Pakistan. The comprehensive mapping of the production of F&V by province conducted by the Pakistan Agricultural Research Council (PARC) is presented in Annexes II and III.

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Pakistan is an important player in the global F&V market, with a total cropped area of 19.8 million hectares in 2020 (Pakistan Economic Survey 2020-21). The country is also among the world's Top 10 producers of mango, dates, onions and kinnow.

4.– Pakistan Agricultural Research Council.

5.– Ministry of National Food Security & Research, Government of Pakistan, Islamabad, April 2020 and Ministry of Finance, June 2021.

Table 4: Production and exports of major fruits and vegetables in Pakistan (2020-21)

Commodities	Area harvested (ha) (000)	Production (000s tons)	Yield (hg/ha) (000)	Exports (000s tons)	% exported product	Comments
Potatoes	234.4	4 681	20	355	7.5%	13th largest producer; 11th largest exporter
Mangoes	158	1 722	10.8	65	3.7%	5th largest producer; 7th largest exporter
Citrus	181	2 468	13.6	361	14.6%	12th largest producer; 18th largest exporter
Onions	153	2 099	13	317	15%	6th largest producer; 16th largest exporter
Vegetables, fresh	65	1 074	163	136	13%	
Tomatoes	38	413	10.8	24	5.8%	
Apples	82	543	6.6	0.5	0.1%	
Dates	99	420	4.2	100	23%	5th largest producer; 8th largest exporter
Cauliflowers and broccoli	12.5	212	16.9	71	33%	8th largest producer
Chilies	45.7	103	2.2	0.2	0.2%	5th largest producer
Bananas	29.7	135	4.5	9.3	69%	

Source: Pakistan Economic Survey 2020–21.

High potential for growth that would come with an important socioeconomic dividend

Although the country is considered to be agrarian, the agriculture sector faces challenges on account of reduced arable land, water scarcity and climatic problems. A significant portion of the labour force is shifting from rural and agrarian bases to the urban centres. The major crops like wheat, cotton and sugarcane have been facing issues owing to natural and industrial malpractices. Under these circumstances, it essential that a particular focus is put on the F&V sector, as a large number of commodities can be grown efficiently on relatively smaller landholdings.

FAVOURABLE AND DIVERSIFIED AGROECOLOGICAL CONDITIONS

Pakistan benefits from a wide range of geographical and climatic zones as well as different types of soil (from clayey to sandy and loam soils), including temperate, tropical and sub-tropical. This supports the growing of variety of food crops and fruits and vegetables. The country's total area is 79.6 million hectares, of which 19.8 million hectares was cropped area in 2020.[6] The climatic differences throughout its vast territory allow Pakistan to be a year-round supplier of a wide variety of produce. In this regard, it is also to be noted that big portions of virgin, unused land are still available where modernized contract farming on commercial lines can be very productive in the F&V sector.

Some of the main species grown in the country are presented in Table 5. The country also benefits from the world's largest contiguous irrigation system, with almost 80% of the cultivated area irrigated.[7]

6.– Pakistan Economic Survey 2020–21.

7.– FAO, United Nations.

Table 5: Main fruits grown in Pakistan

Broad categories of fruit crops	Main species grown in Pakistan	Main production regions
Temperate fruit	Apple, apricot, cherry, peach, pear, plum, grape, strawberry and currant	Mountainous areas of Balochistan, Khyber Pakhtunkhwa, Punjab and Gilgit-Baltistan
Tropical fruit	Banana, mango, guava, papaya and tamarind	Southern part of the country
Subtropical fruit	Date, fig, orange and pomegranate	Plains and plateaus of Punjab and Sind

Source: ITC.

MASSIVE SOCIOECONOMIC IMPACT POTENTIAL

The F&V sector continues to play a major socioeconomic role in Pakistan despite its decreasing economic share. Pakistan has been an agrarian economy for most of its history. Although the share of agriculture to the country's gross domestic product (GDP) has reduced, the sector still contributes 19.2% to the GDP and approximately 38.5% of the labour force.[8] With agricultural production being dominated by small-scale producers, the F&V sector holds tremendous job creation potential. It is also estimated that 70% of the country's population is dependent on agriculture for their livelihood.[9]

Therefore, this sector's actual contribution in the context of Pakistan's economy cannot be gauged only on the basis of figures. According to Asian Development Bank figures, approximately 25% of Pakistan's population lives below poverty lines and rural areas are the most affected. Modernizing the agricultural sector will bring about a considerable source of revenue for smallholder farmers in villages, in turn facilitating access to education for children and reducing child work, which is still very much present in the agriculture sector due to the rural population's financial constraints. Enhanced productivity of the F&V segment can play an important role in such development.

Growing the sector also represents a considerable opportunity for women's economic empowerment. With women being majorly involved in economic activities across the horticulture value chain, the sector's expansion holds tremendous potential for increased income generation for women, in turn contributing to their empowerment and a dignified standard of living. Given its high employment and spillovers potential, a thriving horticultural sector would have a profound socioeconomic impact, also contributing to rural development.

IMMENSE UNTAPPED EXPORT POTENTIAL

While the emphasis is currently on catering to the domestic market, tremendous export potential remains untapped. As described above, it is anticipated that the global demand for F&V will continue to grow in the near future, offering promising opportunities for Pakistani exporters. According to ITC's Export Potential Map, fruits and vegetables untapped export potential amounts to $748 million and $200 million respectively. The tool estimates that the unrealized potential is considerable for most F&V commodities currently traded by Pakistan, starting with its flagship products, citrus fruits, mangoes and bananas (Figure 4). The tool further indicates that a number of currently untapped markets could generate significant revenue for Pakistan's exporters of horticultural produce, including China, European and North American markets (see Figure 3).

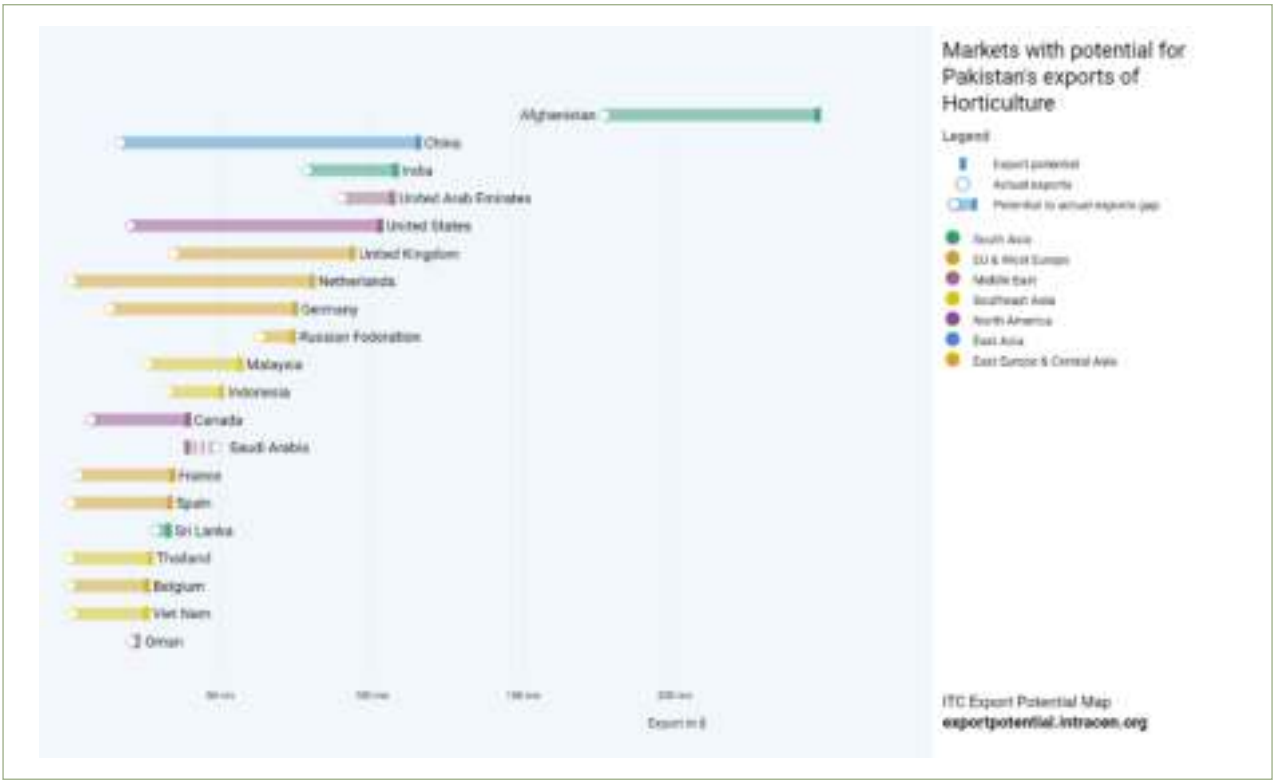
Currently, approximately 91% of the fruits produced in Pakistan are consumed locally, as the domestic demand, driven by a growing population and rising disposable incomes, absorbs most of the horticulture produce. The remaining 9% is either exported (6%) or processed into value-added products such as pulps, concentrates, frozen and preserved products (3%).

Developing domestic F&V value chains offers important prospects for import substitution. Despite the fact that most of the domestic production is consumed locally, Pakistan continues to be a net importer of horticultural commodities. Increasing the production of F&V produced through improved productive capacities and more efficient agricultural value chains will allow the sector to generate additional export revenues and to better cater for the domestic demand and, by way of consequence, contribute to import substitution.

8.– Pakistan Economic Survey 2020–21.

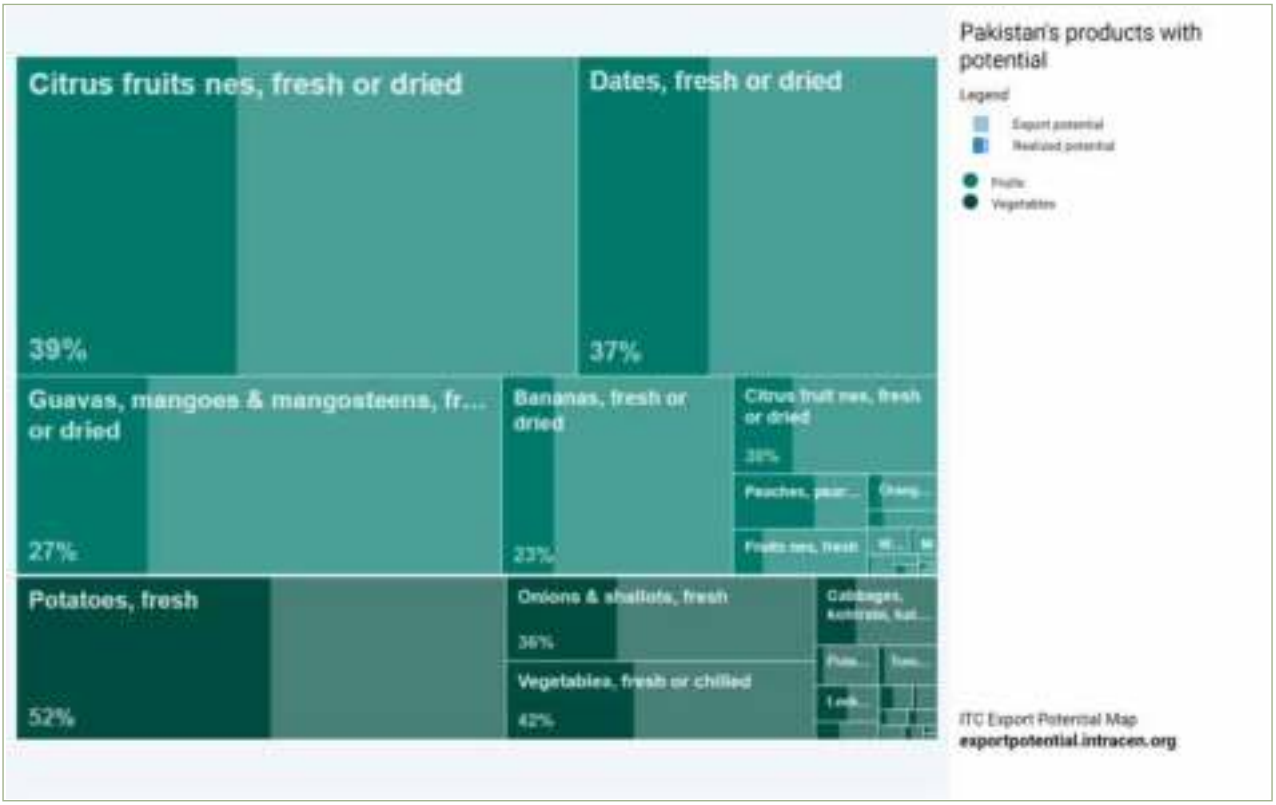
9.– *Ibid.*

Figure 3: Export potential markets for the fruits and vegetables sector



Source: ITC Export Potential Map.

Figure 4: Pakistan's fruits and vegetables with export potential



Source: ITC Export Potential Map.

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POSSIBLE SYNERGIES WITH THE FOOD INDUSTRIES

Upgrading F&V value chains will allow to better cater for the needs of the domestic processed food and beverages industry, therefore stimulating value addition through processing. Pakistan can explore value-addition opportunities through fruits and vegetables processing, in particular in its top exported horticultural commodities, including citrus, mango and potato. The product space for the processed horticulture food segment is concentrated in potato fries and chips, citrus juices and jams, as well as tomato paste and ketchup. However, processing export-quality food products is currently constrained by the unavailability of industrial-grade varieties and surplus production, among other things. Improving yields and the varieties produced and expanding the associated downstream industry in a more structured and modern way shall, therefore, ensure that processing firms have consistent access to quality raw material suitable for industrial processing.

Note: A specific Processed Food and Beverages Export Strategy was designed under the National Priority Sectors Export Strategy (NPSES)/STPF initiative.

A diversified product basket

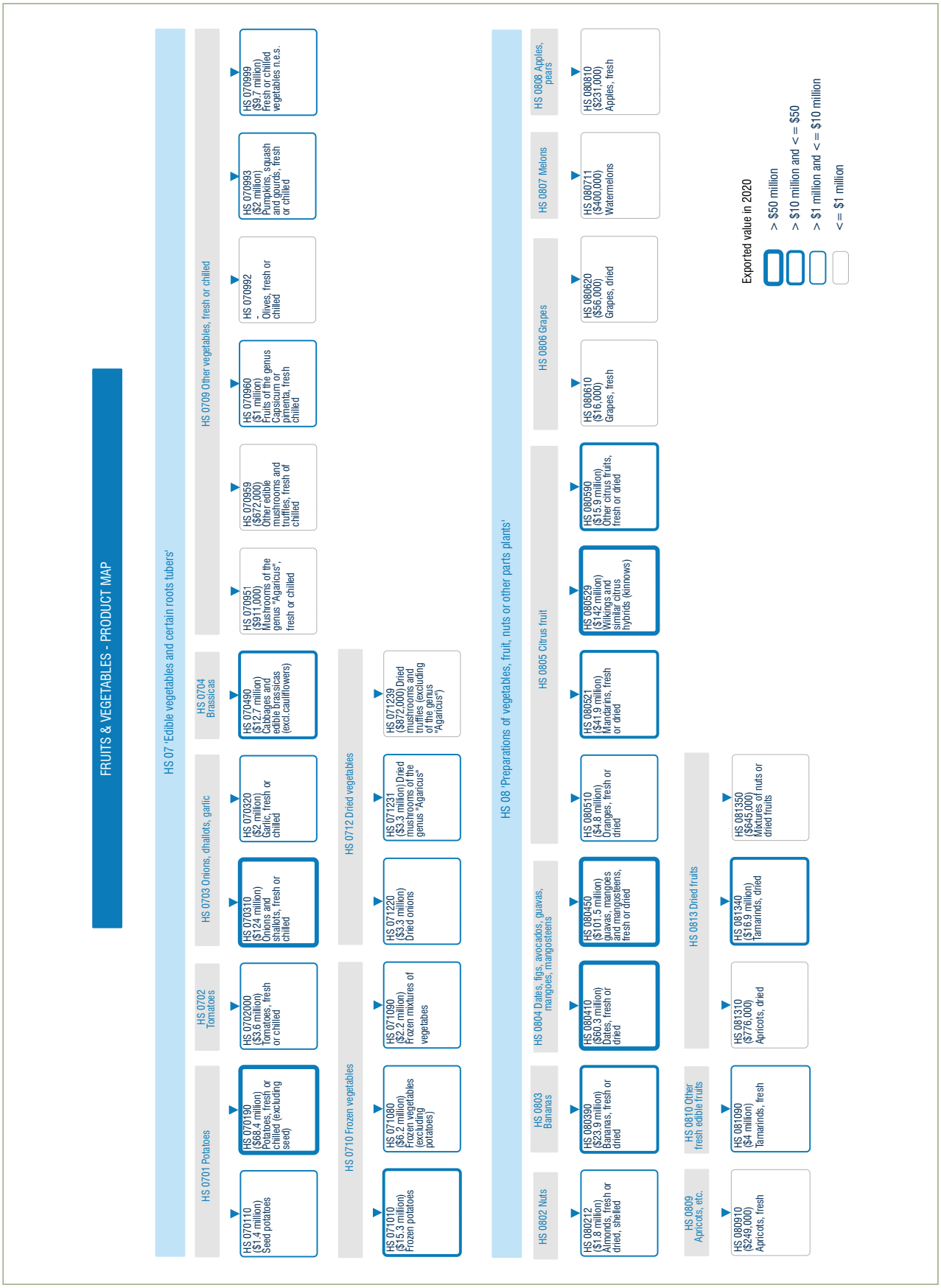
The present F&V sector strategy focuses on the following goods, as classified under the Harmonized System (HS), international nomenclature for the classification of products:

- HS 07: Edible vegetables and certain roots and tubers;
- HS 08: Edible fruit and nuts; peel of citrus fruit or melons.

These categories comprise a wide array of products in raw or minimally processed forms, including frozen and dried products.

As Pakistan is unable to produce, or export in significant volumes, all F&V commodities covered under the above-mentioned classification, a product map defining the strategy's scope was established. This map presents F&V that are currently being exported as well as some products that are grown locally and that could present significant export potential in the near future. While this list is not intended to be fully exhaustive, it allows readers to gain a better understanding of the range of products covered as well as a grasp of the sector's current external position. The product map is presented in Figure 5.

Figure 5: Product map for fruits and vegetables



Source: ITC calculations based on UN Comtrade and ITC statistics.

Pakistan's horticultural sector is characterized by the following elements:

- Benefitting from favourable and diversified agroecological conditions, Pakistan is one of the top producers of F&V globally, in particular producing large quantities of potatoes, citrus, onions, dates and mangoes.
- Pakistan's horticultural production base is highly fragmented, with approximately 85% of the orchards in Pakistan having an area of less than 12.5 acres.
- The horticultural sector plays a major socioeconomic role in Pakistan, in particular for women's economic empowerment.
- The emphasis is currently on catering to the domestic market.

While Pakistan is a major producer of horticultural products, its tremendous export potential remains largely untapped. The sector's structure, the characteristics and varieties of the F&V grown locally, and the way in which F&V are being cultivated, aggregated and transported have a huge bearing on the sector's trade performance and have a tremendous impact on its competitiveness.

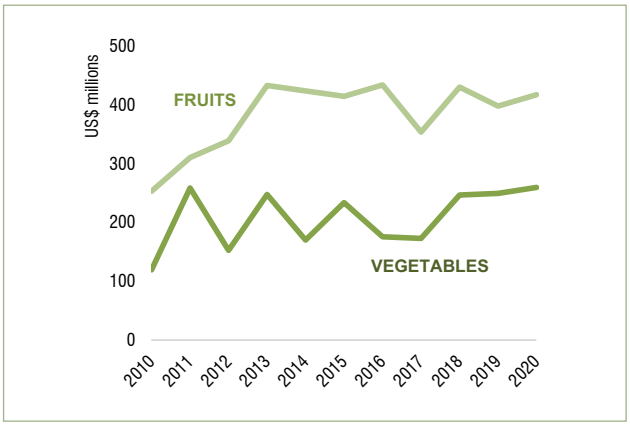
Pakistan is yet to reap fruits from trade

Pakistan's exports earnings from the F&V sector remain limited and lack dynamism. Together, exports of fruits and vegetables were worth $679 million in 2020, of which fruits made up 61% ($419 million), accounting for approximately 3% of Pakistan's total product exports (see Figure 6). Export growth in value terms has been relatively slow and volatile in recent years, only progressing at a rate of 2.6% per annum in 2016–20, with no clear upward trend. This reflects an overall lack of sophistication and dynamism in the sector.

Despite the favourable resource base, Pakistan remains a minor player in the global market of F&V, with a market share in world exports of less than 0.5% (0.33% in 2020) (see Figure 7). The global market share for Pakistan flagship commodities is relatively low, as Pakistan retains less than 1.3% share in world exports of citrus fruits, 1.6% share in world exports of potatoes and 2.8% in mangoes, three of the main commodities with the potential to increase exports in the future.

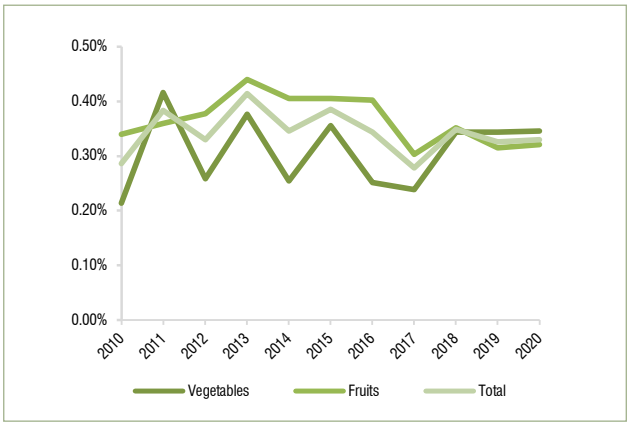
According to Pakistan Horticulture Vision 2030, prepared by the FPCCI, the sector should achieve exports of $2 billion by 2021 and $6 billion by 2030. The Ministry of Commerce, under the STPF 2020–25, projects more reasonable targets, anticipating that fruits and vegetable exports will reach $1.2 billion to $1.3 billion in 2025.

Figure 6: Pakistan's exports of fruits and vegetables



Source: ITC calculations based on UN Comtrade and ITC statistics.

Figure 7: Pakistan's share in global F&V exports



Source: ITC calculations based on UN Comtrade and ITC statistics.

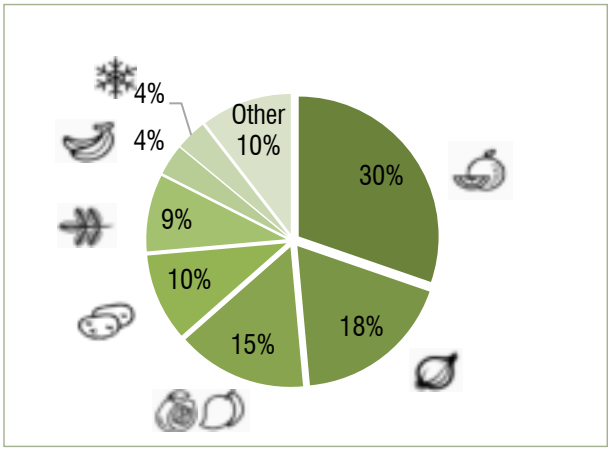
Pakistan's horticultural exports are concentrated in a few commodities. Citrus fruit, and kinnows in particular, largely dominate exports from the fruit segment, accounting for approximately half of the sector's revenues (or 30% taking into account both fruit and vegetables). Other major commodities constituting the fruit export basket include mangoes and dates, capturing 24% and 14% of Pakistan fruit exports respectively. Other significant exported commodities include bananas and dried fruits (to be specified using national export data), though in relatively limited volumes.

Similarly, the vegetables subsector is largely dominated by onions (48%) and potatoes (27%) (see Figure 8). Exports of frozen vegetables, and frozen potatoes in particular, have recently gained importance, with export earnings reaching a historic high of $24 million in 2020, reflecting recent development in cold chain systems in the fruit and vegetable industry with improved technology. Cabbages and similar edible brassicas also generate substantial revenues ($12.7 million in 2020).

Together, citrus fruit, mangoes, dates, onions and potatoes constituted more than 80% of Pakistan's export revenues generated from the F&V sector in 2020, shedding light on the highly concentrated nature of its export basket.

The F&V varieties produced in Pakistan are not the favourites in international markets. Among the top globally traded horticulture commodities, Pakistan only exports citrus and potatoes in reasonable quantities. While the country produces a number of commodities that are in high demand globally, the varieties grown domestically do not necessarily meet the quality requirements and characteristics that international consumers demand.

Figure 8: Pakistan's exports of F&V, in value (2020)



Source: ITC calculations based on UN Comtrade and ITC statistics.

—Table 6: Main F&V exported by Pakistan in 2020, — in value

HS code	Product	Exported value in 2020, USD million	Share in total F&V exports
'0805	Citrus fruit	205.4	30%
'070310	Onions	124	18%
'080450	Guavas & mangoes	101.5	15%
'070190	Potatoes	68.4	10%
'080410	Dates	60.3	9%
'080390	Bananas	23.9	4%
'0710	Frozen vegetables	23.9	4%
	Other	71	11%

Source: ITC calculations based on UN Comtrade and ITC statistics.

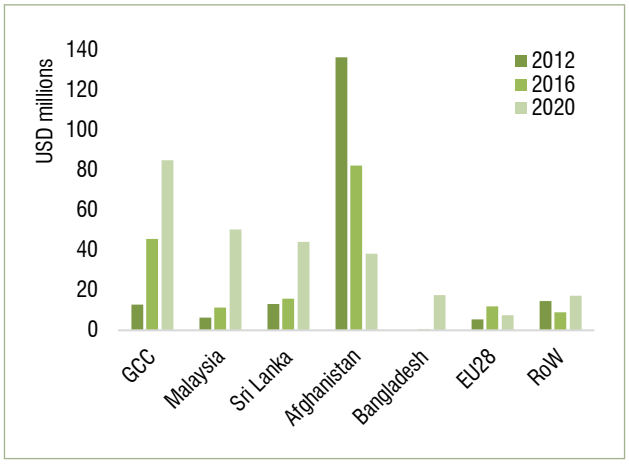
Much like its export basket, Pakistan's F&V export market base is limited to a few destinations. The majority of the fruits cultivated in Pakistan are exported to GCC countries (32%), Afghanistan (21%) and the Russian Federation (12%), together capturing approximately two-thirds of the fruits exported in 2020. In addition to citrus, the Gulf region has become a major market for mangoes and dates produced in Pakistan in the past decade, with a market share close to 50% for these commodities. Trade with Afghanistan, the largest single market destination for vegetables exports, consists mainly of citrus and bananas, the country capturing the quasi-totality of the low-quality bananas exported by Pakistan. In 2021, Russian Federation imports of F&V produced in Pakistan consisted exclusively of citrus fruits. The same observation can be made for emerging markets, including Indonesia and the Republic of the Philippines.

Few commodities have so far managed to meet stringent quality and food safety standards imposed by the EU. These include mango (accounting for 64% of Pakistani exports of fruits to the EU) and dates (24%). Europe (excluding the Russian Federation) currently accounts for approximately 10% of Pakistan's total fruits exports, generating an estimated $41 million in 2020, the bulk of it being destined for the United Kingdom, which captures 63% of Pakistan fruits exports to Europe. It is to be noted that, due to serious issues of quality, the All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA) has imposed a self-ban on kinnow exports to the EU since 2014 to avert any possibility of a ban by the EU, which could be even more harmful for producers in the long run.

Regional trade disruptions have contributed to the volatility of Pakistan exports. The Islamic Republic of Iran, one of the largest markets for kinnow, imposed a ban on import of Pakistan's kinnow in 2012 to protect its local market. Restrictions have been lifted for the 2021–22 season, therefore offering promising opportunities for citrus farmers. Tensions in the Kashmir region also resulted in trade disruptions with the Republic of India, as trade and diplomatic ties were halted between the two countries in 2019. As a direct consequence, exports of dried dates to India, which amounted to approximately $90 million per year in 2016-18, are now nil.

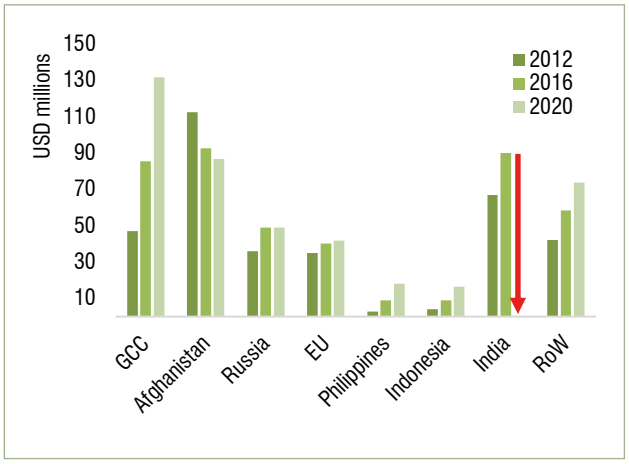
Once highly dependent on the Afghan market, Pakistan has expanded its exports base for vegetables to new destinations, including GCC countries (accounting for 33% of Pakistan's vegetables exports in 2020, in value terms), Malaysia (19%) and the Democratic Socialist Republic of Sri Lanka (15%). As for the vegetables segment, international sales from Pakistan are highly concentrated in a limited number of markets, as the top four destinations account for 68% of the export revenues generated by this subsector. Malaysia emerged as Pakistan's largest single market destination for Pakistani vegetables, in particular for onions and shallots, which constitute the bulk of its exports (82%). This progression can be partly attributed to the preferable export conditions granted to producers under the Malaysia–Pakistan Closer Economic Partnership Agreement (MPCEPA), which came into effect in 2008 (Pakistan's exports to Malaysia have increased at a rate of 4.9% since the implementation of MPCEPA).[10]

Figure 9: Importing markets for vegetables (HS 07) exported by Pakistan (2020)



Sources: ITC calculations based on UN Comtrade and ITC statistics.

Figure 10: Importing markets for fruits (HS 08) exported by Pakistan (2020)



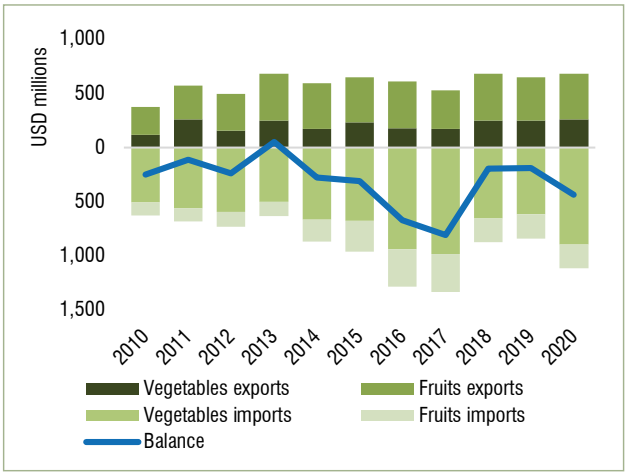
Sources: ITC calculations based on UN Comtrade and ITC statistics.

While vegetables exports to GCC countries and Sri Lanka are currently limited to onions and fresh potatoes, these newly created trade relationships point to future opportunities for the supply of other F&V commodities. With a 15% market share in 2020 (compared to 72% in 2012), Afghanistan remains an important export destination, in particular for cabbages, frozen potatoes and tomatoes.

Despite its agriculture-based economy and the optimism to see fruits and vegetables become major export-earning commodities, Pakistan continues to be a net importer of horticultural commodities. In 2020, the country imported $1.1 billion worth of F&V – more than half of which consisted of dried leguminous vegetables – resulting in a trade deficit of $435 million (UN Comtrade, 2020) (see Figure 11). Pakistan notably imports large volumes of tomatoes, grapes and apples from Afghanistan.

10.– Pakistan Business Council (2020). 'Second Review of the Malaysia – Pakistan Closer Economic Partnership Agreement (MPCEPA)'. Available from https://www.pbc.org.pk/wp-content/uploads/Second-Review-of-the-Malaysia-Pakistan-Closer-Economic-Partnership-Agreement-MPCEPA.pdf.

Figure 11: Trade balance – fruits and vegetables



Source: ITC calculations based on UN Comtrade and ITC statistics.

–Table 7: Main F&V commodities imported by Pakistan - in 2020, in value

HS code	Product	Imported value in 2020 (USD million)	Share in Pakistan's total F&V imports
'0713	Dried leguminous vegetables	655	58.8%
'070320	Garlic	102	9.2%
'070200	Tomatoes	65	5.8%
'080610	Grapes	60	5.4%
'080810	Apples	36	3.2%
'070310	Onions and shallots	28	2.5%

Source: ITC calculations based on UN Comtrade and ITC statistics.

The Pakistani F&V sector's trade performance is characterized by the following elements:

- Pakistan is a minor player in the global F&V market, with export earnings only amounting to $679 million in 2020 (UN Comtrade).
- Export growth has been relatively slow and volatile in the past decade, with no clear upward trend.
- Pakistan's horticultural exports are concentrated in a few commodities: citrus fruit, mangoes, dates, onions and potatoes. These constitute more than 80% of Pakistan's export revenues.
- The characteristics and varieties of most F&V grown in Pakistan do not meet the quality requirements and consumer preferences that the main importing markets demand.
- Exports of F&V from Pakistan are limited to a few destinations, dominated by GCC countries and Afghanistan. Only a few commodities have so far managed to penetrate the highly demanding EU and North American markets.

The above analysis points at the urgent need for the Pakistan horticultural sector to work towards greater product and market diversification. This transition has so far been hindered by a number of bottlenecks and issues along the value chain, starting at the farm input level to the production of F&V, and finally to managing distribution and marketing effectively.

VALUE CHAIN AND COMPETITIVENESS DIAGNOSTIC

Value chain mapping

A sector dominated by smallholder farmers selling their produce locally

According to the PFVA, approximately 85% of the orchards in Pakistan have an area of less than 12.5 acres. These agricultural holdings are spread all over the country, with some concentrations with only a limited number of specialty farmers operating in the country. It is also to be noted that there are no established large-scale players for fruits and vegetables in Pakistan.

In the absence of proper post-harvest services, storage facilities and farmers' economic conditions, most of the production originating from small landholdings is sold immediately to the wholesale markets in their vicinity. In such cases, farmers usually get the lowest margin. These small markets exist all over the country and some large markets are established around the areas that are specialized in production particular commodities, such as Multan for mangoes, Okara for potatoes and Sargodha for citrus. Similarly, middle-level farmers are forced to dispose of their products within a limited period of time following the harvest due to the unavailability of sufficient and appropriate warehousing facilities.

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The key role of *arthis* in the F&V supply chain

In most market segments, crops are generally purchased by commission agents called *arthis* who also provide informal credit for agriculture as well as fertilizer and pesticides, in particular in sowing and pre-harvesting seasons. In return, *arthis*, which are also wholesalers, purchase the products at quite cheaper rates, therefore capturing a large chunk of the money generated from sales of F&V. Despite this relative loss of revenue, small farmers cannot survive without *arthis'* financial support, in particular for those operating in segments considered risky and not creditworthy by banks. These commission agents are still particularly present in the mango and green vegetables segments, but less so in the kinnows and potatoes value chains, where most exporters buy directly from the farm.

F&V produced are mainly sold to the domestic market through relatively unorganized wholesale markets

Fresh produce is then sold to large wholesalers at higher prices, mainly catering for the domestic market, as the overall lack of modernized grading, packing, transportation and storage facilities does not leave much margin for export. Wholesale markets are not very organized and there is no mechanism to check market distortions.

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INSTITUTIONAL AND POLICY SUPPORT ECOSYSTEM

The F&V sector's success will not only depend on the internal capacities of the companies operating in the industry, but also on the role of the various ministries and public institutions, as well as other technical agencies. For the sector to achieve long-term sustainable growth, participating enterprises must be able to rely on a capable network of government and private sector support institutions. The overall trade support network (TSN) of Pakistan's F&V sector is considered for this sector strategy as the aggregate institutional framework in the country, bringing together those institutions that have a particular interest in or bearing on the sector's export development and competitiveness. Broadly, the TSN presented in Box 2 comprises the following support areas: policy support network, trade services network, business services network, and educational services and civil society network.

Certain capacity and resource issues must be addressed if these institutions are to support the industry effectively.

The Department of Plant Protection (DPP). The DPP is mandated to undertake field inspections to verify the quality of the products and to issue certification of SPS. It is the responsibility of either the DPP or the consignee to draw the samples from fruit and vegetable consignments, as per the contract conditions or prevailing quarantine law. In order to allow the department to perform its function more efficiently – in particular, to enforce national and international quarantine and pesticides laws/regulations, as per the DPP's mission – its human and material resources should be strengthened, focusing on building staff capacity to control and support export commodities. The DPP's capacity to negotiate and enforce sanitary protocols and mutual recognition rules – in particular for maximum residue levels (MRL) – with partner countries should also be enhanced *(PoA Activities 2.2.2 and 3.3.4).*

The Pakistan Standards & Quality Control Authority (PSQCA). In addition to its function to foster and promote standards and conformity assessment in Pakistan, the PSQCA was designated by MoC as the country's technical barriers to trade (TBT) enquiry point. As such, the authority provides information on other countries' regulations, assists exporters, and provides information about accredited labs and certification bodies, and government-registered inspection agencies. Support to the PSQCA should, therefore, be considered a priority, particularly to update the relevant standard specifications in line with international benchmarks *(PoA Activity 2.2.4).*

The Trade Development Authority of Pakistan (TDAP). Overall, the TDAP's support in promoting the F&V sector was perceived positively by the private sector representatives consulted as part of the strategy's design process. Additional support is nevertheless needed to strengthen the authority's market intelligence function, including the elaboration of tailored market strategies for the main export crops and the provision of training workshops on international market requirements for F&V exporters *(PoA Activities 3.2.2, 3.2.3 and 3.3.1).*

Provincial agricultural extension departments. Extension departments are instrumental to diffuse knowledge and increase profitability among farmers. In this regard, it will be vital to provide technical and pedagogical training for provincial staff, in particular on GlobalG.A.P. principles and pest control management systems *(PoA Activities 1.1.4 and 1.1.5).*

Box 2: Trade and investment support institutions supporting the fruits & vegetables sector

Policy support	Ministry of Commerce (MoC) • Pakistan Horticulture Development and Export Company (PHDEC) Ministry of Finance • Planning Division • Federal Board of Revenue (FBR) Ministry of National Food Security & Research (MNFSR) • Agricultural Policy Institute (API) • Department of Plant Protection (DPP) • Federal Seed Certification & Registration Department (FSC&RD) • Provincial agricultural departments • Provincial food authorities • Provincial agricultural extension departments Ministry of Science and Technology • Pakistan Council of Scientific and Industrial Research (PCSIR) • Pakistan Standards & Quality Control Authority (PSQCA)
Trade services	Federation of Pakistan Chambers of Commerce & Industry (FPCCI) Ministry of Industries & Production • Small and Medium Enterprises Development Authority (SMEDA) Ministry of Commerce • Trade Development Authority of Pakistan (TDAP) All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA) Pakistan Crop Protection Association (PCPA)
Business services	Ministry of Maritime Affairs • Directorate General Ports & Shipping Zarai Taraqiati Bank Limited
Academia and civil society	The University of Agriculture Faisalabad (UAF) Pakistan Agricultural Research Council (PARC), under the MNFSR Provincial Agricultural Universities & Research Organizations Centre for Agriculture and Bioscience International (CABI) Pakistan Agriculture Coalition (PAC)

CURRENT INITIATIVES, POLICY AND REGULATORY FRAMEWORK

Pakistan's Vision 2030

Under the policy framework of Pakistan's Vision 2030 as finalized by Pakistan's Planning Commission, special focus has been given to agriculture. By adopting a cross-sectoral approach, poverty in rural areas will be reduced by increasing agricultural production and providing support to small farmers in terms of special credit, certified seed training and small farm equipment. It also envisaged the establishment of a special fund for financing operations by local communities through village organizations and farmers' schools. The document aims at a more inclusive and efficient agriculture and food system through enhancing the agriculture sector's competitiveness. The following steps will be taken in this regard:

- Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) will be adopted.
- Standards will be set for agricultural commodities from Pakistan to create more opportunities for export.
- Private sector-led growth will be ensured by promoting investments in value-added products for domestic and export markets such as floriculture.
- The market systems for perishable commodities will be improved. Investment in transport and preservation technologies will be promoted.
- The structural transformation of agriculture from small-scale to commercialized agriculture will be ensured and the non-farm sector, including agro-processing, will be enhanced.
- Market development, including input, output and rural financial markets, will be intensified.
- Small farmers' asset ownership will be enhanced by improving access to land, water and livestock.

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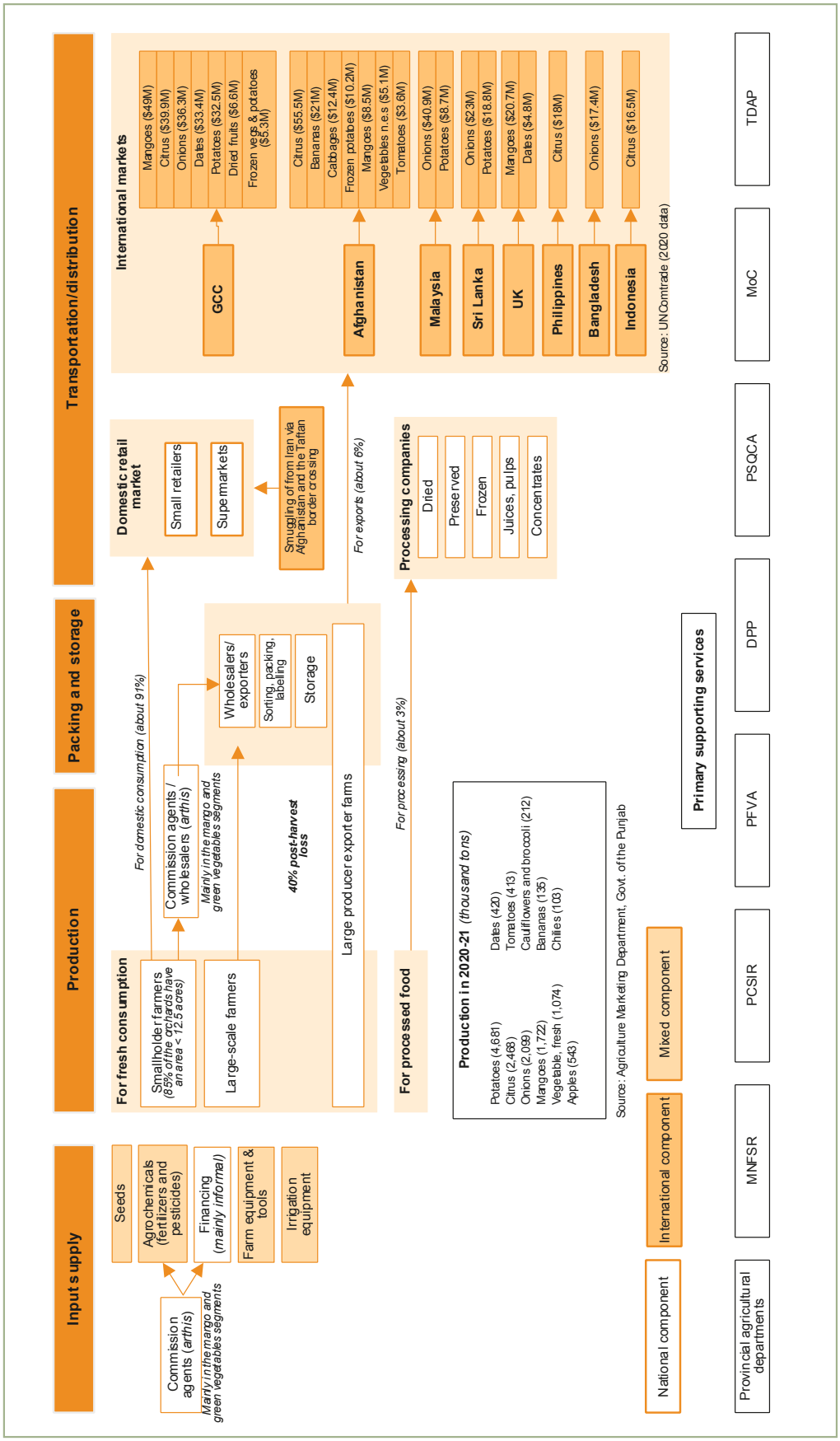
- Institutional and legal changes will be done regarding the ownership, supply and use of water.
- Special attention will be given to reduce the loss of fertile land to urbanization.

The Cabinet's Economic Coordination Committee (ECC) also decided about the import and export of various food and vegetables depending on the domestic market conditions. In order to ensure sufficient supply to the domestic market, statutory regulatory orders are also issued to restrict the exports for some time or at particular times of a season. Kinnows cannot be exported before 1 December, while mangoes export is allowed after 20 May. Similarly, export of potato to Afghanistan was stopped in 2020. Bilateral trade issues can crop up, particularly with India. Pakistan had significant trade of F&V with India, which was banned for 2019–20.

Advocate for the development of a horticulture policy (PoA Activity 2.1.2)

Voices have been raised during the stakeholder consultations undertaken as part of the present strategy's design phase to establish, in consultation with the provincial governments and the private sector, and enforce a national horticulture development framework, or horticulture policy, focusing on F&V with export potential. Strongly supported by the PFVA, the policy's key objectives would be to improve yields, acquire better-quality seeds and upgrade technologies for food processing, packaging and transportation. It should also support the sector to set up better coordination among the players to facilitate the business running smoothly. Perhaps most importantly, developing such a regulatory framework would send a strong signal to the sector, demonstrating the government's commitment and dedication to work towards a more competitive F&V industry.

Figure 12: Value chain diagnostic



Source: ITC.

Competitiveness constraints

The value chain diagnostic above outlines the operations of the F&V sector in Pakistan and provides an overview of the constraints faced by stakeholders at each stage in the chain. To remain realistic and resource efficient, this strategy will not be able to focus on all the issues affecting the value chain. An informed selection of the most important issues was made. To assess relative importance, criteria used are the level of disturbance (perceived by national stakeholders) and the ease of resolution (both in terms of cost and time involved). The most pressing issues are presented in this section.

Table 8: Longlist of competitiveness constraints

Constraints	Root causes	Ease of resolution (Grade 1-5; 5-very difficult)	Urgent action needed (Grade 1-5; 5-very urgent)
Input supply level			
The seed varieties available in Pakistan are of low and inconsistent quality and do not meet international consumer preferences	• Most varieties currently grown domestically are not the most successful on international markets in terms of taste and quality standards, in particular for commodities such as citrus, potatoes and bananas, etc.[11]	4	1
	• Limited number of domestic seed companies.	3	4
	• Overall inadequacy of the seed multiplication system to meet the demand, in particular for export-oriented commodities.	3	4
	• Time-consuming process for the registration of new seeds.	2	4
Lack of accessibility to and misuse of appropriate agrochemicals	• The use of pesticides and fertilizers remains largely unchecked and unregulated. Agrochemicals are often provided by intermediaries, allowing for unauthorized products purchases.	3	1
	• Small farmers are insufficiently sensitized about the quantities of agrochemicals to use and when to use them.	4	2
	• Obsolete PSQCA standards specification on maximum limits for pesticides residues.	1	3
Prospects of climate change and depleting water resources are a threat for the sector	• Patterns of rain and temperature conditions have changed, resulting in changes in plant and F&V physiologies. This also affects post-harvest handling requirements.	5	1
Production level			
Outdated production technology	• Limited availability of quality, pest-free planting material.	2	3
	• Limited uptake of modern irrigation facilities, such as drip irrigation, and water management infrastructure, resulting in waste and contributing to keeping the yields at a low level.[12]	3	2
	• Prevalence of traditional practices with limited farm mechanization technology.	4	1
	• Inadequate post-harvest infrastructure for sorting, packing and storage (these operations are currently done manually).	3	1
Lack of traceability and poor implementation of hygiene measures	• Poor on-farm sanitary and phytosanitary standards (SPS) enforcement.	3	2
	• Limited uptake and awareness of quality management systems.	3	2
	• Limited financial resources of individual smallholder farmers to implement traceability measures.	4	1

11.– Potato variety with high solid and starch content for potato starch, potato powder. Banana variety with high aesthetic value. Seedless citrus variety. One successful such example: PARC G1 variety of garlic recently introduced in Pakistan through adapting it in garlic-growing area of country. This variety is suitable for export and for garlic paste processing.

12.– According to the PFVA, 60% of irrigation water goes to waste.

Constraints	Root causes	Ease of resolution (Grade 1-5; 5-very difficult)	Urgent action needed (Grade 1-5; 5-very urgent)
Insufficient compliance with international food safety and quality standards	• Absence of sanitary protocols and mutual recognition rules (particularly for maximum residue levels (MRL) with other countries on F&V.	3	1
	• Difficulties satisfying product testing and certification obligations.	3	2
	• Obsolete PSQCA standards specification on maximum limits for pesticides residues.	1	3
	• Limited adoption of internationally recognized quality and food safety management systems.	3	2
Distribution and market access level			
Smuggling of fruits and vegetables creates market distortions	• Insufficient control of land routes to the neighbouring countries. • Arrivals of F&V from Iran via Afghanistan and through the Taftan border crossing through illegal channels cause substantial losses for local producers, as they fetch lower prices than domestically produced F&V.	4	4
Smuggling of fruits and vegetables creates market distortions	• Insight into international market trends is limited due to an insufficiently developed market intelligence function. • There is no easily accessible and updated information portal for all relevant information that an exporter needs.	1	3
	• Absence of clear marketing strategy for F&V exports from Pakistan.	1	3
	• The capacities of most exporters on international market requirements (marketing, quality, consumer preferences, labelling and packaging, etc.) are limited. • The TDAP's market intelligence function does not currently allow for the provision of tailored market strategies for the main export crops, or for the provision of capacity-building activities to F&V exporters on international market requirements.	3	2
Pakistan lacks cold chain systems that can cater to an export-oriented F&V sector	• Existing cold storages units are reportedly based on inefficient technology and machinery.	4	1
	• Lack of proper warehouse and cold storage facilities at major borders points.	3	1
	• Currently, the limited domestic demand and the low anticipated margins do not justify heavy investment in a high-quality cold chain from the private sector.	4	3

Deeper discussion of selected priority issues

SUPPLY LEVEL

Low yield in the horticultural sector puts the sector at a disadvantage on the international scene

While the country produces a wide variety of F&V commodities, Pakistan's farm production suffers from low crop yields compared to international benchmarks, which limits space for exports. The per acre produce from the land is low, partly due to varieties that are not adapted to soil and climate, the limited uptake of good agricultural practices and technology and the insufficient development of irrigation systems and adapted post-harvest infrastructure. Together, these factors result in an estimated 40% of post-harvest loss.

1. The prevalence of traditional ways of production contribute to keeping down yields. The limited uptake of good agricultural practices on the one hand, and the lack of modern farm mechanization technology on the other, largely contribute to the low yields reported in the production of F&V commodities in Pakistan. In particular, inefficient and poor-quality farm machinery and poor handling techniques contribute to the deterioration of the fresh produces and result in high losses. Adequate technological upgradation at the farm should be encouraged, access to agriculture machinery and farm equipment improved and better farm management practices promoted.

2. Yields are affected by depleting water resources and the limited adoption of modern irrigation systems. Since the irrigation system is supply based rather than demand based, the system cannot allocate any additional water supplies for horticulture crops. Against this backdrop, it is of utmost importance that state-of-the-art irrigation facilities, such as drip irrigation, and water management infrastructure be developed in order reduce waste and allow for improved yields. Climate change is aggravating the situation, as changed weather conditions, in particular pattern of rain and temperature conditions, lead to water scarcity.

3. The prevalence of plant diseases and pests further affect crops yields and deteriorates the products' quality. Most orchards face acute viral diseases and insect infestation such as fruit fly and thrips, which is a hurdle in commodities reaching international markets.[13]

4. The absence of proper post-harvest services and storage facilities, including storage places with controlled temperature, also results in the rapid deterioration of fresh produce, forcing most farmers to sell their products immediately to wholesale markets in their vicinity.

Compliance with international food safety and quality standards constitutes a major hurdle for F&V exporters in Pakistan

Difficulties satisfying product testing and certification obligations constitutes an important bottleneck in the F&V value chain. Fresh F&V exporters experience difficulties with conformity assessment requirements, and in particular the time and costs to obtain the required quality and SPS certificates, as confirmed by the ITC NTM survey conducted in Pakistan in 2019.[14] High costs and administrative hurdles related to conformity assessment mean it is actually tougher to prove compliance with regulations than to actually comply with importing countries' requirements. This notwithstanding, the strict food safety and quality standards requirements imposed by the main importing countries, including China, have proven to be difficult to comply with in several market segments. Consequently, most export destinations are limited to countries with easier standards to comply with, but that fetch lower prices. More generally, the absence of sanitary protocols and mutual recognition rules – particularly for maximum residue levels – with other countries on F&V currently represents a major non-tariff barrier (NTB) for local exporters.

1. Inefficient protocols for certification of health and safety standards cause delays and wastage. Exporters find the process of obtaining phytosanitary certificates difficult due to slow processing. While the Department of Plant Protection (DPP), under the Ministry of National Food Security & Research (MNFSR), requires exporters to procure their produce from SPS-certified farms (approved by them), the enforcement of health and safety protocols for pesticide, and its certification mechanism is almost non-existent.

2. Exporters face difficulties related to testing and certification taking place at the DPP, which issues phytosanitary certificates following field inspections by its officers. In particular, the limited number of DPP officers results in long waiting times, causing wastage of product, in particular in peak season. High costs and unreasonable delays involved in sending samples for testing are a major hindrance to some companies.

3. The process for certifying farms-based minimum residue level (MRL) is time-consuming and costly. The capacity of the present authorized laboratories to conduct MRL and heavy metals tests is limited, resulting in delays in obtaining test results, which can lead to loss in export orders for crops with limited shelf life.[15] Furthermore, the fees for this testing are prohibitive – for small exporters in particular – especially when the importing countries require certificates for each container.[16] It is to be noted that several international laboratories also operate in Pakistan, providing good-quality services and certifications that are recognized and accepted globally, although they charge more than other private and public labs.

4. The lack of traceability and poor implementation of hygiene measures has made it difficult to comply with quality and food safety requirements imposed by high-income countries. Poor on-farm sanitary

13.– The PFVA estimates that 60% of total kinnow crop is affected by viral diseases and insect infestation.

14.– Approximately 62% of the fresh fruit and vegetable exporters that participated in the survey said they had experienced difficulties with non-tariff measures, especially conformity assessment requirements.

15.– There are only two authorized laboratories: Hussain Ebrahim Jamal (HEJ) laboratories in Karachi, and the Pakistan Council of Scientific and Industrial Research (PCSIR) in Lahore and Karachi.

16.– The minimum residue level and heavy metals testing costs are no different to the world standard costs.

and phytosanitary standards (SPS) enforcement inhibits the export of farm produce, in particular as health and hygiene conditions need to be improved. Overall, very few farms have developed certified quality management systems such as GlobalG.A.P., ISO 22000, Hazard Analysis and Critical Control Points HACCP, British Retail Consortium (BRC) and ISO 14000, as the majority of smallholder farmers are unable to meet the required hygiene standards and risk assessment procedures, also lacking the financial resources and awareness to comply.

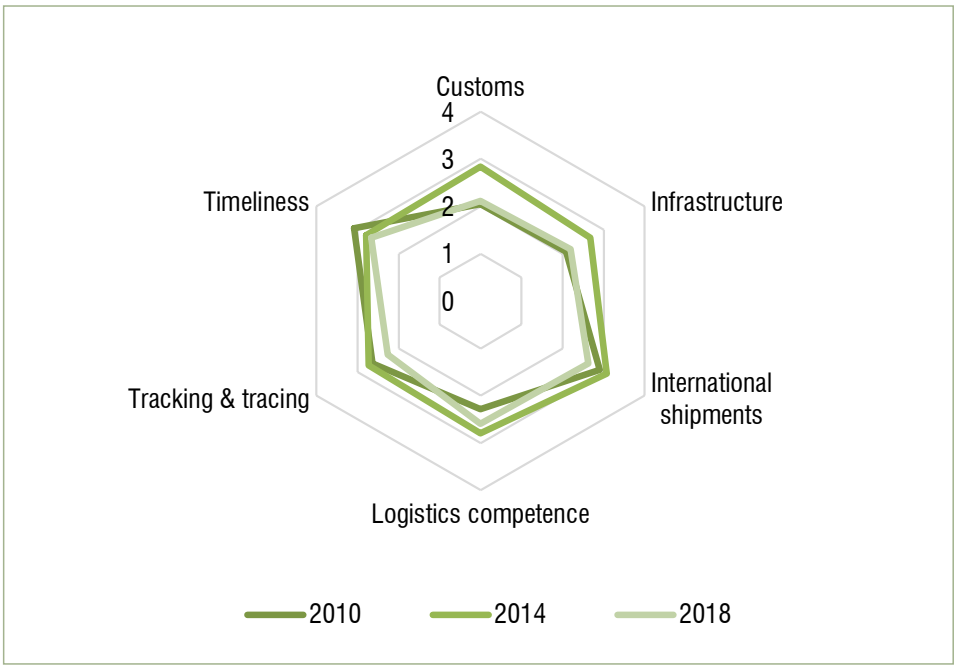
» **Relevant activities in the PoA for supply level: Strategic Objective 1**

MARKET ACCESS LEVEL

Inefficient logistics is a major impediment to expanding the destination base for F&V exports

Difficulties associated with logistics infrastructure and international shipments coupled with inefficiencies related to export procedures result in high trade costs, in turn negatively affecting the competitiveness of Pakistan F&V on the international markets. These factors contribute to Pakistan's overall poor performance in the World Bank's Logistics Performance Index (LPI), the country only ranking 122 out of 160 economies in 2018. This is a situation that has deteriorated in recent years (see Figure 13).

Figure 13: Pakistan scores in the Logistics Performance Index (LPI) sub-indicators



Source: World Bank, Logistics Performance Index (LPI).

1. Pakistan lacks cold chain systems that can cater to an export-oriented F&V sector. The underdevelopment of cold chain systems causes significant physical and quality losses, as most perishable fresh fruits and vegetables require a robust cold chain infrastructure in the value chain to be transported from farms to packing houses, or eventually to processing plants, and to export exit points. Existing cold storages units are reportedly based on inefficient technology and machinery. In particular, the lack of proper warehouse and cold storage facilities at major borders points is a serious impediment to F&V trade, resulting in most fresh produces being destined to local marketplaces and quickly disposed of.

2. The different modes of transports present major drawbacks:

- Looking at road transportation, the most commonly used commercial freight for F&V trade in Pakistan, the National Logistics Cell trucks and containers, are mostly inadequate. This leads to significant delays, which is a significant hindrance for perishable goods exports.

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- Shipping lines, on the other end, reportedly charge excessive rates to exporters, at PKR 2 to PKR 4 extra on freight according to the PFVA, a consequence of the fact that a few shipping companies have monopolized the market, creating artificial shortages to increase prices.

- Due to prohibitive airfreight charges, only small volumes of F&V are currently shipped by air from Pakistan. Another major limiting factor is the small number of airline companies currently operating in Pakistan, which limits the number of markets that can be easily reached at a non-prohibitive cost. Careless handling of perishable crops by Pakistan International Airlines (PIA) staff also affects product quality.

3. Manual inspections of shipments destined to international markets at exit points cause delays and damage, affecting highly perishable and fragile F&V. Export inspections of goods by customs officials are done through time-consuming manual checks, because they lack suitable scanners. This leads to long dwell time at ports, adding to the transactions costs and affecting competitiveness. Many exporters also reported that perishable goods were damaged by reckless handling during manual examination at cargo handling facilities at airports and seaports. Overall, inspection practices by the port agencies are reportedly not based on risk profiling and are often very intrusive.

» **Relevant activities in the PoA for supply level: Strategic Objective 2**

A number of impediments contribute to Pakistan's inability to increase its horticultural exports at all stages of production; i.e. input supply, on-farm production and harvesting, post-harvesting, marketing and quality control for export.

The present strategy provides tailored responses to the most pressing needs voiced by the main stakeholders involved in the development of Pakistan's F&V sector.

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THE WAY FORWARD

The global demand for F&V is on the rise and is expected to experience sustainable and stable growth in the foreseeable future. The sector's dynamism is fuelled by a growing world population, increasing disposable income and rising consumer health consciousness in high-income countries with a growing appetite for greater variety in horticultural products offered year-round. While the global demand for fresh produce products mainly emanates from high-income countries, developing Asian economies are rapidly gaining market shares, hence offering promising prospects for Pakistani exporters given their relative geographic proximity.

In addition to adapting to a number of global market trends that take on increasing importance when attempting to reinforce presence in existing or conquer new markets, a number of success factors are required to succeed on the global scene, including:

- A strong production capacity through excellent farming practices and increased smallholder famer cooperation;
- Improved internal production chain through the integration of marketing channels, transparent supply systems and logistics throughout the chain;
- Spread of certifications such as Good Agricultural Practices (GAP) through establishment of the right conditions of traceability and compliance;
- Coping with climate change risks through research on resilient varieties (especially droughts), as well as clear policy directives;
- Capturing consumption trends towards more environmentally friendly consumption such as organic fresh fruits and vegetables.

While Pakistan is among the largest producers of horticultural products in the world, endowed with a wide range of geographical and climatic zones, exports from the sector have not taken off yet and remain concentrated in a limited number of commodities dominated by citrus fruit, mangoes, dates, onions and potatoes. Faced with challenges related to cold chain management and logistics, coupled with difficulties to meet stringent food safety and export quality requirements, these commodities are currently shipped to a very limited number of importing markets.

Based on the analysis and findings of the Pakistani F&V sector and the competitiveness challenges and opportunities it faces, the present strategy's focus is to assist the local F&V sector incorporate the key drivers of change in their marketing strategies to leverage the increasing global demand. This section delineates a number of strategic orientations for a more competitive and diversified horticultural sector, provides recommendations for targeting of key products and markets, and puts forward actions to strengthen the industry's competitiveness.

The key drivers of change in the global F&V industry

Like in most sectors, globalization forces and innovative technologies continue to transform the way fruits and vegetables are being commercialized and consumed. Yet many other influences, ranging from changing demographics to the collective focus on health and authenticity, as well as the impact of climate change, are determining not just what is consumed, but how and where it is consumed. To be successful as a supplier of F&V, exporters need to consider the factors described hereafter.

STRATEGIC FORESIGHT

The strategy process considered current capabilities, constraints and future shifts and opportunities for Pakistan's fruits and vegetables sector. Industry stakeholders extensively evaluated future orientations and upgrading trajectories. This is critical to understanding the real situation on the ground from every angle, to building consensus on the strategic steps to be taken,

and to jointly implement the strategy in a decisive and effective manner.

The Ride Two Curves exercise was used to analyse broad phenomena and evaluate the changes in the industry, focusing on the shifts caused by increasing demand of traceable and organic products, certification and technological upgradation. Figure 14 shows a visual representation of the Ride Two Curves[17] exercise conducted with the participants. The following key messages are derived from this.

Some compelling strategic future shifts for Pakistan's industry –latching on to current trends and innovations– include:

- Updated regulations on pesticide usage to control maximum residue levels issue;
- Improved land routes for F&V exports supplied with cold chain provision, especially to Central Asia;
- Facilities at ports to handle F&V cargo, e.g. cold rooms, sheds and inspection service, etc.;
- Increased value-added processing of fruits and vegetables;
- Access to Middle Eastern market for products like mango.
- Strengthened linkages between farmers and exporters.

THE FUTURE VALUE CHAIN

Unlocking the potential of the Pakistani F&V sector will require transformations throughout the value chain. These adjustments, as reflected in the future value chain schematic (Figure 15) are the result of the targeted efforts detailed in the strategy's PoA that address the constraints identified in the competitiveness constraints section. The future value chain will be characterized by:

- A market-related component involving identification of key markets in the short and medium to long term for Pakistani exporters;
- Structural changes to the value chain that result in strengthening of linkages or introduction of new linkages.

A transformed value chain will be characterized by improved yields in horticultural production, particularly in newly introduced varieties more aligned with international demand, greater compliance with international quality and food safety standards, and improved market access for Pakistan fresh fruits and vegetables. Both components are integral parts of the future value chain, which is the basis of the strategic plan of action developed for the sector.

Structural adjustments to the value chain

Tapping into the potential of Pakistan's F&V sector's growth will require modifications throughout the value chain, from the development of high-yielding climate-resilient varieties and developed data sets on crop, soil and climate-related parameters to introducing good agricultural production and quality certifications. Moreover, developing the horticulture policy focusing on F&V with export potential, adoption of environmentally friendly practices and upgrading the post-harvest infrastructure cold storage facilities are required to tap into new markets such as such as South-East Asia, China, Commonwealth of Independent States (CIS) countries and the EU. This will allow the sector to offer competitive levels of both quantity and quality of produce. The following segments of the value chain are foreseen as key areas of focus for achieving the future value chain.

Good farming practices

If Pakistan's F&V sector is to expand internationally, a steady supply of good-quality, competitively priced F&V delivered in a timely manner needs to be achieved. Excellent farming implies controlled production (water, nutrients and pest control), controlled costs and controlled harvest graded, cleaned and packed to client specifications.

Cooperation

The only way that small growers can survive is by cooperation. This refers to joint ownership of farms and services that support farming, from input supply to hiring of specialized agricultural equipment, knowledge sharing, sharing of specialized harvest teams and joint selling to a common buyer to supply large orders.

Transparent procurement systems

For cooperation to occur, trust must be built. One of the most important conditions for building trust is transparency, particularly in pricing. The more open and transparent procurement systems are and the better information is made available regarding volumes supplied and demanded, the easier it is to cooperate and build economies of scale.

17.– The Ride Two Curves tool is used to better understand disruptive change and how it will affect our current ways of working, so we can be ready for it. This tool comprises two curves: one symbolizes the current way of doing things and the other one is the new disruptive one. Ride Two Curves is from the Institute for the Future © 2017. All rights reserved.

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Logistics throughout the value chain

In logistics, economies of scale dictate profit. The lack of scale will lead to loss. Standardization is the key condition for economies of scale with regards to grades as well as packaging material: identical sizes of crates and pallets help with fast loading and offloading and with full truckloads. In most fresh F&V channels, a cold chain is required to control temperature, moisture and atmosphere.

Compliance and traceability

Consumers and businesses are becoming increasingly concerned about the environment and sustainability. Food waste, responsible sourcing and fair trade are increasingly taken into consideration when making shopping decisions. This translated into higher demand for traceable products, including through certification: knowing from where and when which volumes came. The key to traceability is batch coding: every batch has its own unique number that remains with the product until it reaches the consumer. Bar coding greatly facilitates traceability and, hence, certification.

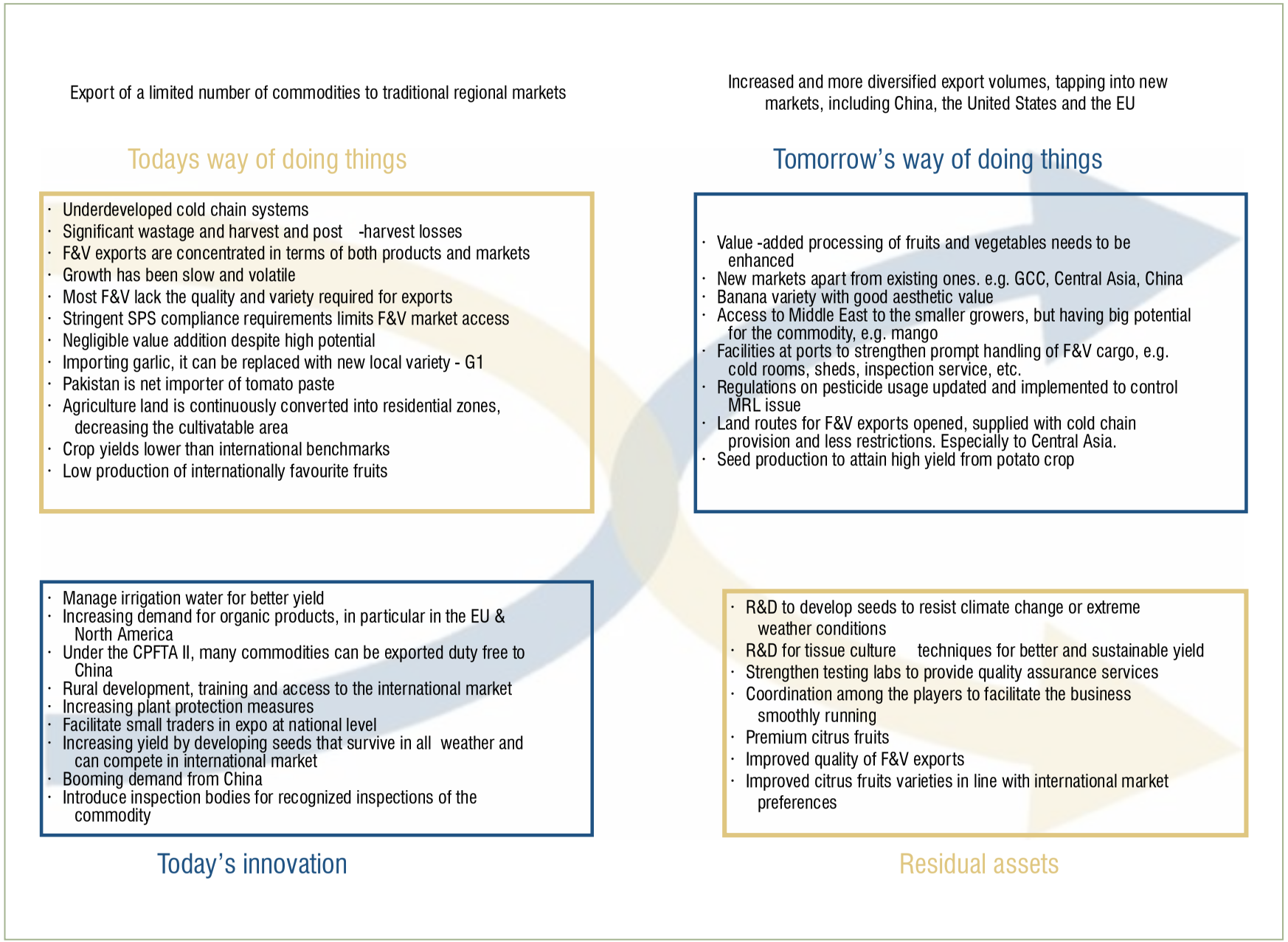
Certification

Certification in Good Agricultural Practices (GAP) through GlobalG.A.P. is mandatory for fresh F&V producers interested in supplying Western food retailers. As food retailers compete heavily between themselves, differentiation is possible by offering consumers not just a quality product at a low price, but also by offering 'feelings'. A very successful feeling is fair trade: you buy a product and feel good about it, because the grower was paid a fair price.

Capturing consumption trends

On the demand side, income growth and urbanization have led to higher rates of fruit and vegetable consumption, which indicates a positive future for the sector as cities grow and incomes rise in many highly populated developing countries.

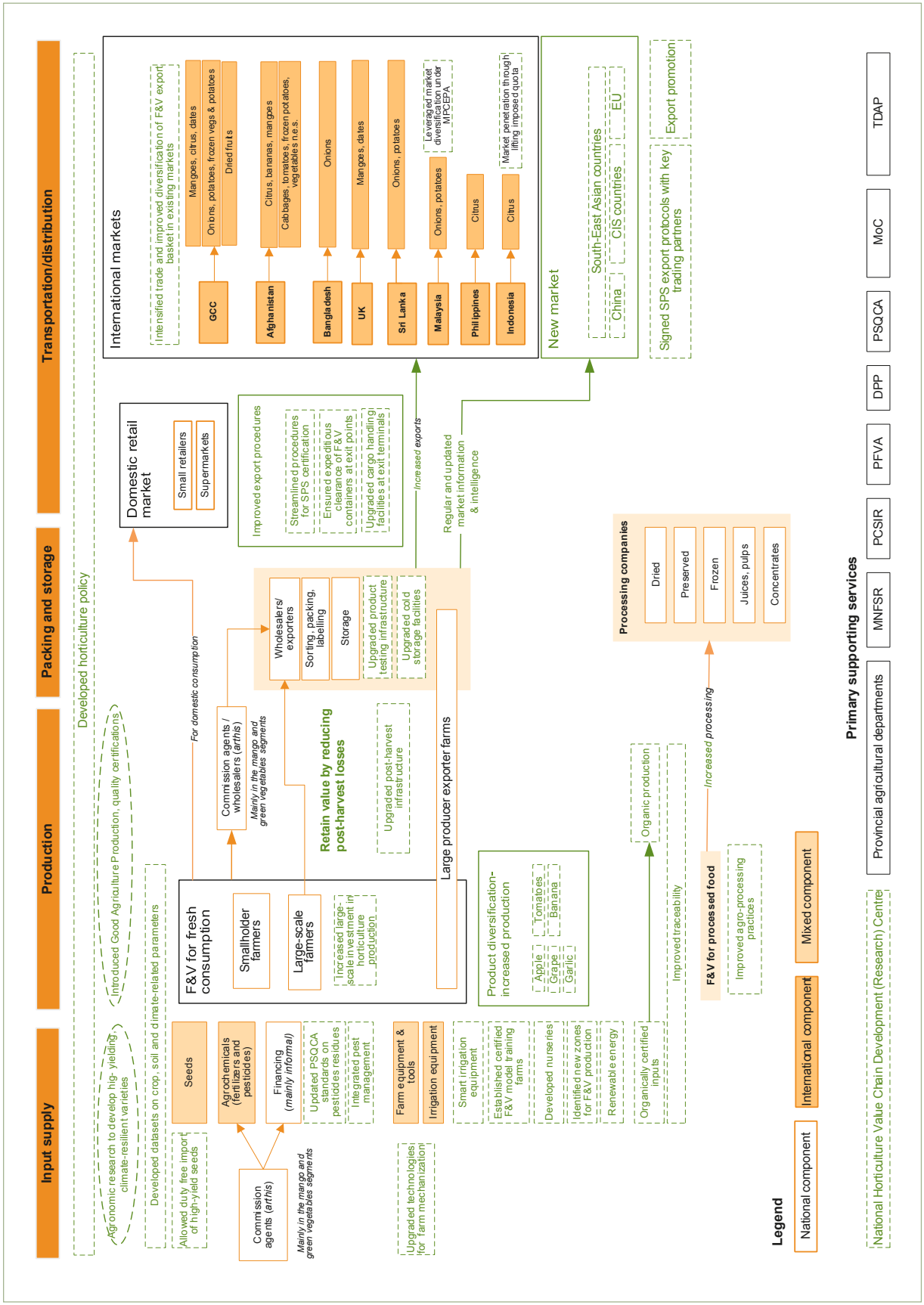
From these key drivers of change, a number of priority strategic orientations for the development of F&V exports from Pakistan have been derived and are presented below.



Source: ITC, adapted from the Institute for the Future.

Figure 14: Ride Two Curves exercise

Figure 15: Future value chain map for fruits and vegetables



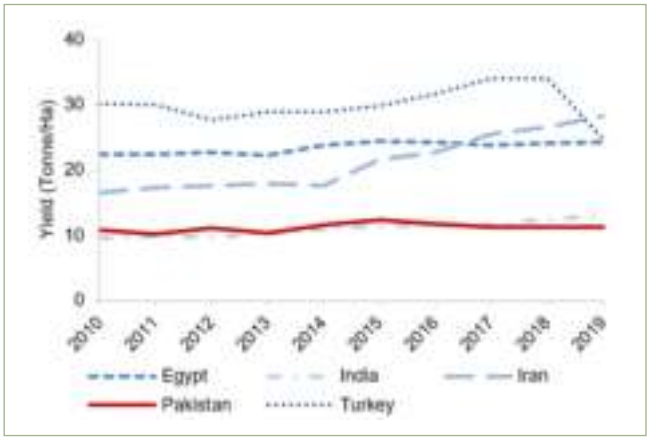
Source: ITC.

Key orientations to drive transformations in the sector

ORIENTATION 1 (SHORT TERM): WORK TOWARDS IMPROVED YIELDS FOR A MORE COMPETITIVE F&V SECTOR

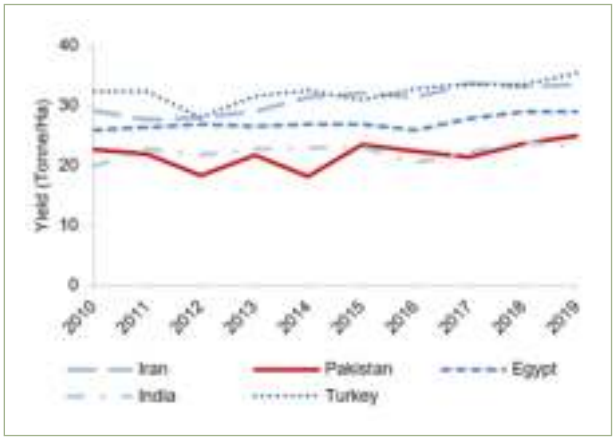
As highlighted earlier, Pakistan's farm production suffers from low crop yields compared to international benchmarks, which limits space for exports. This gap results in relatively high production costs per unit produced, putting the country at a disadvantage when competing with other large suppliers on the international markets. In particular, yields observed in citrus fruit production are more than two times lower than the ones reported in peer countries, with 11.4 tons per hectare in 2019 compared to more than 24 tons in the Arab Republic of Egypt and the Republic of Turkey and 28 tons in Iran. The same observation can be made for potato yield (Figure 16 and Figure 17).

Figure 16: Citrus fruit yield in Pakistan and in peer countries



Source: FAOSTAT.

Figure 17: Potato yield in Pakistan and in peer countries



Source: FAOSTAT.

The low yields currently observed do not allow Pakistan to significantly increase the domestic production necessary to achieve substantial surplus intended for exports. More generally, without improving yields and overall production, it is difficult to envisage a substantial increase in export volume from the horticultural sector.

Against this backdrop, Pakistan must, as a priority, focus on implementing policies and initiatives geared towards improving yields and, in time, increasing the production of horticultural produce, starting with the most commonly grown crops with a substantial export potential, including citrus, banana, dates, mango, tomatoes, potatoes and onions.

Market focus and strategies

- Enhancing the skills and technical knowledge of farmers who largely rely on traditional ways of production is a prerequisite to significantly improving yields in Pakistan. This can be achieved through the introduction of vocational training programmes in Good Agricultural Practices (GAP), in the form of practical on-farm training at grass roots level. Certified model training farms exemplifying efficient farming methods could also be established in the main production areas to build the capacities of small-scale farmers and develop their technicity.
- Facilitating access to modern farm mechanization technology constitutes another development axis. Adequate technological upgradation at the farm should be encouraged, access to agriculture

machinery and farm equipment improved and better farm management practices promoted, in particular through the setting up of incentive schemes and improved access to financial services. The adoption of modern irrigation systems should also be emphasized.
- Improving pest and diseases control management should also be considered a top priority by the authorities with a view to significantly reduce losses, in particular in citrus production (the PFVA estimated that 60% of total citrus crop is currently facing acute viral diseases and insect infestation). Adequate treatment of the fruit fly problem and several diseases affecting the orchards is urgently needed.

Required investments

- Substantial investment should be encouraged to develop state-of-the-art post-harvest services and storage facilities, including storage places with controlled temperature, in the main production region. This can be achieved through public–private partnership (PPP) mechanisms and by setting up incentive schemes for investors (PoA Activities 1.4.1 and 1.4.2).
- Investment in certified seed multiplication initiatives and planting materials is required to provide the sector with quality higher-yield seed, adapted to the country's different agro-climatic conditions (PoA Activities 1.3.2 and 1.3.3).
- Investments in F&V model farms should be encouraged to help bring rapid change in whole production and the supply chain (PoA Activity 1.2.2).

Required skills

- Shifting the agricultural and rural economy to commodity production goes hand in hand with the development of the labour force and the adoption by a large number of small-scale farmers at grass roots level of modern and more efficient farming practices (PoA Activities 1.1.1 and 1.1.2).
- In order to heighten farmers' awareness and practical skills, the technical skills and effectiveness of agricultural extension workers must be upgraded (PoA Activity 1.1.4).
- Agriculture research and extension departments should be strengthened to develop adequate treatment to tackle the pest and disease issue (PoA Activities 1.1.5 and 1.2.4).

ORIENTATION 2 (LONG TERM): MOBILIZE EFFORT TO IMPROVE PAKISTAN'S F&V ACCESS TO THE CHINESE MARKET

China is potentially a large export destination for Pakistan's fruit commodities, in particular under the China–Pakistan Free Trade Agreement II.

China is the 3rd largest importer of fruits in the world, with $12 billion worth of imports in 2020. The country is by far the fastest-growing import market with an exceptional CAGR of 23% in 2016–20 and an imported value that has more than doubled in this period. Interestingly, the Chinese market is in high demand for some of the flagship products that are cultivated in Pakistan, including citrus fruit, mangoes and bananas, with a dynamic growth in imports observed for these commodities (see Table 9).

Table 9: Main fruit commodities produced by Pakistan and imported by China, in value

HS code	Product	Imported value, 2020 (USD million)	CAGR 2016–20	Share in world imports	Rank in world's largest importer
'080390	Bananas	933	+17%	5.7%	6th
'080450	Guavas, mangoes and mangosteens	753	+58%	19.8%	1st
'0805	Citrus fruits	492	+8%	2.8%	9th

Source: ITC calculations based on UN Comtrade data.

Not only does the Chinese market show a booming demand for fruits, it also presents opportunities through low customs barriers granted under the China–Pakistan Free Trade Agreement II (CPFTA-II). Under the agreement, citrus and mangoes can be exported duty free (category A-0) while bananas fall under category A-10 (tariff reduced to 0 in 10 years), with a base tariff rate of 5%. In addition, cooperation through the China–Pakistan Economic Corridor (CPEC) and the associated transportation corridor are expected to result in industrial cooperation between China and Pakistan, with concrete economic and trade cooperation.

However, exports are currently restricted due to stringent SPS requirements imposed by the Chinese authorities on most fruits and vegetables imports. In particular, citrus trade is not permitted via land and air routes to China, forcing exporters to transport kinnows by sea to the eastern Chinese ports, increasing cost and time. It would be cheaper and easier to export via land through the Sost border crossing or by air to Ürümqi, which is not permitted due to a pending quarantine agreement between Pakistan and China.[18]

Market focus and strategies

- **Mangoes:** Being the largest importer of mangoes in the world with an annual growth in imported value of approximately 58% in 2016–20 (UN Comtrade, 2020), China offers tremendous opportunities for Pakistani exports of mangoes, provided that the quality and quantities required can by met in a consistent way and at competitive prices. This is a prerequisite to allow Pakistani exporters to compete with other regional suppliers, chief among them Thailand, which supplies approximately 80% of the Chinese international demand for mangoes.
- **Citrus:** To meet its domestic demand, China is increasingly importing citrus fruit from all over the world, including the Republic of South Africa (with a share in China's imports of 35.6% in 2020), Egypt (19.6%), Australia (18.6%) and the United States (9.7%). Chinese imports of citrus have more than doubled since 2014, reaching $492 million in 2020. As indicated above, citrus trade to this immense market is currently subject to strict requirements that, so far, have proven to be difficult to comply with by Pakistani exporters. It is also to be noted that Chinese imports of citrus consist mainly of oranges (63% of total citrus imports in 2020), and not so much kinnows (4%) and mandarins (14%), which currently account for the bulk of Pakistan's citrus exports. Developing new varieties is, therefore, essential in order to significantly penetrate this market.
- **Bananas:** China imported $933 million worth of bananas in 2020, making the country the 6th largest importer of this commodity, with a market share of 5.7%. In order for Pakistan to take advantage of the dynamic growth of Chinese banana imports (+17% per year, on average, in 2017–21), efforts will need to be mobilized to significantly improve the quality and aesthetic aspect of its domestically grown bananas. Only by doing so can Pakistan enter the Chinese market and compete with the largest suppliers, including the Philippines (capturing a market share of 47% in 2020) and the Republic of Ecuador (22%).

Required investments

- Expanding Pakistan F&V exports into the Chinese market requires investments to comply with China's strict regulatory requirements, including quality and SPS requirements, with a focus on pest and disease control and management, in particular fruit fly (PoA Activities 1.1.5 and 1.2.2).
- Investment is required to improve hygienic controls at the farms in order to meet importers' concerns about food safety (PoA Activity 2.2.5).
- Investing in a strong cold chain distribution system and transportation is a prerequisite if Pakistan is to emerge as a preferred supplier of fruits and, to a lesser extent, of vegetables to China, in particular adopting cost-effective and temperature-controlled solutions to ship perishable products (PoA Activity 3.1.2).

Required skills

- Securing better market access conditions for F&V exports to the Chinese market will require the strengthening of Pakistani trade officers' trade negotiation capacity, with the support of the PFVA (PoA Activity 3.3.4).
- Through research, develop adequate treatment against pest and diseases affecting horticultural crops with the view to allow for the lifting of the voluntary export restrictions imposed on kinnows to Europe (PoA Activity 1.2.4).
- The market intelligence function should be enhanced to provide Pakistani F&V exporters with updated and accurate information regarding export requirements and consumer preferences, allowing them to make informed decisions (PoA Activity 3.2.3).

ORIENTATION 3 (SHORT TO MEDIUM TERM): DEVELOP F&V VARIETIES THAT ARE IN HIGH DEMAND ON INTERNATIONAL MARKETS AND/OR SUITABLE FOR THE PROCESSING INDUSTRY

Pakistan has the potential to achieve significant growth in horticultural exports by focusing on growing fruits and vegetables that have significant and dynamic global demand.

18.– Pakistan Business Council (2020). 'Understanding the Bottlenecks and Opportunities in Value-Added Exports of Fruits and Vegetables'.

Currently, as indicated earlier, the F&V varieties produced in Pakistan are not the favourites in international markets. Among the top globally traded horticulture commodities, Pakistan only exports citrus and potatoes in reasonable quantities. While the country also produces a number of commodities that are in high demand globally, the varieties grown domestically do not necessary meet the quality requirements and characteristics that international consumers demand. A number of examples are listed below. Developing varieties that are adapted to international consumer preferences is, therefore, a prerequisite if Pakistan is to become a major exporter of F&V, as its potential tends to suggest. Research should be focusing on indigenous and non-hybrid seed varieties.

Market focus and strategies

- **Mangoes:** While Pakistan is a large producer of mango, farmers do not grow Alphonso mangoes, which are in high demand on international markets, instead focusing on varieties that are popular in the local market.
- **Bananas:** The large quantities of bananas produced in Pakistan are of low quality with a poor aesthetic value and are, therefore, only suitable for the domestic market and low-income countries (bananas are currently almost exclusively exported to Afghanistan). Pakistan mainly produced Williams bananas, while most importing countries require Cavendish or G9 bananas.
- **Citrus:** Seedless, sweet citrus, which are in high demand internationally, are also not grown in large quantities in Pakistan, where the production is dominated by kinnow, which have a sourer taste and more seeds, therefore fetching lower prices and limiting export destinations.
- **Apples** and **grapes:** Apple and grape plantations in Pakistan lack the quality and variety required for exports and are suitable only for domestic consumption.
- **Tomatoes:** A specialized variety of tomato for the tomato paste industry can be grown to enhance tomato exports.
- **Garlic:** PARC G1 variety of garlic should be fully developed, as not only can it fetch a good price in international market, but it can also reduce the import bill significantly in this regard.

Required investments

- Through public–private partnership (PPP) mechanisms, invest in the development of a national horticulture value chain development (research) centre to lead research on value addition in the F&V sector and develop and introduce new varieties (PoA Activity 1.2.3).
- The establishment of F&V model training farms will help bring a rapid change in whole production and the supply chain and will facilitate the introduction of new varieties and how to cultivate them. Public–private partnership (PPP) mechanisms could also be envisaged to develop model farms in the main production areas (PoA Activity 1.1.2).

Required skills

- Agronomic research should be strengthened to develop and introduce new high-yielding and climate-resilient F&V varieties that are more successful on the international markets and/or more adapted to the food processing industry's needs (PoA Activity 1.2.2).
- On-farm training is required to build farmers' capacity in efficient farming methods for the newly introduced varieties, including climate change-resilient techniques, and focusing on how to meet specific import country requirements (PoA Activity 1.1.1). Model farms would serve the purpose of implementing the vocational training programmes on GlobalG.A.P. (PoA Activity 1.1.2).

ORIENTATION 4 (LONG TERM): DEVELOP THE OFFERING OF ORGANIC PRODUCTS DESTINED TO HIGHER END MARKETS

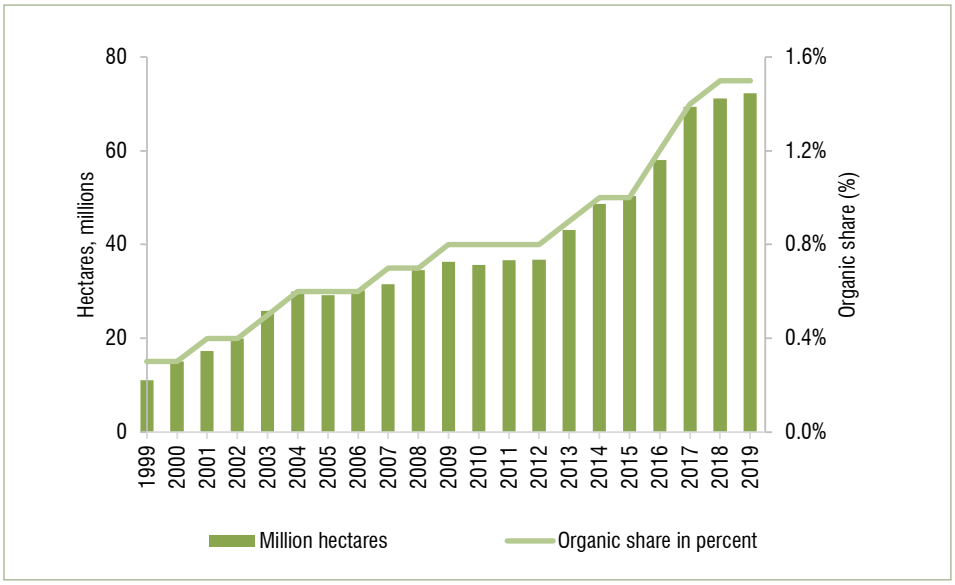
Organic farming offers the possibility of win-win solutions for challenges and problems faced by farmers all around the world. By building synergies, organic agriculture can increase food production and food and nutrition security while restoring the ecosystem services and biodiversity that are essential for sustainable agricultural production. Furthermore, as many policymakers, like former FAO Secretary General da Silva (2014), believe,[19] approaches like agroecology and organic farming can play an important role in building resilience and adapting to climate change.

Along with increasing health consciousness, there is exponential growth of the organic market worldwide. Total retail sales according to the Research Institute of Organic Agriculture (FiBL) survey amounted to more than €106 billion in 2019. The country with the largest market for organic food was the United States (€44.7 billion), followed by Germany (€12 billion) and the

19.– FAO (2014). 'Agroecology for Food Security and Nutrition: Proceedings of the FAO International Symposium'. 18–19 September 2014, Rome, Italy.

French Republic (€11.3 billion). In the EU, retail sales of organic products totalled €41.4 billion in 2019, an increase of 8% compared to 2018. As a consequence, organic agriculture land is rapidly increasing globally, with more than 70 million hectares recorded in 2019 (see Figure 18). More than one-fifth of the world's organic agricultural land (15.1 million hectares) and more than 87% of all organic producers (approximately 2.7 million individuals) are now in developing countries and emerging markets (Schlatter et al., 2021).

Figure 18: World growth of organic agriculture land and organic share (1999–2019)



Source: The World of Organic Agriculture. Statistics and Emerging Trends 2021.

Market focus and strategies

In the medium to longer term, Pakistan should take advantage of this positive consumption trend for organic fresh fruits and vegetables, since emphasis is given to increase organic and chemical-free production. Increasing this segment will allow capturing that segment in Western markets in particular. In order to do so:

- Encourage farmers to engage in organic farming and expand into organic product value chains.
- Develop a national strategy to develop bio-production protocols and the production of organic products, to be included in the national horticulture policy (PoA Activity 2.1.2).
- Promote and raise awareness among producers and consumers about the various benefits of organic products.
- Develop organic certification schemes, a powerful marketing tool for producers to penetrate higher-end markets such as the EU and the United States.

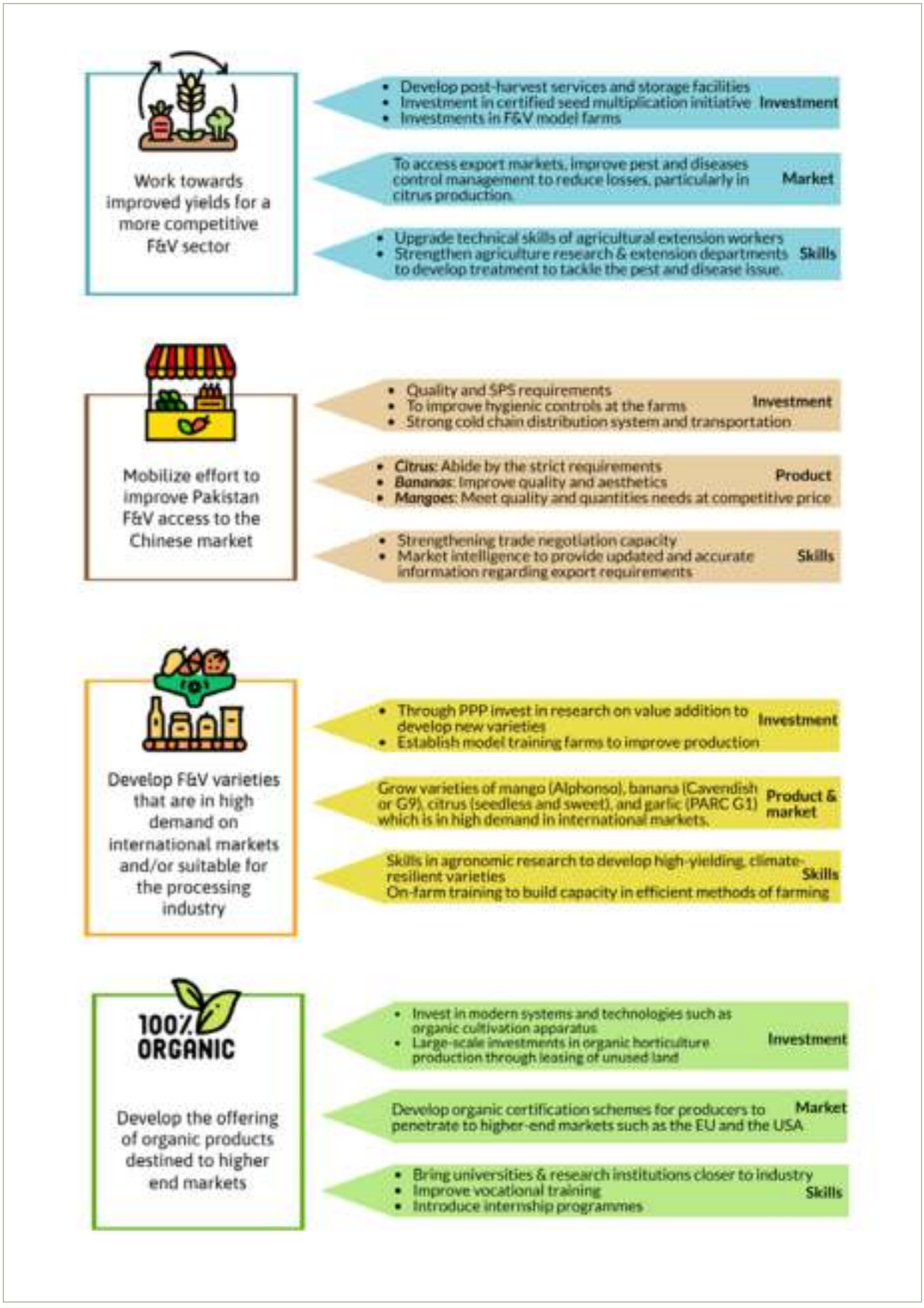
Required investments

- Develop and implement organic farming projects, including demonstration farms promoting organic cultivation and certification for F&V produce with export potential in the main producing regions. Potential regions to include are Gilgit-Baltistan, Balochistan and the Thar Desert areas (PoA Activity 1.1.6).
- Invest in modern systems and technologies that can increase productivity, including organic cultivation apparatus (PoA Activities 1.4.1 and 1.4.3).
- Encourage large-scale investments in organic horticulture production, for example, through the leasing of unused land at reduced costs (PoA Activity 1.4.5).

Required skills

- Hands-on training and technical assistance are required in the areas of alternative agriculture systems and organic farming systems (sustainable agriculture productivity, resilient agriculture and seed saving), including for extension workers and agricultural research staff (PoA Activities 1.1.6 and 1.2.4).
- Agriculture research and extension departments should be sensitized and trained on biological control of pests through the use of bio-pesticides, organic fertilizer and integrated pest management techniques (PoA Activities 1.1.4, 1.1.5 and 1.2.4).

Figure 19: Key drivers of change



Source: ITC.

The strategic framework

THE VISION

In the context of the STPF's broader vision for Pakistan to become a dynamic and efficient domestic market as well as a globally competitive export-driven economy, its fruits and vegetables sector offers tremendous opportunities for increased value addition and diversification of exports.

Based on a number of key ideas and driving concepts that the sector's stakeholders identified as crucial to guide progress and change in the sector, the following delineates this strategy's proposed vision and strategic approach to develop the fruits and vegetables sector. The vision statement was agreed on by all stakeholders attending the online consultations held in September 2021.

> **"A modern F&V sector to better cater to the needs of international markets, in terms of quality, quantity and sustainability."**

THE STRATEGIC OBJECTIVES

To achieve this vision and guide the strategy's implementation, a number of strategic objectives have been defined to pursue the key value chain transformations required to unlock the sector's potential.

The plan of action (PoA) responds to the vision by addressing the sector's constraints and leveraging opportunities in a comprehensive manner through a robust, actionable and realistic set of activities. The PoA is structured around the above-mentioned strategic objectives, agreed with all sector stakeholders, and constitutes the heart of this strategy.

Strategic Objective 1 Achieve higher yields to increase farm output, capitalizing on the most marketable crops	• If Pakistan is to become a leading supplier of F&V internationally, efforts and resources should be mobilized to improve yields and increase production surplus, focusing on the most demanded varieties
Strategic Objective 2 Create an enabling business environment, allowing F&V exporters to compete successfully on a global scale	• Promotion of the conditions conducive to the full realization of the sector's potential, in particular facilitating compliance with international standards for quality and food safety requirements
Strategic Objective 3 Strengthen distribution channels and improve the visibility of Pakistani F&V to expand market penetration	• Provide the sector with efficient trade logistics and strengthened export promotion and market intelligence functions to foster market penetration

IMPLEMENTATION FRAMEWORK

The objective of the Fruits and Vegetables Export Strategy for Pakistan is to create an enabling environment for the sector to realize its potential and benefit the country's image geared towards developing *'A modern fruits and vegetables sector to better cater to the needs of international markets, in terms of quality, quantity and sustainability'*. Achieving this ambitious objective will depend on the industry's ability to implement the activities defined in this strategy. To structure sector development, it is recommended that the following interventions be implemented with priority:

- Introduce formal, standardized vocational training programmes in Good Agricultural Practices (GAP) for small-scale farmers and rural workers at grass roots level, in the form of practical on-farm training (PoA Activity 1.1.1). The implementation of training programmes will be supported by the establishment of certified F&V model training (PoA Activity 1.1.2).
- Design and enforce a horticulture policy (e.g. national horticulture development framework), in consultation with the provincial governments and the private sector (PoA Activity 2.1.2).
- Sign and enforce SPS export protocols and/or mutual recognition agreement of quality standards with key trading partners on quality and food safety requirements to improve market access and expand the export base to new destinations. (PoA Activity 3.3.4).

MANAGING FOR RESULTS

It is the translation of priorities into implementable projects that will contribute to achieving the substantial increase in export competitiveness and export earnings envisaged under the strategy. These will be driven by reforming the regulatory framework, optimizing institutional support to exporters and strengthening private sector capacities to respond to market opportunities and challenges. Allocation of human, financial and technical resources is required to efficiently coordinate, implement and monitor overall implementation.

Successful execution of activities will depend on stakeholders' abilities to plan and coordinate actions in a tactical manner. Diverse activities must be synchronized across public and private sector institutions to create sustainable results, and it is therefore necessary to foster an adequate environment and create an appropriate framework for the strategy's successful implementation.

Key to achieving the targets will be coordination of activities, monitoring progress and mobilizing resources for implementation. To that effect, industry representatives recommended that a public–private sector specific council for the fruits and vegetables sector be rapidly established, operationalized and empowered. The sector specific council is to be responsible for overall coordination, provision of policy guidance and the monitoring of industry development along the strategic orientation.

FRUITS AND VEGETABLES SECTOR SPECIFIC COUNCIL

It is recommended that a fruits and vegetables sector specific council be rapidly established for specific value chains, namely potato, kinnow and mango. This committee should be formalized by the Minister of MoC and effectively organized by the TDAP and MoC to support the industry with the capacity to steer its development strategically. The committee is to be facilitated by a secretariat coordinated by the TDAP, supported and advised by the PFVA.

Industry representatives recommend that the fruits and vegetables sector specific council be composed of the following members:

- Ministry of Commerce (MoC);
- TDAP, MoC;
- Pakistan Horticulture Development & Export Company (PHDEC), MoC;
- Agriculture Policy Institute (API), MNFSR;

- Federal Seed Certification & Registration Department (FSC&RD), MNFSR;
- Department of Plant Protection (DPP), MNFSR;
- Pakistan Agricultural Research Council (PARC);
- Provincial agricultural extension departments (in particular, Punjab and Sindh);
- Pakistan Council of Scientific and Industrial Research (PCSIR), Ministry of Science and Technology (MST);
- Pakistan Standards & Quality Control Authority (PSQCA), MST;
- Ministry of Maritime Affairs;
- SMEDA;
- University of Agriculture Faisalabad (UAF);
- PFVA;
- Pakistan Crop Protection Association (PCPA);
- Farmers' association;
- Federation of Pakistan Chambers of Commerce & Industry (FPCCI).

It is recommended that the sector specific council be empowered to meet quarterly and to implement the following functions:

- Create a shared understanding of key market challenges and opportunities facing the sector;
- Set goals and targets that, if achieved, will strengthen the sector's competitive position and enhance Pakistan's overall capacity to meet markets' changing demands;
- Propose key policy changes to be undertaken and promote these policy changes among national decision-makers;
- Support the coordination, implementation and monitoring of activities in the sector by the government, private sector, institutions or international organizations to ensure alignment to goals and targets, as required to contribute to resource identification and alignment.

As part of the Strategic Trade Policy Framework (STPF) and the sector strategy design process, it has been recommended that an *inter-ministerial and multi-industry private sector* council be organized and structured to address overall challenges and opportunities to Pakistan's trade performance. It is recommended that chairs of the sector specific council be members of the council to consult on key trade thematic areas ranging from policy to regulations and trade negotiations.

KEY SUCCESS FACTORS FOR EFFECTIVE IMPLEMENTATION

The presence of the sector specific council to oversee the strategy's implementation is a key success factor, but it is not sufficient to effectively fulfil its assigned functions.

Private sector support and participation in implementation

The private sector clearly expressed its willingness to contribute, directly or in partnership with public institutions, to the strategy's implementation. Their implementation efforts can range from providing business intelligence to institutions to contributing to project design, promotion and branding, and policy advocacy, etc. In brief, the private sector's practical knowledge of business operations is essential to ensuring that the strategy remains aligned to market trends and opportunities.

Proactive networking and communication

The key implementing institutions detailed in the PoA need to be informed of the strategy's content and the implications for their 2022–26 programming. This networking and communication are essential to build further ownership and provide institutions with the opportunity to confirm the activities they can implement in the short to long term. It will be important for the TDAP, MoC and members of the sector specific council to reach out to relevant institutions nationally to create awareness and support for the development of the F&V sector.

Resources for implementation

The sector specific council, in collaboration with the TDAP and the Secretariat at MoC, will need to leverage additional support for efficient implementation. Effective planning and resource mobilization is indispensable in supporting strategy implementation. Resource mobilization should be carefully planned and organized.

As fruits and vegetables is a priority sector of the STPF, the Government of Pakistan should define annual budget allocations and support to drive the industry's growth. This commitment will demonstrate clear engagement towards strengthening the sector and encourage private partners to support development. In addition to national budget support, resource identification will require the Board of Investment to effectively target foreign investors in line with the strategy's priorities, such as the attraction of more commercial

farmers. Investment flows to Pakistan should also be considered as a valuable driver of strategy implementation and overall industry development.

The various implementation modalities detailed will determine the success of the strategy's implementation. However, high-level support from the government, in collaboration with strong championship by the private sector, will be the real driver of successful strategy implementation.

The PoA is structured along the three strategic objectives and associated operational objectives. For each objective, the PoA outlines detailed activities and their implementation modalities, which include:

- **Priority level:** Priority 1 being the highest and 3 the lowest.
- **Period:** The desired time-frame of the activity.
- **Targets:** Quantifiable targets that allow completion monitoring of the activity in the implementation stage.
- **Leading implementing partners:** One single accountable lead institution per activity. (The institution can also have a technical role or can solely have an oversight and coordination role.)
- **Supporting implementing partners:** Any institution that should be involved at any stage of the activity's implementation.

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PLAN OF ACTION (2023-2027)

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
1. Achieve higher yields to increase farm output, capitalizing on the most marketable crops	1.1. Promote the adoption of sustainable agricultural practices	1.1.1. Expand existing formal, standardized vocational training programmes in Good Agricultural Practices (GAP) for small-scale farmers and rural workers at grass roots level, in the form of practical on-farm training. The training programmes should include a framework for recognition of qualifications (e.g. certificates and diploma). Programmes to cover sustainable farming practices, from pre-harvest activities to post-harvest handling, sorting, grading, packing and storing.	1						Project	• 2,000 farmers trained per year	Ministry of National Food Security & Research (MNFSR)	• Technical Educational and Vocational Training Authority (TEVTA) • Centre for Agriculture and Bioscience International (CABI) • PCSIR • Provincial agriculture departments • Ministry of Science and Technology • Sindh Abadgar Board
		1.1.2. Establish certified fruits and vegetables model training farms exemplifying efficient farming methods in the main production regions, with a focus on key export products and on how to meet specific import country requirements. Model farms should promote sustainable and efficient production methods, including climate change-resilient techniques, pest and diseases infestation, and on-farm crop residue management.	1						Project	• 20 model farms established per year	Provincial agriculture departments	• Centre for Agriculture and Bioscience International (CABI) • Establishment of Model Farms Project (EMFP)
		1.1.3. Develop an online database connecting qualified workers with top producers in and around the fruit and vegetables sector, hence creating job opportunities and contributing to structuring the value chain in a more formal way through an inclusive approach.	2						Project	• Database created	Provincial agriculture departments	
		1.1.4. Provide technical and pedagogical training for provincial extension services staff as well as private sector extension services on GlobalG.A.P. principles, including on fertilizers and pesticides application. Extension education tools to be developed to raise awareness about food safety and good agricultural practices among farmers. Support the multiplication of private sector extension services.	1						Project	• 10 training sessions conducted per year • 200 agricultural extension workers (half public, half private) trained per year	Provincial agriculture departments	• Technical Educational and Vocational Training Authority (TEVTA) • CABI

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
1. Achieve higher yields to increase farm output, capitalizing on the most marketable crops	1.1. Promote the adoption of sustainable agricultural practices	1.1.5. Strengthen the surveillance and control management system in place within the provincial agricultural departments by building the staff's technical capacity and conduct regular surveillance in orchards and field crops." The pest control management system in place in Punjab could be extended to other Provinces.	2						Project	• 2 training sessions of 5 days conducted in each Province per year	Agriculture extension	• National Agriculture Research Centre (NARC) (PARC) • Provincial irrigation departments • PCSIR • Provincial agricultural departments
		1.1.6. Implement a pilot project on organic cultivation and certification for fruits and vegetables produce with export potential in the main producing regions.	3						Project	• 25 companies receive hands-on training on organic cultivation and certification • 10 growers / farmers receive organic farming training	Provincial agriculture departments	• CABI
	1.2. Foster scientific research to stimulate product diversification and control the spread of pest and diseases	1.2.1. Building on existing online platforms, develop comprehensive data sets on crop, soil and climate-related parameters to identify ideal cropping patterns for each agro-climatic zone, focusing on varieties in high demand internationally. Research work on climate change impact assessment and productivity projection studies should also be facilitated.	2						Project	• Data sets developed	MNFSR	• Pakistan Bureau of Statistics
		1.2.2. Build the capacity of PARC to strengthen the agronomic research to develop and introduce new high-yielding and climate-resilient F&V varieties that are more successful on the international with longer shelf life markets and/or more adapted to the food processing industry's needs. *Link with Activity 1.1.1 of the Processed Food and Beverages Strategy's PoA.*	1						Project	• 3 new varieties introduced per year	MNFSR	• PARC • PCSIR • Universities • PFVA • Federal Seed Certification & Registration Department • Provincial agriculture departments
		1.2.3. Establish a national horticulture value chain development (research) centre to lead research on value addition in the sector.	2						Project	• A well-equipped research centre established	MNFSR	• Australian Centre for International Agricultural Research (ACIAR) • Universities • Pakistan Horticulture Development & Export Company (PHDEC) • CABI

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
1. Achieve higher yields to increase farm output, capitalizing on the most marketable crops	1.2. Foster scientific research to stimulate product diversification and control the spread of pest and diseases	1.2.4. Building on existing research , develop adequate treatment against pest and diseases affecting horticultural crops, in particular fruit fly, with the view to allow for the lifting of the voluntary export restrictions imposed on kinnows to Europe.	1						Project	• New treatments/solutions developed or improved	MNFSR	• PFVA • Provincial agricultural departments • Punjab Agricultural University (PAU) • PCSIR
	1.3. Improve access to quality seeds and planting material	1.3.1. Allow duty-free imports of quality high-yield seeds from international markets, subject to the approval of the Federal authorities based on sample testing.	1						Reform	• Identified seed varieties made duty free or on which duty/taxes are reduced	MoC	• FBR (Customs) • FSSRA • Federal Seed Certification & Registration Department
		1.3.2. Ensure the enforcement of the Plant Breeder Rights Act 2016 to provide an effective intellectual property rights system for granting protection to the development of new plant varieties: establish and execute proper screening processes, registration procedures and an arbitration mechanism, etc.	3						Project	• Number of new varieties registered under the Act increased by 100% by 2024	MNFSR	• Intellectual Property Organization of Pakistan
		1.3.3. Introduce a corporate tax exemption for owners of F&V nurseries and companies involved in local seed varieties multiplication to spur investment and ensure the availability of pest-free planting material, and support the production of seed varieties locally, suitable to the climatic conditions.	2						Reform	• Corporate rates exemption enforced • At least 10 F&V nurseries established per year	Provincial agriculture departments	• BoI • PFVA
	1.4. Upgrade production technologies and post-harvest infrastructure to reduce crop loss	1.4.1. Provide incentives for through upgrading technologies to comply with export requirements and promote farm mechanization through commercial banks and SBP refinancing schemes.	1						Project	• Incentive scheme set up • At least 200 producers benefiting from the scheme per year	MNFSR	• Agricultural universities and institutes • SBP
		1.4.2. Based on a comprehensive needs assessment survey conducted in the main production regions, establish and/or upgrade post-harvest infrastructure close to production areas, at district level, including sorting, grading, storage (particularly cold storage) and packing facilities.	2						Project	• Comprehensive needs assessment surveys conducted • All identified facilities upgraded/established by the end of 2026	MNFSR	• Provincial agriculture departments • Survey of Pakistan

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
1. Achieve higher yields to increase farm output, capitalizing on the most marketable crops	1.4. Upgrade production technologies and post-harvest infrastructure to reduce crop loss	1.4.3. Establish an incentive scheme for the acquisition of alternate energy sources in the F&V sector, including solar systems and solar tube wells.	2						Reform	• Incentive scheme set up • At least 200 farm units switched to alternate energy over the lifespan of the project	Ministry of Energy	• FPCCI • Alternative Energy Development Board (AEDB)
		1.4.4. Reduce tariffs for intermediates and capital goods imports, such as fertilizers and machinery. Allow the duty-free import of corrugated boxes for usage within 24 months, instead of 12 currently.	3						Reform	• List of items made duty free or on which duty/taxes are reduced reviewed and expanded • Duty-free import of corrugated boxes allows for a 24-month period	MoC	• FBR (Customs)
		1.4.5. Encourage large-scale investments in horticulture production, in particular from international companies, through the leasing of unused land at reduced costs to bring additional land under cultivation of F&V varieties suitable for exports, also encouraging organic farming projects. This could be implemented through joint ventures with established companies. *Link with Activity 1.3.1 of the Processed Food and Beverages Strategy's PoA.*	2						Project	• At least 2 large-scale investment projects initiated per year	Board of Investment	• MNFSR • Provincial governments
		1.4.6. Map new zones where horticulture production could be maximized through satellite remote sensing observations	2						Project	• Mapping exercise completed and new zones identified	MNFSR	• Pakistan Space & Upper Atmosphere Research Commission (SUPARCO).
		1.4.7. Work with agriculture university and research institute to establish research programmes for the development of machineries and technology specific to the horticulture sector.	1						Project	• At list 3 research programmes completed per year, starting 2023	MNFSR	• Agriculture Universities & institutes; Ministry of Science and Technology
2. Create an enabling business environment, allowing F&V exporters to compete successfully on a global scale	2.1 Develop an enabling policy and regulatory framework for F&V production and trade	2.1.1. Enhance land border controls, including 'surprise controls', to curtail illegal trade channels and prevent F&V smuggling.	2						Reform	• Number of illegal consignments seized multiplied by 2 by 2025	FBR (Pakistan Customs)	• MNFSR

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
2. Create an enabling business environment, allowing F&V exporters to compete successfully on a global scale	2.1 Develop an enabling policy and regulatory framework for F&V production and trade	2.1.2. In consultation with the provincial governments and the private sector, design and enforce a horticulture policy (e.g. national horticulture development framework), focusing on F&V with export potential. Policy to include provisions on the adoption of environmentally friendly practices.	1						Reform	• Horticulture policy designed and enacted	MNFSR	• Provincial agriculture departments • PFVA • Pakistan Horticulture Development & Export Company (PHDEC) • Progressive Mango Growers association
		2.1.3. Amend the Pakistan Plant Quarantine Act to include food safety requirements of trading partners.	1						Reform	• Pakistan Plant Quarantine Act amended	MNFSR	• DPP • Provincial agriculture departments, PFVA
	2.2. Facilitate compliance with international standards for quality and food safety requirements	2.2.1. Upgrade PCSIR laboratories through the acquisition of modern and cost-effective laboratory equipment with a view to provide users with more efficient third-party testing services, allowing them to bring down costs and reduce turnaround time (for maximum residue levels and heavy metals tests in particular). PCSIR human resources capacities should be strengthened accordingly. *Link with Activity 2.3.2 of the Processed Food and Beverages Strategy's PoA.*	1						Project	• At least 2 labs in Provinces with higher sector concentration, and at least 1 lab in Provinces with lower sector representation. upgraded • At least 50% of staff trained	Ministry of Science and Technology	• Provincial agricultural departments
		2.2.2. Increase the technical manpower of the Department of Plant Protection (DPP) and strengthen its technical capacity, in particular in controlling export commodities"	2						Project	• At least 40% of officials trained through yearly training	MNFSR	• Agriculture universities and institutes
		2.2.3. Implement incentive measures and mechanisms to encourage and facilitate the establishment of accredited private conformity assessment service providers in the field of food safety, in particular to improve access to such services in the main production regions. Initiative to be implemented through a revenue sharing public–private partnership (PPP) model.	2						Project/ Reform	• At least three accredited service providers established by the end of 2024	Pakistan National Accreditation Council (PNAC)	• MNFSR • Ministry of Science and Technology • BoI
		2.2.4. Update obsolete PSQCA standards specification on maximum limits for pesticides residues (Reference PS:2023-1988) in line with international practices (e.g. Codex Alimentarius).	2						Reform	• Standards improved/updated	PSQCA	• PFVA • MNFSR

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
2. Create an enabling business environment, allowing F&V exporters to compete successfully on a global scale	2.2. Facilitate compliance with international standards for quality and food safety requirements	2.2.5. Through provincial agricultural departments, set up a registration system of all farms (export-oriented ones as a priority) at district level to allow for an efficient traceability system that facilitates market surveillance operations.	2						Project	• Registration process completed by the end of 2024	Provincial agricultural departments	• SMEDA
		2.2.6. Promote the adoption of traceability regimes and quality management systems through the provision of incentives and capacity-building activities to accompany producers' access to quality certificates; i.e. GlobalG.A.P., Hazard Analysis and Critical Control Points (HACCP), ISO 9001, ISO 14001 and ISO 22000.[20]	1						Project	• Programme set up • At least 100 companies certified through the programme per year	MNFSR	• Provincial agricultural departments • SMEDA
		2.2.7. Develop technical capacity / equipment for improving fruit and vegetables handling and extend their shelf-life, including hot water treatment facilities and technologies for the application of wax on perishables such as apples.	2						Project	• At least 3 hot water treatment facility and 3 facilities for the application of wax (double check the exact terminology) established and operational by 2025	MNFSR	• Provincial agriculture departments
	2.3. Streamline and improve export procedures for F&V	2.3.1. Apply technology to develop efficient solutions to facilitate exporting farmers acquiring SPS certifications (e.g. expand the usage of e-certificate), minimizing the need for physical inspections from the DPP. An e-certificate could be obtained upon renewal of a certification, while physical checks would still be required for initial assessment and/or certification.	1						Reform	• Time to obtain certifications reduced • Online system initiated	DPP	• MoC • FBR (Customs)
		2.3.2. Acquire and spread the use of modern scanners by customs at all sea ports and airports exit points to scan perishable fruits and vegetables export consignments for expeditious clearance.	1						Project	• Modern scanners effectively acquired and used all exit points • The proportion of manually checked consignments is reduced by 50% by 2024	Ministry of Maritime Affairs	• FBR (Customs) • Pakistan Civil Aviation Authority (PCAA)

20.– One such scheme is in progress under the Ministry of Science and Technology (to be extended if necessary).

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
3. Strengthen distribution channels and improve the visibility of Pakistan F&V to expand market penetration	3.1 Improve the hard (physical) and soft (regulatory) trade-related infrastructure	3.1.1. Enhance the capacity of Pakistan National Shipping Corporation in terms of shipping lines to cater for the urgent needs of F&V and processed food exports. Similarly, the capacity of Pakistan International Airlines (PIA) to be enhanced either on rental/lease basis or permanently to support expeditious exports of these sectors. In particular, establish regular commercial shipping lines between Karachi and Colombo, Sri Lanka, and Mahé, Maldives. *Link with Activity 3.1.2 of the Processed Food and Beverages Strategy's PoA.*	2						Project	• Number of shipments facing delays on this account reduced by 50% by 2024	Ministry of Maritime Affairs	• Pakistan Civil Aviation Authority (PCAA) • Pakistan International Airlines (PIA)
		3.1.2. Based on a comprehensive needs assessment study, establish or upgrade specialized cargo handling facilities and cold storage facilities at ports and seaport exit terminals for quarantine and inspection of F&V. *Link with Activity 3.1.3 of the Processed Food and Beverages Strategy's PoA.* *Link with Activity 3.1.1 in the Logistics Strategy's PoA.*	1						Project	• All cargo handling facilities and cold storage facilities at ports and seaport modernized by 2025	Ministry of Maritime Affairs	• Pakistan Agricultural Storage and Services Corporation (PASSCO) • Ministry of Narcotics Control • FBR (Customs) • Pakistan Civil Aviation Authority (PCAA)
		3.1.3. Advocate for the Government's intervention to regulate and cap the price per kilogram of produce charged by commercial airlines to fruits & vegetables exporters to reduce freight costs and improve the sector's competitiveness.	1						Project	• Reduced price per kg negotiated	PFVA	• MoC • PCAA • MNFSR • Progressive Mango Growers association
	3.2. Develop the market intelligence function	3.2.1. Building on existing initiatives at the provincial level, establish a comprehensive national market intelligence system sharing information through a web portal on daily F&V prices, climatic predictions and advice to farming communities, etc.	2						Project	• Web portal launched	MNFSR	• Provincial agriculture departments • Provincial food authorities
		3.2.2. Elaborate market penetration plans for the main export crops focusing on key untapped markets including China, Commonwealth of Independent States (CIS) countries, South-East Asian countries and the EU, and provide targeted marketing support to producers. Market penetration plans should be shared with farmers/producers.	1						Project	• Four market penetration plans created per year (or 20 plans over five years) and disseminated to the producers	TDAP	• MNFSR • PFVA • Progressive Mango Growers association

Strategic objective	Operational objective	Activity	Priority (1 = Highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2025	2027				
3. Strengthen distribution channels and improve the visibility of Pakistan F&V to expand market penetration	3.3. Promote and facilitate expansion of F&V exports in key strategic markets	3.3.1. Support strengthening of export promotion activities through commercial counsellors or the TDAP abroad: • In consultation with the private operators, prepare and organize trade missions in key export markets • Organization of business-matching events bringing domestic companies face-to-face with international prospects	1						Project	• At least two trade missions organized per year • At least two business-matching events organized per year	TDAP	• Trade missions abroad
		3.3.2. Introduce a duty drawback scheme for the horticulture sector with a simplified process and transparent procedures, through digitalization (similar to the duty drawback on local taxes and levies (DLTL) claim for non-textile exports that expired 30 June 2021).	2						Reform	• Duty drawback scheme introduced	MoC	• FBR (Customs)
		3.3.3. Introduce a screening system for F&V exporters to prevent producers who do not meet the minimum requirements to export, therefore ensuring the quality of the products and ultimately improve the reputation of Pakistan F&V in international markets.	2						Project	• Screening system elaborated	MoC	• PFVA • FBR (Customs)
		3.3.4. Sign and enforce SPS export protocols between the Department of Plant Protection and other importing countries' national plant protection organizations (NPPOs) on food safety requirement to improve market access and expand the export base to new destinations, including China, Thailand, Viet Nam, Indonesia and Commonwealth of Independent States (CIS) countries.	1						Reform	• On need bases, new protocols signed and existing ones enforced	Department of Plant Protection	• MoC
		3.3.5. Advocate for the lifting of the quota system imposed by the Indonesian Government on kinnow imports from Pakistan.	2						Reform	• Quota system lifted	PFVA	• Trade missions abroad • MoC


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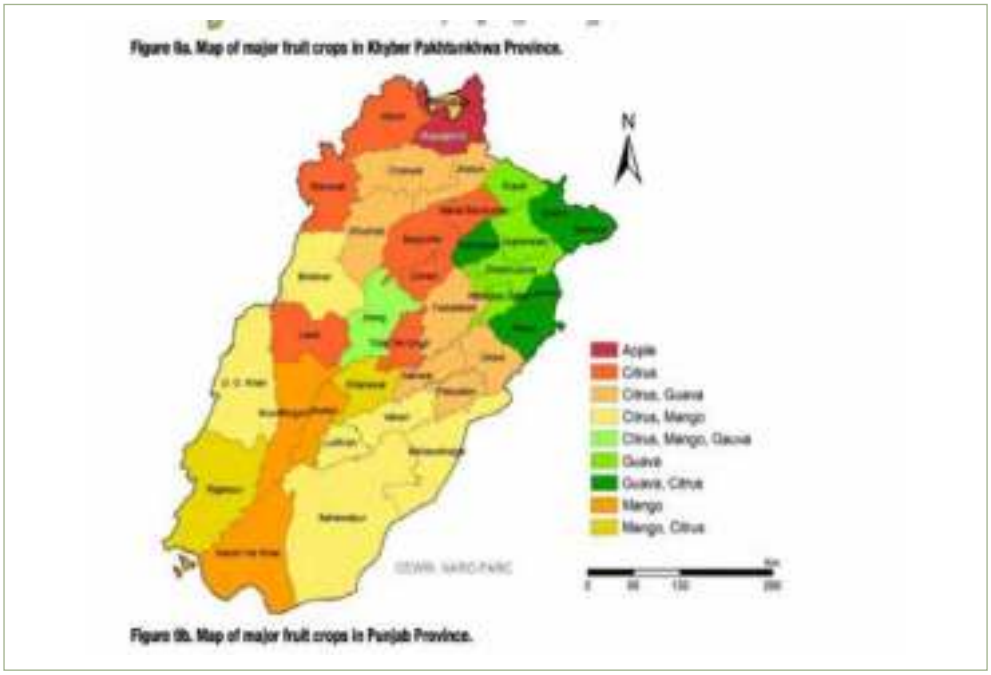
ANEXES

Annex I:
List of participants in the public–private consultations

Name	Title	Organization
Raheel Abbas	Manager	Pakistan Horticulture Development & Export Company
Sajid Iqbal	CEO	Green Circle
Asma Khattak	Deputy director	MoC
Faryal Maaz	Research associate	MoC
Aman Malik	Professor and director	University of Agriculture Faisalabad
Mubarik Ahmed	Consultant	ITC
Ghulam Paracha	Junior scientific officer	PCSIR Laboratories Complex, Peshawar
Rashid Gillani	Assistant manager	TDAP
Omer Mukhtar Tarar	Section In-Charge Food Technology Section	PCSIR Laboratories, Karachi
Imran Mahmood	Accountant	Mairaj Din Muhammad Ramzan Co.
Ahmed Ramzan	Partner, Al-Mairaj Enterprises	All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA)
Muhammad Asif Rana	Assistant director	PSQCA
Ayaz Ahmed Soomro	Assistant director (Agri. & Food Division, Standards Development Centre)	PSQCA
Shahid Masood	Senior scientific officer	PCSIR Laboratories Complex, Lahore
Waheed Ahmed	Patron in Chief	PFVA
Muhammad Amin	Chief	Agriculture Policy Institute
Qazi Saddam	Assistant Manager Agro Food	SMEDA
Maryam Mumtaz	Assistant director	TDAP
Aslam Pakhali	Former chairman	All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association
Zulqarnain Zaka	Manager Agri Products	Pakistan Horticulture Development & Export Company
Fawad Hassan	Deputy director	Ministry of Commerce
Mir Mohsin	Product Officer – Dates	TDAP
Imtiaz Hussain	Managing director	Imtiaz Enterprises and FPCCI
Salman Rana	Research associate	Ministry of Commerce
Khushbakht Asif	Assistant director	TDAP
Aurangzeb Jahangir	Assistant manager	TDAP
Sherjeel Najmul Masood	Deputy general manager (finance)	Pakistan Agricultural Storage and Services Corporation (PASSCO)
Yousaf Rasool	Deputy director (Agro-II)	MoC
Sumair Ahmad	Research associate	MoC

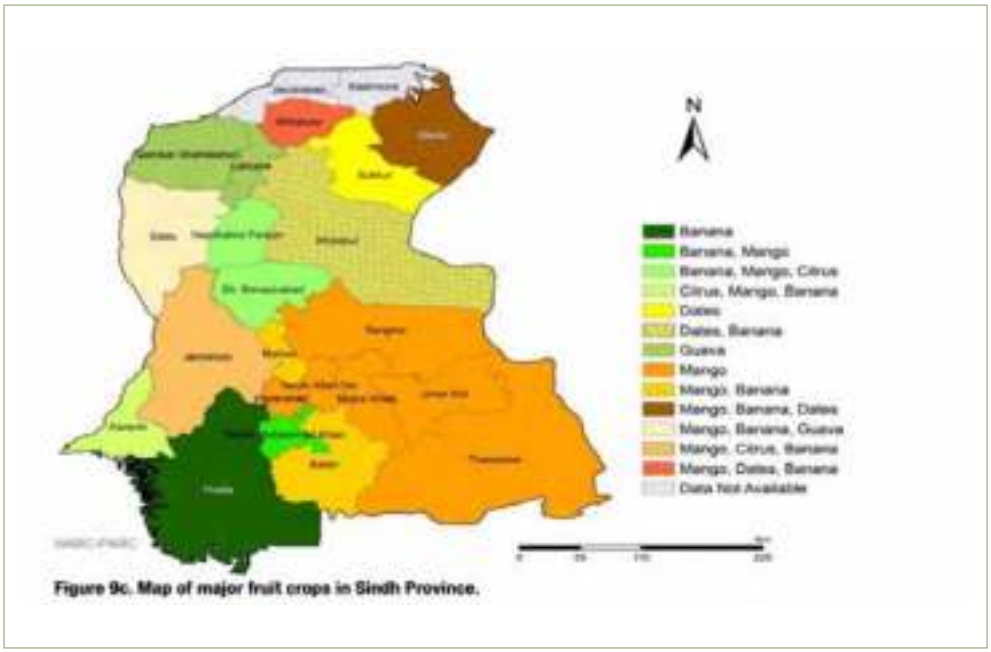
Annex II:
Maps of major fruit crops in Pakistan's provinces

Figure 1: Map of major fruit crops in Punjab



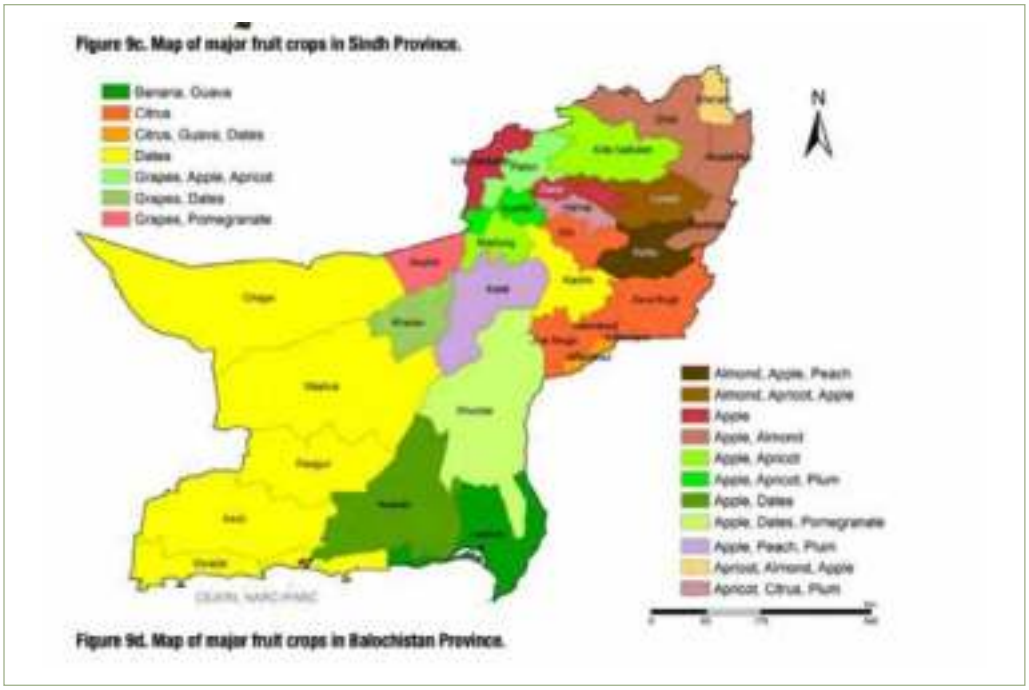
Source: Climate, Energy and Water Research Institute (CEWRI) and NARC (PARC).

Figure 2: Map of major fruit crops in Sindh



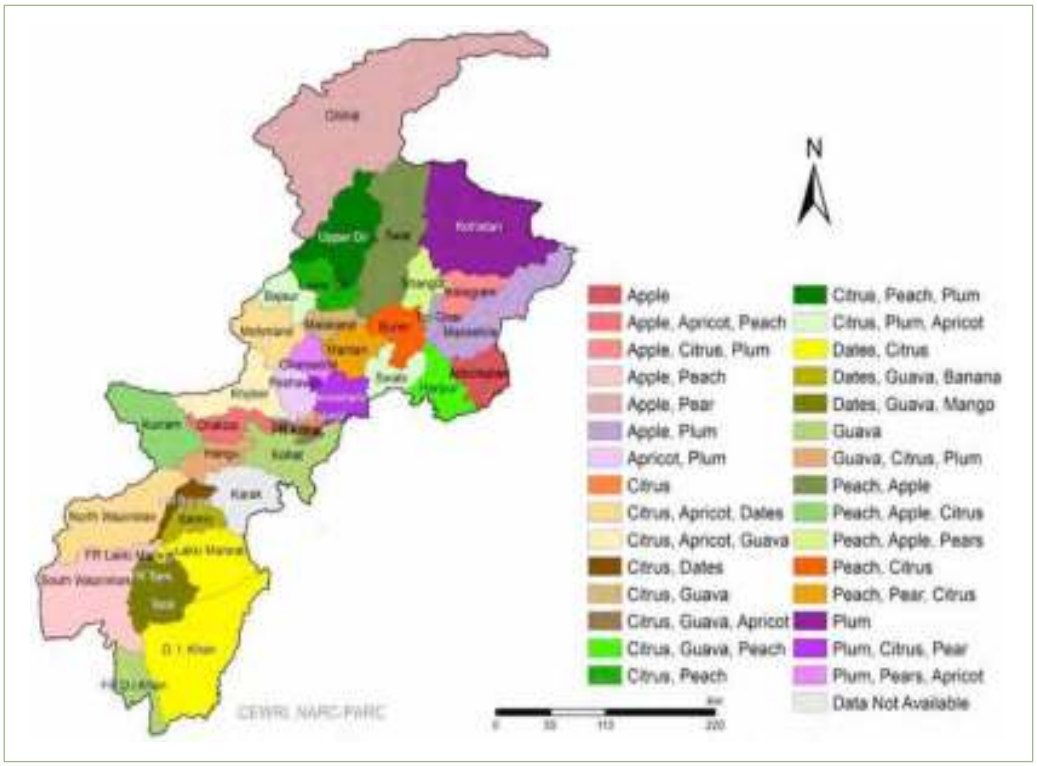
Source: NARC (PARC).

Figure 3: Map of major fruit crops in Balochistan



Source: CEWRI and NARC (PARC).

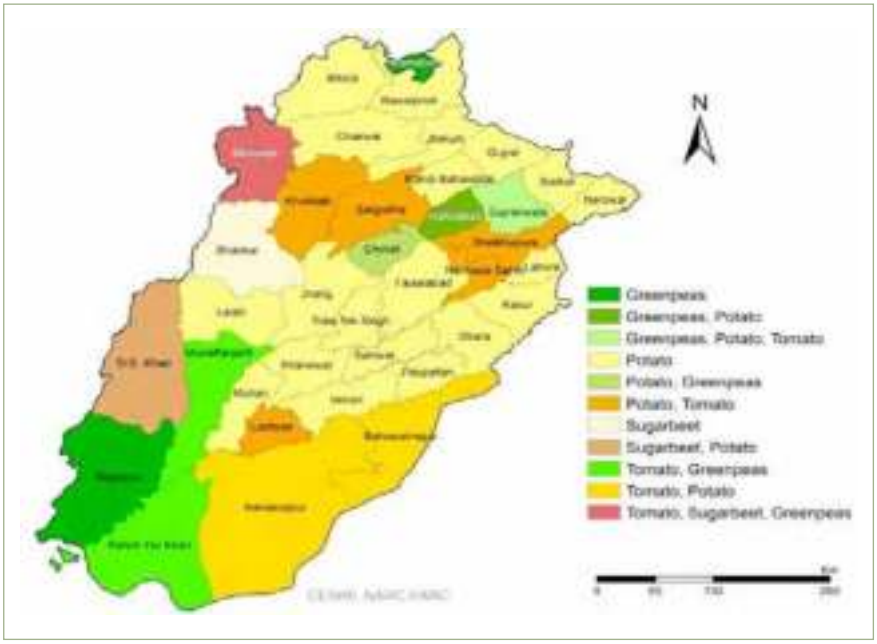
Figure 4: Map of major fruit crops in Khyber Pakhtunkhwa



Source: CEWRI and NARC (PARC).

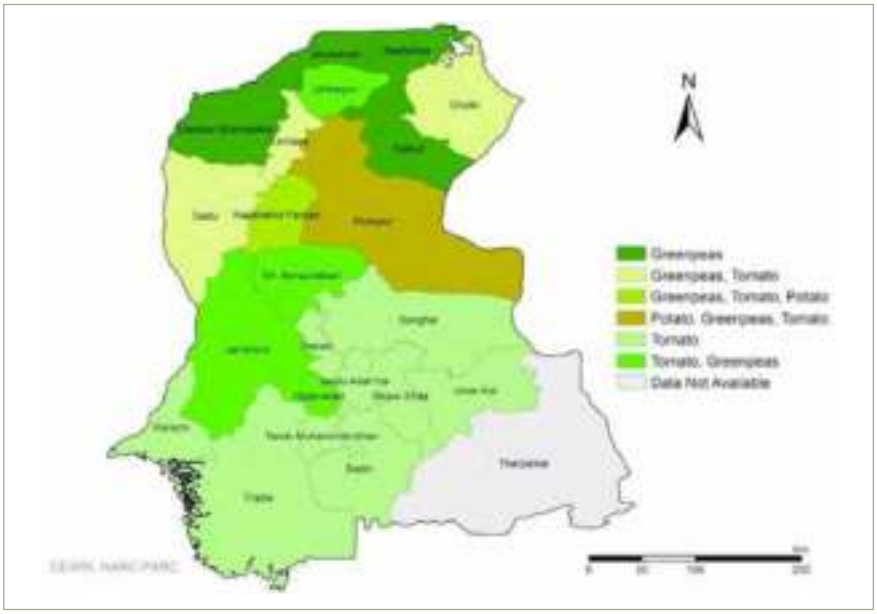
Annex III:
Maps of major vegetable crops in Pakistan's provinces

Figure 1: Map of major vegetable crops in Punjab



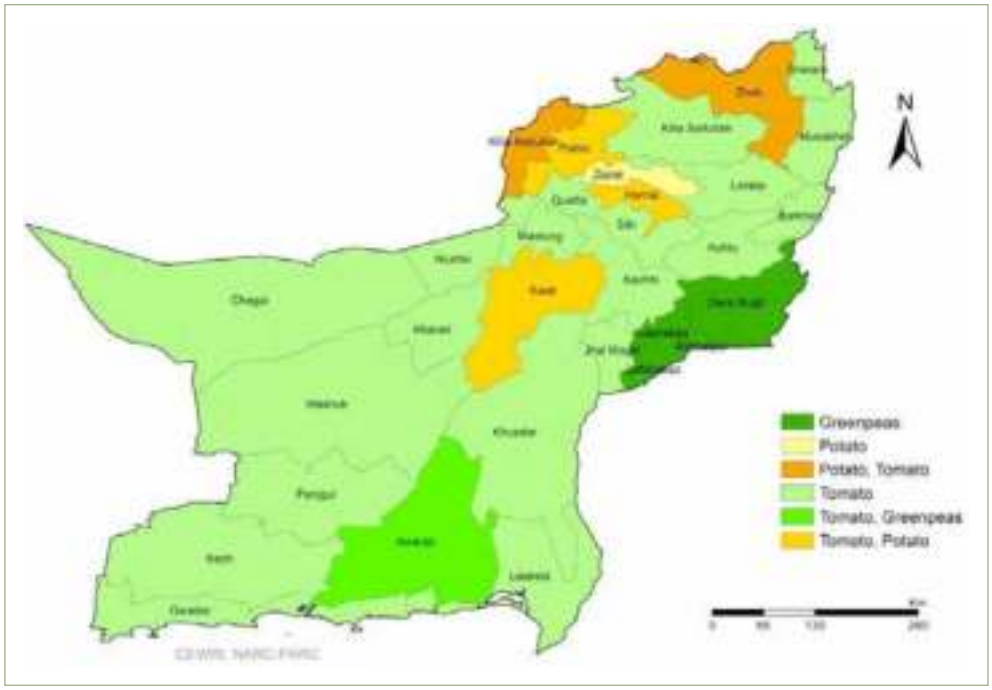
Source: CEWRI and NARC (PARC).

Figure 2: Map of major vegetable crops in Sindh



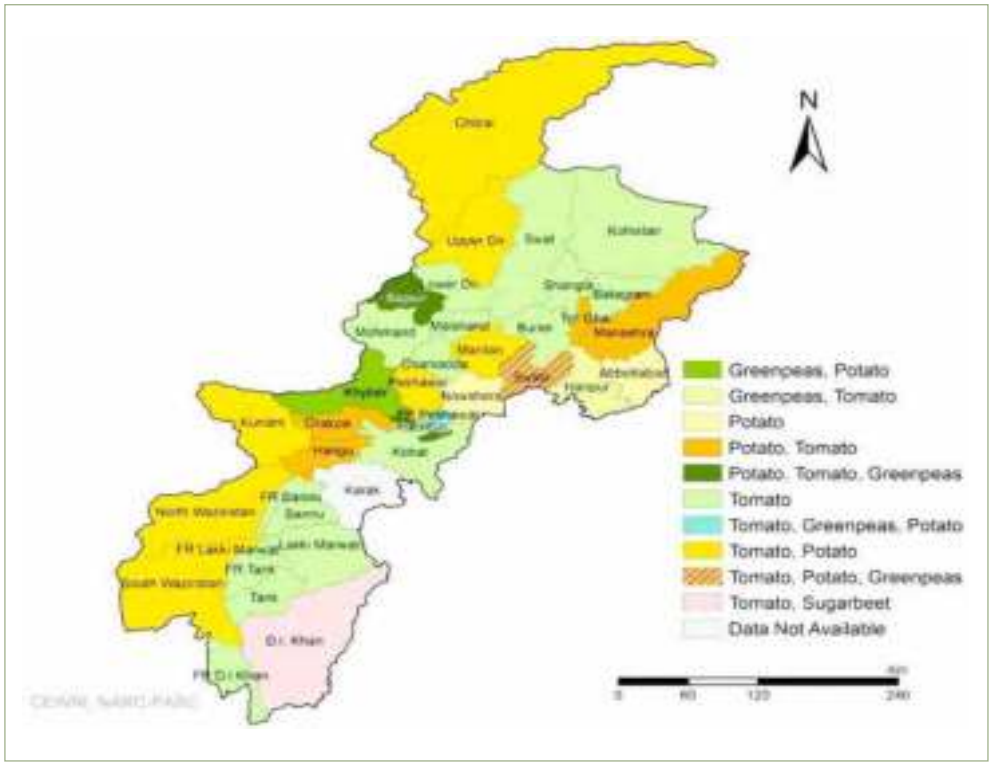
Source: CEWRI and NARC (PARC).

Figure 3: Map of major vegetable crops in Balochistan



Source: CEWRI and NARC (PARC).

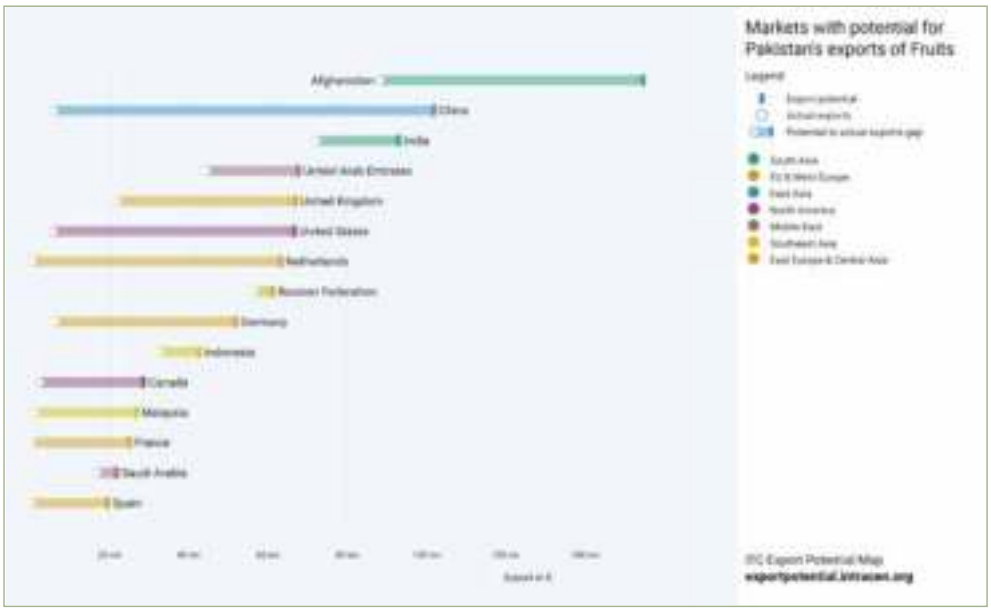
Figure 4: Map of major vegetable crops in Khyber Pakhtunkhwa



Source: CEWRI and NARC (PARC).

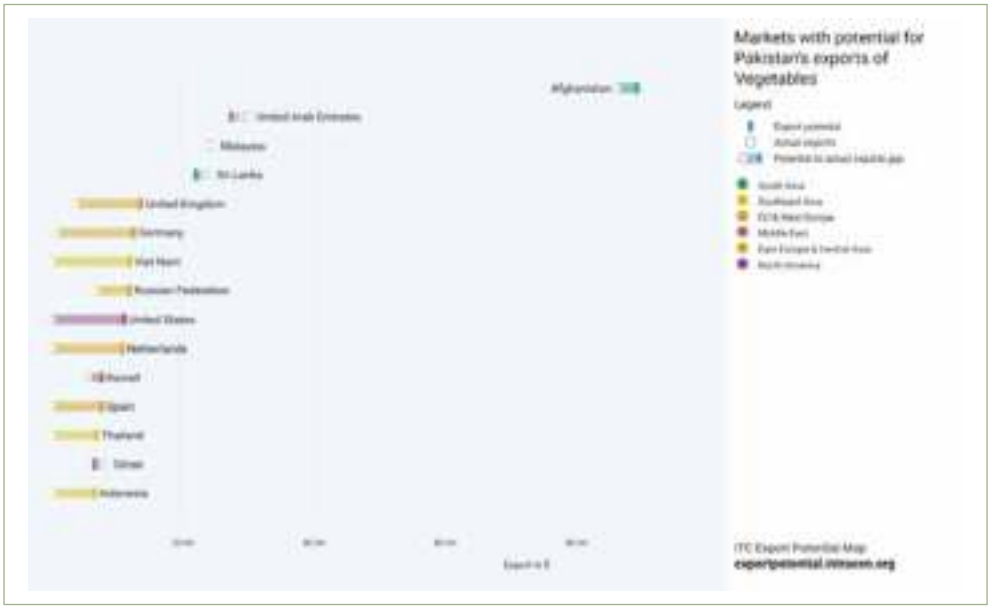
Annex IV:
Markets with potential for Pakistan's exports of fruits and vegetables

Figure 1: Markets with potential for Pakistan's exports of fruits



Source: ITC Export Potential Map.

Figure 2: Markets with potential for Pakistan's exports of vegetables



Source: ITC Export Potential Map.

REFERENCES

Barbosa-Cánovas, Gustavo V. and others (2003). *Handling and Preservation of Fruits and Vegetables by Combined Methods for Rural Areas*. Technical Manual, FAO Agricultural Services Bulletin 149 – Chapter 1: Fruits and vegetables: an overview on socio-economical and technical issues. Available from http://www.fao.org/docrep/005/y4358E/y4358e04.htm.

FAO (2014). 'Agroecology for Food Security and Nutrition: Proceedings of the FAO International Symposium'. 18-19 September 2014, Rome, Italy.

FAO (2020). Fruit and vegetables – your dietary essentials. 'The International Year of Fruits and Vegetables, 2021, background paper'. Rome. Available from https://doi.org/10.4060/cb2395en.

FAO (2021). FAOSTAT. Available from www.fao.org/faostat/en/.

International Trade Centre (2020). Invisible barriers to trade – Pakistan: Business perspectives. ITC, Geneva.

International Trade Centre (2021). Export Potential Map. Available from https://exportpotential.intracen.org.

International Trade Centre (2021). Trade Map. Available from http://www.trademap.org.

International Trade Centre, International Institute for Sustainable Development and Research Institute of Organic Agriculture (2019). *The State of Sustainable Markets 2019: Statistics and Emerging Trends.* Sales No. E.19.III.T.5. Available from https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Sustainabile%20markets%202019%20web.pdf.

Ministry of Finance, Government of Pakistan (2021). Pakistan Economic Survey 2020–21.

Ministry of National Food Security & Research, Government of Pakistan (2021). Agricultural Statistics of Pakistan 2018-19. Available from http://www.mnfsr.gov.pk/pubDetails.aspx.

Ministry of National Food Security & Research, Government of Pakistan (2021). Year Book 2019-20. Available from http://www.mnfsr.gov.pk/pubDetails.aspx.

Pakistan Business Council (2020). *Understanding the Bottlenecks and Opportunities in Value-Added Exports of Fruits and Vegetables.* Available from https://www.pbc.org.pk/wp-content/uploads/PBC-Horticulture-Sector-Study-Report.pdf.

Schlatter, B. et al. (2021). *The World of Organic Agriculture. Statistics & Emerging Trends 2021.* Research Institute of Organic Agriculture (FiBL), Frick, and IFOAM – Organics International, Bonn. Available from https://www.fibl.org/fileadmin/documents/shop/1150-organic-world-2021.pdf.

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