



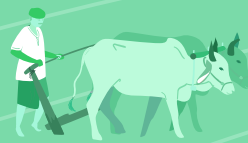
REFORMS FOR
A BRIGHTER
FUTURE
TIME TO DECIDE

PRELIMINARY DRAFT FOR
CONSULTATIONS AND DISCUSSION

DISCUSSION NOTE 4

UNLEASHING THE AGRI-FOOD SECTOR

Towards Productive and
Climate-Resilient Agriculture



WORLD BANK GROUP

Towards Productive and Climate-resilient Agriculture

The agri-food sector in Pakistan receives generous public support in various forms but performs far below its potential. Because the sector remains vital to the economy, employment, food security and rural livelihoods, the Federal and Provincial Governments each year aim to stimulate agriculture production through the distribution of generous subsidies and minimum guaranteed prices to farmers. Yet, agri-food sector growth remains low, Pakistan's wheat productivity is stagnating, and agri-food production is poorly diversified, despite significant agro-ecological potential. Meanwhile Pakistan's imports of pulses and vegetable oils keep increasing, and the diverse and vibrant livestock production potential is ignored. The current agri-food policy framework is heavily distortionary, and public spending are costly and not benefiting to small land-holding farmers where the highest growth potential lies. Public interventions are pushing the agri-food production system beyond a sustainable use of natural resources and are not driving its adaptation to climate change, which is projected to decrease yields for some crops by 14 to 50 percent and increase demand for irrigation water by 10 to 25 billion cubic meters (BCM).

Pakistan can become an agri-food powerhouse but this requires an urgent and thorough repurposing of public policy and spending. Reforms are required to establish proper incentives; attract private investments to improve access to markets, finance and innovations; and support climate change adaptation. A revamped policy framework could more vigorously help address the structural challenges of smallholder producers, stimulate crop and livestock diversification, and modernize the wheat value chain to make Pakistan wheat competitive and reduce its fiscal burden. More investments in high potential subsectors (livestock, fruits and vegetables, etc.) and core public goods (research and extension, farmers organizations, marketing infrastructure, etc.) could yield significant improvements in growth, employment, rural incomes, nutrition, and environmental outcomes.

Potential Benefits From Unleashing The Agri-Food Sector



US\$2.2 to 2.7 billion per year

Of public finance released from wasteful and poorly targeted subsidies



US\$700 million per year

From increased production of fruits and vegetables

The Problem

The agri-food sector performs under its potential despite receiving large public support

The agri-food system remains vital to Pakistan's economy and the main source of income for a large share of the rural population. The agriculture sector contributes 23 percent of the country's GDP and its contribution remained stable over the past three decades. The sector generates a quarter of total export earnings. Close to 40 percent of Pakistan's labor force is still engaged in agriculture. More than 61 percent of Pakistan's people reside in rural areas and are largely dependent on crop and livestock productions. Overall, two out of three employed women work in the agri-food sector.

For the last 50 to 60 years, the agri-food sector has benefited from large and generous public spending and support in various forms. The Federal and Provincial Governments have been extensively supporting agriculture production to ensure food security and provide affordable food. Public support to farmers includes a wide variety of instruments ranging from input subsidies, subsidized tariffs on water and electricity for irrigation, and minimum guaranteed prices. Agricultural trade policies also impose import quotas or regulate commodity exports, with the intention of protecting domestic markets and local production. Poor irrigation pricing and inefficient tariff collection necessitate provincial budgetary allocations to cover the shortfall in cost recovery, representing about 94 percent of Operation and Maintenance (O&M) costs in Sindh, and 70-75 percent in Punjab. All these measures represent a significant drain on Governments' budgets. In recent years, direct and indirect subsidy support to agriculture and irrigation in Punjab and Sindh has accounted for about US\$2.2 and US\$2.7 billion of public spending per year, including tax relief for inputs, import and export subsidies and revenue gap financing.¹

Despite extensive support, Pakistan's agri-food sector underperforms in comparison with peer countries. Pakistan's has substantial comparative advantage in agriculture, stemming from its abundance of arable land spread across a diverse set of agro-ecological zones, fresh-water resources managed through the biggest contiguous irrigation system in the world, and a large rural labor force that is predominantly agrarian. The governance framework guiding public support to the agriculture-food system has prevented the full benefits of these assets from being realized. Following undeniable progress during the Green Revolution, annual agricultural growth rates slowed from over four percent between 1970 and 2000 to below three percent thereafter. Between 1991 and 2019, agricultural output per worker grew at an annual rate of 0.7 percent in Pakistan, significantly below the South Asia average of 2.8 percent over the same period. The average wheat yields in Pakistan are almost half of those in China and 15 percent lower than in India. Cotton yields in China and Bangladesh are 2.3 and 1.7 times higher than those of Pakistan, respectively.² Pakistan's use of water in agriculture puts it among the 10 percent worst performing countries on agricultural water productivity.³ The agri-food sector also underperforms when assessed against its own potential, with yields of major crops 1.5 to 4.2 times below field potential.

Distortive and costly public interventions undermine performances and progress

Public support (policies, interventions, and expenditures) in the agri-food is costly, inefficient, heavily distortionary, poorly targeted, and makes the system vulnerable to climate change impacts. To ensure food security, public spending has been focused on stimulating domestic staple production, especially by small farmers, to stabilize prices and provide affordable flour to consumers.

¹ The World Bank Group. 2022. Pakistan Country Climate and Development Report.

² FAO statistics

³ Young, William J.; Anwar, Arif; Bhatti, Tousif; Borgomeo, Edoardo; Davies, Stephen; Garthwaite III, William R.; Gilmont, E. Michael; Leb, Christina; Lytton, Lucy; Makin, Ian; Saeed, Basharat. 2019. Pakistan: Getting More from Water. © World Bank, Washington, DC. <http://hdl.handle.net/10986/31160> License: [CC BY 3.0 IGO](https://creativecommons.org/licenses/by/3.0/)

This narrow objective has distorted decision making towards locking smallholder farmers in a low value farming system, making them miss out on growing demand for higher value products in domestic and international markets. The most illustrative distortions are as follows:

- **The traditional farming system remains subsistence oriented and reliant on a few crops, yet resource-intensive and vulnerable to shocks.** Public incentives are skewed towards four crops that use 85 percent of the cultivated land: wheat (48 percent), rice (15 percent), cotton (15 percent), and sugarcane (7 percent). Sugarcane and rice are water intensive crops which, alone, consume 50 percent of the irrigation water.⁴ Wheat and rice alone receive around 75 percent of the fertilizer and water subsidies. In addition, the support to wheat prices above international market prices further distorts cropping choices by farmers. This notably encourages monocropping practices by most smallholder farmers, which makes them more sensitive to economic, climate and environmental shocks, and prevents diversification toward higher value, more nutritious, and less resource intensive crops. These policies also limit agriculture to provide a path out of poverty as higher-value crops and more efficient and sustainable techniques remain out of reach.
- **Domestic food production is not responsive to dietary changes and does not capture diversification and value addition opportunities.** The focus on food security ignores the growing demand both on the domestic and international markets for higher value and more nutritious products, such as fruits, vegetables, and animal sourced food. Pakistan has an immense potential in this regard thanks to its diverse agro-ecological conditions and rich genetic resources. The International Trade Center estimates this untapped potential in fruits and vegetables to represent over US\$700 million per year for Pakistan. The imports of pulses and vegetable oils cost close to US\$3 billion per year,⁵ almost equivalent to the average annual costs of Punjab or Sindh agriculture subsidies. Moreover, except for cotton and sugar, there is limited post-harvest operations of domestic production (storage, logistics, processing, packaging, etc.) to add value and enhance quality standards.
- **The relative contribution of the livestock sub-sector to the economy and to smallholders' incomes is far larger than public spending dedicated to it.** Livestock production is a core element of the farming system, especially for smallholders, as an essential source of resilience (savings), nutrition (proteins and lipids from by-products), energy (land preparation and transport), and nutrition transfer to crops (manure). However, while the livestock sector represents 60 percent of the agricultural GDP, it receives less than one percent of public investments. There is an untapped potential for dairy and meat on domestic and export markets through quality improvement and processing.
- **Public support also underinvests in core public goods, such as agronomic research and extension that are indispensable to generate and disseminate innovation and support climate change adaptation.** Pakistan's public investment in agricultural research was at 0.37 percent of agricultural GDP in 1996 and has declined to 0.12 percent in 2016. India, Bangladesh, and Sri Lanka are spending between 0.3 to 0.60 percent. Most agricultural research expenditures still go to food grains, sugarcane, and cotton, rather than to high-value crops and livestock products, and to developing climate-smart and market-based innovations and improving post-harvest technologies for value-addition.

The vast majority of the farming community is not benefitting from the generous subsidies

Public support is also not adequately supporting smallholder farmers who are the vast majority of farmers and have a huge potential for productivity increases. Land distribution remains highly inequitable with 2 percent of farmers owning 45 percent of the cultivated land. Farmers with less than 12.5 acres (5ha) of land represent close to 90 percent of the farming community. Yet, they receive a limited fraction of public subsidies, as many subsidies, especially acreage-based ones, primarily benefit bigger farmers.

⁴ Based on water requirements and areas under cultivation. Source: Davies S. Young W. 2021

⁵ International Trade Center (<https://exportpotential.intracen.org/en/>)

Large farms are at least nine times more productive than small farms.⁶ In sum, the current public support system is not only more favorable to large farmers, but it is also not designed to help smallholder farmers overcome the specific market failures they are facing in terms of: (i) limited scale of production and low productivity due to lack of inputs, equipment, and knowledge of good production practices; (ii) market aggregation failures limiting economies of scale; (iii) coordination failures along the value chain leading to information asymmetries and preventing stable market relationships; (iv) inequality in bargaining power with buyers and input providers to obtain better prices and services; and (v) producers' undercapitalization and challenging access to finance curbing their ability to invest in equipment, innovation, production, and marketing upgrading.

Regulatory frameworks governing agriculture and water lead to natural resources degradation and undermine climate change adaptation

The existing water sector governance framework provides no incentive for water conservation, crop specific subsidies retain farmers in low value and high water-consumptive production systems, and lack of groundwater regulation coupled with perverse energy subsidies for electric tube-wells encourage over-abstraction. Water productivity in Pakistan stands at 130 grams of crop output per cubic meter of water, as compared to 390 grams in India, 800 grams in China and 1,560 in the USA. The economic productivity of water use in agriculture is among the lowest 10 percent of countries, globally. The abiana system serves none of the key purposes associated with natural resource pricing – it does not reflect the scarcity value of water; it does not cover the cost of providing public irrigation services; and it does not incentivize private sector to participate and increase quality of services. Low fiscal space leads to poor O&M and leaves little room to modernize irrigation services and make them responsive to farmer needs. Many farmers are overcoming these shortcomings through tubewells, leading to the overexploitation of groundwater and deterioration of its quality. Where tube-wells are electric (roughly 10 percent in Punjab), the electricity subsidy exacerbates the problem of groundwater depletion which affects everyone dependent on the resource, while the benefits accrue to a handful of farmers. Where they are diesel operated (about 90 percent in Punjab), it leads to high spending on energy and to high carbon emissions.

The current policy framework is pushing the agri-food production system beyond a sustainable use of natural resources. The irrigation policy leads to high surface water withdrawals. More than 35 percent of irrigated land is waterlogged and 30 percent highly saline, making it unfit for agriculture production. Polluted return flows affect river ecology and the downstream water users. Fertilizer subsidies lead to uneven, inefficient, and excessive use of synthetic fertilizer resulting in severe soil degradation, while excessive pesticide usage harms biodiversity. There is no policy incentive to stimulate the adoption of more environmentally sustainable practices, especially chemical fertilizers application based on actual crop requirements and alternative options of biofertilization.

The policy framework is also not conducive to the adoption of climate-smart agriculture practices, while climate change is already materializing through heat waves and more intense and variable rainfall. Production of key crops is projected to be 14 to 50 percent lower under climate change than under the no-change benchmark.⁷ Changes in the monsoon, winter precipitation, snow, and ice melt patterns, may alter the spatial and temporal distribution of water available for irrigation. Climate change is also expected to further impair livestock productivity through reduced water availability, changes in fodder and feed quality and quantity, increased risk of disease epidemics, and the increased cost of feed, water, energy and cooling systems. Moreover, the risk of hydro-climatic disasters (floods and droughts), as observed in 2022, constitutes an increasing threat to agricultural production and food security. While existing policies acknowledge climate-related vulnerabilities, policy-induced market distortions and structural constraints impede the transition towards a greener and more climate resilient agri-food system.

⁶ The World Bank Group. 2022. 'From Swimming in Sand to High and Sustainable Growth - A roadmap to reduce distortions in the allocation of resources and talent in the Pakistani economy. Pakistan's Country Economic Memorandum 2022'.

⁷ International Center for Tropical Agriculture, the World Bank Group. 2017. Climate-Smart Agriculture in Pakistan. CSA Country Profiles for Asia Series. Climate impact modelling with IMPACT model.



Recommendations

An in-depth revision of the policy framework is urgently needed to realize the full growth potential of the agri-food sector, and strengthen its climate resilience

The agri-food policy framework needs to be adjusted to today's market and climate realities.

The overall public support program relies on an outdated vision that restrains the role of the agri-food sector to ensuring food security and self-sufficiency, complemented by few specific agri-exports. A renewed long-term vision for the agri-food sector should be much more ambitious to make Pakistan an agri-food power. The agri-food sector offers tangible opportunities to generate growth and employment, reduce rural poverty and malnutrition, while strengthening the resilience of smallholder producers to shocks. The overarching goal should be to develop a diversified, competitive and resilient agri-food sector that creates growth, jobs, and nutritious outcomes, preserves the natural resources and the productive potential and is inclusive of smallholder farmers and their mixed crop-livestock farming systems, while capturing domestic and export market shares for diverse produce.

A consensus needs to emerge on the key steps needed to progressively adjust policies. The Federal and Provincial Governments need to hold consultations with farmers' and private sector's representatives on the directions for changes and ensure harmonization of policy measures and instruments. The objective of a revamped policy framework should be to establish the right incentives (in terms of land and water use, adoption of climate-smart agriculture, nutritive diets, and so on), deliver differentiated and equitable support to different categories of farmers, stimulate private investment and competition, and harmonize regulations among Provinces. Multi-stakeholder consultations on sector modernization could be organized around the following priority recommendations:

1. **Repurpose public spending from inefficient and inequitable subsidies and price support measures towards investments in core public goods and neglected subsectors (livestock, horticulture, pulses, and oilseeds).** Public investments are urgently needed to strengthen agronomic research, animal health, food safety, sanitary and phytosanitary standards, early warning and monitoring systems, rural infrastructure such as storage facilities closer to rural producers, cold chains to improve agri-food quality and food safety,⁸ feeder roads to ensure the last mile access to markets, and so on. This would also give space to and attract private sector investments towards higher value production. Simplifying and harmonizing the policy and regulatory framework among the Federal and Provincial Governments could also attract more private investments. These reforms would allow all farmers – regardless of size or income level – more and better opportunities to generate productivity gains.
2. **Invest in sustainable land and water management to increase natural resource conservation and productivity.** Improving irrigation service and adopting conjunctive management of canal water and groundwater would reduce environmental degradation linked with waterlogging and salinity and facilitate productivity gains while also ensuring reliable and demand-driven access of all farmers to water for irrigation. Better on-farm land preparation and management practices would increase both land and water sustainability. Enforcing existing land planning to prevent the loss of fertile agriculture land in the face of sprawling urbanization and establishing proper land use taxation could also help stimulate sustainable agriculture investments.

⁸ Not detailed in this note, over US\$1.5 billion of productivity could have been lost in 2016 in Pakistan from foodborne disease, and Pakistan has high rejection rates for various fresh agri-produce exports to the EU according to the 2019 World Bank report "The Safe Food Imperative".

3. **Address the structural challenges of smallholder producers.** Inefficient and inequitable subsidies should be replaced by differentiated support to different categories of farmers, targeting primarily smallholder farmers and encouraging the adoption of climate-smart and regenerative agriculture practices. Public support should help organize small farmers to facilitate their access to input and output markets, reduce information asymmetries, and rebalance bargaining power along the agri-food value chains. Exploring options to secure the land and water use rights of tenants and sharecroppers, as well as registering them for direct access to subsidies, would stimulate longer-term investments in productivity increase and diversification, and climate-smart soil and water management practices.
4. **Modernize the overall wheat value chain to make Pakistan wheat competitive and reduce its fiscal burden, while stimulating crop and livestock diversification.** Wheat remains at the core of the traditional farming system and Pakistani diet, but the wheat value chain can be made more efficient by improving agronomic performances with better quality seeds, establishing an efficient storage and marketing system through private operators and farmers' organizations, and gradually removing the costly and distortive procurement program. Current resources spent on wheat could be repurposed to such objectives, as well as to support higher value and more nutritious crops, which would improve not only small farmers' incomes, but also the nutrition status of rural children.

ABOUT THE “REFORMS FOR A BRIGHTER FUTURE” DISCUSSION NOTES:

“Reforms for a Brighter Future” is an initiative of the World Bank, aimed at fostering debate and dialogue on critical economic development policy issues facing Pakistan. Further information is available from the World Bank Pakistan website at <https://www.worldbank.org/en/country/pakistan/brief/reforms-for-a-brighter-future-time-to-decide>. This is the fourth of a series of eight discussion notes. These notes outline World Bank recommendations across selected policy areas where major reforms are critical for Pakistan's progress towards inclusive and sustainable development. They do not aim to be comprehensive, but rather focus on selected areas where major policy shifts will be required to improve Pakistan's current development trajectory. Feedback from consultations and dialogue will be incorporated as the notes are finalized. This note was prepared by Olivier Durand (Lead Agriculture Specialist) and Basharat Saeed (Water Resources Specialist). Please send feedback or comments to Tobias Haque (Task-Team Leader, thaque2@worldbank.org) and Puteri Watson (Task-Team Leader, pwatson2@worldbank.org).