Punjab's Strategy for CPEC for Development of Agriculture Sector – The Urban Unit

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OVERVIEW

The agriculture sector is a cornerstone of Pakistan's economy, contributing approximately 24% to the national GDP and employing about 37.4% of the total labor force during the 2023-24 fiscal year (Government of Pakistan, 2024). In the same period, the sector experienced significant growth, registering a 6.3% increase compared to 2.3% the previous year, driven by healthy growth in important crops (Government of Pakistan, 2024).

Punjab plays a pivotal role in this sector, accounting for about 54.2% of the national GDP and engaging approximately 25% of its labor force in agriculture and allied activities (Punjab Growth Strategy 2023, GoP). Notably, agriculture-based products constitute around three-fourths of the country's total exports, with Punjab contributing about 60% of this share (Punjab Growth Strategy 2023). The Punjab Growth Strategy 2023 emphasizes that a

1% growth in the agriculture sector leads directly and indirectly to over 0.4% growth in the overall economy of Punjab (Punjab Growth Strategy, 2023).

Enhancing agricultural productivity is essential for sustainable economic growth, poverty alleviation, and food security in Pakistan. Punjab holds significant potential for development and value addition in cropping systems, aiming to improve rural household incomes and livelihoods. Leveraging opportunities under the China-Pakistan Economic Corridor (CPEC), Punjab GDP can be increased from $33 billion to $100 billion making a significant development in this sector (Punjab Growth Strategy, 2023).

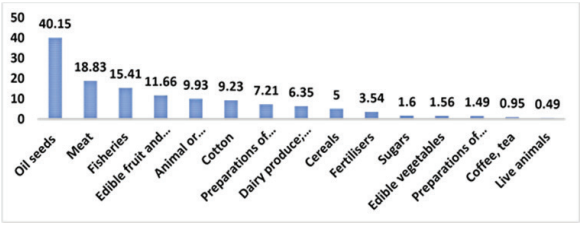
While China's agricultural import landscape is diverse, encompassing a wide range of products to meet its domestic demand. In 2023, China's total agricultural imports were valued at approximately $234.1 billion USD, with the highest chunk of imports consisting of soybeans and oilseeds, i.e., 52.93%, followed by 13.4% of agricultural and food imports such as cotton, wool and fibers, reflecting a slight decrease of 0.3% from the previous year (Ministry of Agriculture and Rural Affairs, 2024). The import composition includes:

- Soybeans and Oilseeds: These constitute the largest share, driven by the need for animal feed and edible oils.
- Cotton, Wool, and Fibers: Essential for the textile industry, these imports support China's significant manufacturing sector.
- **Fats and Oils:** Including palm oil and other vegetable oils, these are crucial for both industrial use and food processing.
- Meat and Dairy Products: To meet the rising consumer demand for protein, China imports substantial quantities of beef, pork, and dairy goods.

The proximity of trading partners plays a vital role in China's import strategy, especially for perishable goods. Shorter distances reduce shipping costs and minimize the risk of spoilage, making trade with neighboring countries more favorable. Longer distances not only increase transportation costs but also necessitate additional measures such as enhanced preservation techniques and the use of pesticides to extend shelf life, which can impact the quality and safety of food products.

Understanding these dynamics is crucial for countries aiming to engage with China in agricultural trade, as factors like product type, shelf life, and logistical considerations significantly influence trade feasibility and competitiveness.

Graph 1. China's Agricultural Imports



China's overall agricultural exports are worth USD 98.9 billion, the biggest chunk lies with cotton contributing 17%, followed by fishing, vegetables, meat preparations and vegetable preparations contributing 15%, 13%, 12% and 10% respectively. This shows that in these goods, China has the technologies that can be traded with China to grow these products and their supply chain to raise exports from Pakistan.

Graph 2. China's Agricultural Exports (USD 84 Billion)

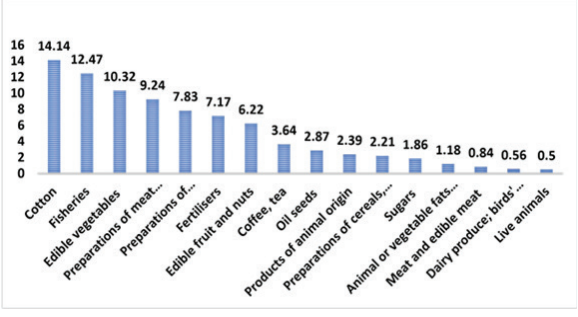
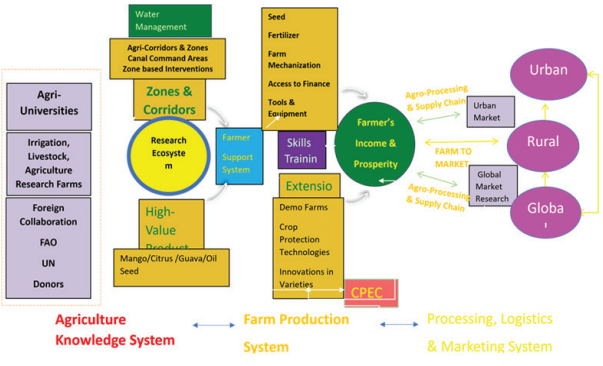


Figure 1. Knowledge Base Economy & CPEC



The figure 1 illustrates an integrated agricultural framework where research, farm production, and market linkages work together to enhance farm-

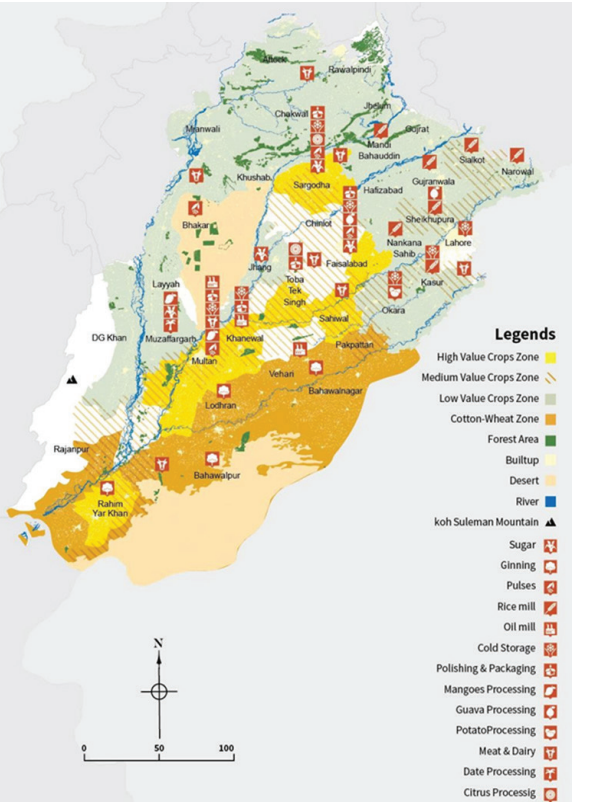
https://finance.gov.pk/survey/chapter_24/2_agriculture.pdf:

ers' income and prosperity. It highlights the role of agri-universities, research institutions, farmer support systems, and CPEC in strengthening agricultural value chains through modern techniques, financial access, and global market connections. The integration of these components is crucial for transforming Punjab's agriculture sector into a more efficient and globally competitive industry. Punjab, as Pakistan's agricultural backbone, can benefit immensely from agri-universities, research collaborations, and extension services, which introduce innovative farming techniques, high-yield crops, and sustainable irrigation methods. By utilizing agriculture zones, mechanization, and financial support, farmers can enhance productivity and resilience against climate change. CPEC's role in infrastructure development, agro-processing, and trade connectivity further strengthens Punjab's agriculture by linking rural farmers with national and international markets. This integration ensures higher farmer incomes, reduced post-harvest losses, improved food security, and a stronger export-oriented agricultural economy, making it essential for Punjab's long-term economic growth and sustainability.

KEY CHALLENGES

Agriculture sector of the province faces the following key challenges through Transfer of Technology, Equipment, Partnership, and R&D to increase productivity, competitiveness & export and reduce cost of production with financial supports in terms of grants, loan, PPP, and JVs.

Figure 2. Potential Agriculture Crops Zone



(B2B. G2G, B2G)

Inputs: Limited access to quality agriculture inputs	Diversification: Low diversification in the production and processing	Value Addition: Limited processing, storage and logistic capacity
Markets: Inefficient agriculture markets and operating framework	Natural Resources: Poor practices depleting natural resources (land and water)	Human Capital: Inadequate investment in human capital and archive farm methods/techniques
	Small Holding: Less focus on export & foreign markets due to scalability issues	

The map (Figure 2) illustrates the high-value crop zones in Punjab, highlighting distinct agricultural regions based on crop suitability. In Northern Punjab, the districts of Attock, Rawalpindi, and Chakwal are well-suited for a mix of olives, grapes, pulses, and groundnuts. The Western Zone, encompassing Gujrat, Narowal, and Gujranwala, is classified as a vegetable and rice zone due to its fertile land. Central Punjab, including Sargodha, Chiniot, and Mandi Bahauddin, is recognized as a citrus-producing region. In the South-Western Zone, districts such as Multan, Khanewal, and Muzaffargarh form a mango, date, and vegetable cluster. The Eastern Zone, comprising Bhakkar, Layyah, and Dera Ghazi Khan, is favorable for pulses, barley, and dates. Finally, the Southern region, including Bahawalpur, Rahim Yar Khan, Bahawalnagar, and Rajanpur, is identified as a cotton, oilseed, and sugarcane zone. These agricultural zones are classified based on comparative advantages in yield, production capacity, and agro-ecological conditions.

This strategic zoning is essential for aligning CPEC investments with Punjab's agricultural strengths, ensuring targeted infrastructure, value chain development, and export-oriented growth. By directing Chinese investment into these specialized zones, Pakistan can enhance productivity, modernize processing facilities, and strengthen trade linkages, maximizing the economic benefits of CPEC in the agricultural sector.

PLANNING FOR CPEC

- Collaboration in area where Chinese agriculture is advanced for technical assistance & technological transfer
- A comprehensive examination of the export basket of Pakistan and the import basket of China should be undertaken to identify promising agriculture and agro-processed products that offer opportunities to increase and diversify Pakistan's exports to China
- Planning the CPEC – an iterative approach

KEY AREAS OF INTERVENTION FOR CPEC

- Strengthening and upgrading of agricultural infrastructure adjoining the route of CPEC.
- Construction of water resources and water-saving modern agricultural demonstration zones
- Technical exchange and cooperation in fields such as crop seed reproduction, livestock and poultry breeding, breeding and production technology, agricultural products processing, animal & plant epidemic prevention & control, mechanization demonstration and ICT-enabled agriculture
- Collaboration in medicines and vaccines for horticulture, fisheries and livestock
- Reinforcement of R&D in view of latest agriculture practices, mechanization, hybrid varieties and value addition
- Improvement of post-harvest handling, storage and transportation of agricultural products and innovation of advanced marketing and sales models

STRATEGIC DIRECTION

The aim of cooperation in agriculture development and poverty alleviation is to reinforce and improve the agricultural infrastructure and knowledge exchange. The construction of water resources and modern agricultural areas will be encouraged and medium and low fertile lands will be restored for efficient use of resources. Technical exchange and cooperation in areas such as crop seed production, production technology, agricultural processing, prevention and control of animal and plant epidemics, mechanization demonstration and ICT-enabled agriculture will be enhanced under the CPEC.

They key strategies and policies set following strategic directions for agricultural development:

CPEC Long Term Plan 2030

CPEC LTP aims to strengthen agricultural infrastructure and play key role in agricultural personnel training, technical exchanges and cooperation. It promotes cooperation in areas such as biological breeding, production, processing, storage and transportation, infrastructure construction, disease prevention and control, water resources utilization, conservation and production, land development and remediation, ICT-enabled agriculture and marketing of agricultural products to promote the systematic, large-scale, standardized and intensified construction of the agricultural industry.

Punjab Growth Strategy 2023

Cornerstone of the growth strategy is to accelerate the growth of agriculture from about 2% in the last

five years to between 3.5% to 4 % in the next five years. The strategy contains specific initiatives like achieving greater efficiency in the utilization of water resources and other inputs, enhancing the quality and access of agriculture research and transforming, cropping pattern based on changed climatic profile and improving productivity yields in key agricultural zones.

Punjab Spatial Strategy 2047

PSS focuses on development of competitive crop areas for investment mobilization. It emphasizes to improve existing cropping patterns to draw maximum benefit from land. Efficient land use can be ensured by improving the value of produce per unit of land, as well as by making more land arable. Identifies high value cropping zones that can lead to maximizing yield per area of land utilized by providing integrated support system in agriculture cluster

Punjab Agriculture Policy 2018

Agriculture Department aims to enhance competitive position of agriculture sector in line with global and domestic market demands, utilizing benefits from increasing food production (improving food quantity, quality and nutrition diversity through higher yields and better crop mix). Increasing farmer profitability to raise living standards of the farming families, with increased participation of rural women and youth. Conserving agricultural resources with efficient use of land, water and labor deployed for agriculture. Enhancing sustainability and resilience in the wake of climate changes.

KEY OBJECTIVES OF STRATEGY

Government of the Punjab aims to develop vibrant and outward looking agriculture sector under CPEC through promoting sustainable development, advancement in technology and overall improving the quality of life. The objective is to induce growth in the cropping sector by enhancing productivity, improving farmer profitability, encouraging diversification, increasing market and trade competitiveness, fostering encouraging private investment, and by improving the supply-chain mechanism under CPEC.

The key objectives of the strategy are as follows:

1. Enhance the competitive position of agriculture sector to capture global demand and cater to domestic demand through the modernization of traditional agriculture practice.

2. Ensure food security by improving food quantity, quality and nutrition diversity through higher yields and better crop mix and also increasing farmer profitability.

3. Enhance sustainability and resilience in the wake of climate changes by conserving agricultural resources through efficient use of land & water.

4. Strengthen and promote private sector participation in agriculture value chains with increased investment, technology infusion and resource management

STRATEGY INTERVENTIONS

In the short-term, the focus of strategy would be on fruit & vegetable and selected major crops. In medium and long-term, other important crops (horticulture and other products like oilseed, fodder, pulses etc.) will also be explored. These systems are also in line with the FTA II signed between China & Pakistan.

The CPEC Strategy intervention is comprised of five important pillars for agriculture that aim to boost productivity, competitiveness, and exports while lowering production costs through short-, medium-, and long-term initiatives.

Pillar I

- Input Quality & Availability

Pillar II

- Production Infrastructure Development

Pillar III

- Farmer Mechanization

Pillar IV

- Technological Development

Pillar V

- Bilateral Investment & Trade

The five pillars of agricultural development are structured into short-term, medium-term, and long-term strategies to ensure a sustainable and progressive transformation of the sector.

Under Pillar I: Input Quality & Availability, the focus is on improving the quality of agricultural inputs such as seeds, fertilizers, pesticides, and weedicides

while ensuring efficient resource utilization. In the short term, this includes the production of certified seeds and the establishment of fertilizer and pesticide production facilities. Medium-term goals emphasize the acquisition and exchange of high-yielding varieties and the introduction of water-efficient technologies. In the long term, hybrid and certified new varieties will be developed based on agro-ecological conditions, along with the integration of bio-fertilizers and microbial pesticides for sustainable agriculture.

Pillar II: Production Infrastructure Development aims to enhance farmers' income by promoting highly profitable cropping patterns. Short-term strategies focus on strengthening and developing crop value chains by establishing clusters and initiating bilateral exchange programs to create model farms. In the medium term, the development of value chains for high-value crops will be prioritized through technology transfer and extension services, with incentives for cooperative farming. The long-term vision includes the development of modern agricultural infrastructure, state-of-the-art extension services, training centers in Punjab, and the promotion of corporate farming.

Pillar III: Farmer Mechanization seeks to reduce production costs by upgrading mechanization levels. In the short term, subsidies will be provided for the import of agricultural machinery, along with the establishment of mechanization service centers. Medium-term actions include the development of SMEs for agricultural machinery manufacturing and repair. In the long term, hi-tech agricultural machinery manufacturing facilities will be established along CPEC routes in collaboration with the private sector in Punjab.

Pillar IV: Technological Development emphasizes the advancement of technology in agriculture through R&D collaboration and technology transfer. Short-term initiatives include the establishment of oil technology laboratories, a joint Pak-China cotton laboratory, and cooperation with industry and institutions for research and training. In the medium term, research departments within the Punjab agricultural sector and universities will be strengthened, and an International Seed Testing Association (ISTA)-accredited seed certification facility will be set up. Financial support will be arranged through China EXIM Bank and SBP for clean technologies, while joint ventures in processing and mechanization technology will help reduce postharvest losses. Long-term strategies focus on modernizing agriculture through artificial intelligence, network-based systems, intelligent prediction models, and climate-smart agricultural R&D, along with improvements in soil structure through advanced scientific techniques.

Pillar V: Bilateral Investment & Trade focuses on developing product value chains under CPEC to enhance global trade opportunities. Short-term plans include attracting Chinese investment in processing and value addition industries along the CPEC route and establishing a business-to-business (B2B) collaboration platform for bilateral trade. In the medium term, efforts will be made to encourage more companies to engage in B2B collaborations for fruits and vegetables. The long-term goal is to enhance cooperation between industries and institutions for research, development, training, and technology transfer, ultimately improving agricultural processes and value addition.

These pillars collectively aim to modernize agriculture, improve productivity, and enhance farmers' livelihoods through strategic interventions across different time frames.

REFERENCES

Government of Pakistan. (2024). Economic Survey of Pakistan 2023-24. Ministry of Finance. Retrieved from https://www.finance.gov.pk/survey/chapter_24/Highlights.pdf

Gop. Punjab Growth Strategy 2023. Retrieved from https://punjab.gov.pk/system/files/PGS_2023.pdf

Ministry of Agriculture and Rural Affairs. (2024). China's foreign trade of agricultural products stable in 2023. Retrieved from https://english.www.gov.cn/archive/statistics/202401/29/content_WS65b7a274c6d0868f4e8e399c.html

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