

SECTOR ASSESSMENT (SUMMARY): AGRICULTURE, NATURAL RESOURCES, AND RURAL DEVELOPMENT

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. **Overview.** Pakistan's agriculture sector has been the main source of food production for the country's ever-increasing population, which has grown from 33.7 million in 1951 to 186.2 million in 2013–2014.¹ While its share in the country's gross domestic product (GDP) has declined from 29.0% in 1985 to 19.8% in fiscal year (FY) 2015 (July–June), it remains the second largest contributor to GDP after the services sector, which contributed 59.2% of GDP during FY2016 (footnote 1). The agriculture sector absorbs 42.3% of the country's total labor force (footnote 1), and is a predominant source of employment for female workers, employing 72.7% of the female labor force in 2014–2015 compared to 33.1% of the male labor force.²

2. It is estimated that 29.5% of the population lives below the poverty line, or around 55 million people out of the estimated population in 2013–2014 in Pakistan.³ Most of the poor live in rural areas and are employed mostly as agricultural wage workers. The incidence of poverty is noticeably higher in rural areas and is almost double the rate in urban areas (35.6% in rural areas against 18.6% in urban areas in 2013–2014) (footnote 1).

3. Pakistan's agriculture is based on major crops that consist of wheat, rice, sugarcane, maize, and cotton and account for 23.5% of the value added in overall agriculture and 4.7% of GDP. The other crops account for 11.4% of the value added in overall agriculture and 2.3% of GDP. Livestock contributes 58.5% to agricultural value addition and 11.6% to GDP (footnote 1). Punjab, often dubbed Pakistan's breadbasket, dominates the nation's agriculture in many aspects. The province's overall contribution towards the agriculture sector is estimated at more than 80.0%.⁴ The province produced 76.0% of the nation's total production of wheat, 51.2% of rice, 64.8% of sugarcane, 81.3% of maize, and 71.6% of cotton in 2014.⁵

4. **Sector performance.** The Ministry of Planning and Development has estimated that the agriculture sector has to grow at 5% per year to reduce the poverty incidence and ensure food security, and for the national economy to reach its 7%–8% annual growth target.⁶ However, the annual agricultural growth rate averaged just 3% during 2010–2014, a significant drop from the growth rates experienced during 1990–2010.⁷ While agriculture growth rates are often volatile year-on-year because of weather and market fluctuations, the agriculture sector of Pakistan has remained steady, with no significant changes in cropping pattern since late 1980s. The sector is

¹ Government of Pakistan, Ministry of Finance. 2016. *Pakistan Economic Survey 2015–2016*. Islamabad.

² Government of Pakistan, Bureau of Statistics. 2016. *Pakistan Labour Force Survey 2014–2015*. Islamabad. The figure includes forestry, hunting, and fishing.

³ Based on a poverty line derived from the "cost of basic needs" approach, which focuses on the consumption patterns of households in the reference group.

⁴ World Bank. 2012. Project Appraisal Document. *Punjab Irrigated Agriculture Productivity Improvement Program Project*. Washington, DC.

⁵ Government of Punjab, Bureau of Statistics. 2014. *Punjab Development Statistics 2015*. Lahore.

⁶ Government of Pakistan, Ministry of National Food Security and Research. 2013. *Draft Agriculture and Food Security Policy*. Islamabad.

⁷ International Food Policy Research Institute. 2016. *IFPRI Blog: How to revitalize Pakistan's agriculture sector and rural economy*. <http://www.ifpri.org/blog/how-revitalize-pakistans-agricultural-sector-and-rural-economy>

increasingly dominated by small farmers who produce mostly for their own food needs. Only 17% of farms are large, producing cash crops and engaging in value-added activities.⁸

5. **Strategic direction and constraints.** Pakistan seeks to create a modern, efficient, and diversified agriculture sector to ensure food security.⁹ Punjab also sees the growth of the agriculture sector as a key element in achieving inclusive growth, and sees enhanced productivity and increased competitiveness in agricultural marketing and trade.¹⁰ Such transformation will (i) require intensive efforts to promote private sector investment in agriculture, encompassing significant reforms to markets for seed, fertilizer, land, commodities, and policies to clarify land tenure issues; and (ii) encourage rural enterprise development. To date, however, the sector remains characterized by heavy public intervention aimed at price stability and availability of food staples for the larger nonfarming population. In addition, the country's agricultural productivity is constrained by many other factors, including inadequate certified seed coverage, imbalanced use of fertilizers, insufficient farm mechanization, scarce credit, static cropping patterns, low investment in agricultural research, weak agricultural extension services, land degradation and environmental hazard due to salinity and waterlogging, and limited available irrigation water.

6. **Irrigation subsector.** Because of the country's semi-arid climate, with an average annual rainfall of 240 millimeters in most parts of the country, Pakistan's agriculture is heavily dependent on irrigation. About 80% of arable land and over 90% of agriculture output depends on irrigated agriculture, and irrigation uses about 95% of the country's water resources. One of the fundamental strengths of Pakistan's agriculture is the availability of water from the Indus Basin Irrigation System (IBIS), drawing from the Indus River and its tributaries. IBIS is the world's largest contiguous water system covering over 14.9 million hectares of farm land, consisting of three major multipurpose reservoirs, 23 barrages, headworks, and siphons, 12 inter-river link canals, and 45 major irrigation canal commands.¹¹ Over 70% of the cropped area of IBIS is in Punjab.

7. The operational performance of irrigation systems, including IBIS, however, is less than satisfactory. Crop water requirements in the system have dramatically increased as a result of the increase in cropping intensities and cultivation of high water-consuming crops. While the demand for canal irrigation water has increased, surface water availability has essentially remained unchanged as no new reservoirs have been constructed on the Indus River since 1976. Irrigation efficiency is also low at about 40%, which means that 60% of water available at the head of the main canal is lost either in conveyance or during its use at the farm level. Agriculture productivity per unit of water, land, and other inputs is well below global and regional standards because of water shortages, land degradation, and mismanagement of water resources.¹² The poor condition of the irrigation and drainage infrastructure and weak management practices result in unreliable surface irrigation service delivery. IBIS is also financially unsustainable, recovering only on average 24% of the costs necessary for the effective management of the irrigation infrastructure.¹³ As a result, the irrigation departments routinely defer maintenance because of the lack of funds to cover operation and maintenance costs.

⁸ Food and Agriculture Organization of the United Nations Investment Center. 2012 *Pakistan Priority Area for Investment in Agriculture Sector*. Rome.

⁹ Government of Pakistan, Ministry of Planning, Development and Reform. Planning Commission. 2013. *Pakistan 2025 One Nation – One Vision*. Islamabad.

¹⁰ Government of Punjab, Planning and Development Department. 2015. *Punjab Growth Strategy 2018*. Lahore.

¹¹ FAO. 2012. Irrigation in Southern and Eastern Asia in Figures: AQUASTAT Survey 2011. *FAO Water Reports*. No. 37. Rome.

¹² Friends of Democratic Pakistan Water Sector Task Force. 2012. *A Productive and Water-Secure Pakistan: Infrastructure, Institutions, Strategy*. Islamabad.

¹³ Government of Pakistan, Planning Commission. 2012. *Canal Water Pricing for Irrigation in Pakistan: Assessment, Issues and Options*. Islamabad.

8. To establish efficient and sustainable irrigation and drainage institutions, a far-reaching sector reform initiative was launched in 1997 across all four provinces with support from the World Bank, Asian Development Bank (ADB), and Japan International Cooperation Agency with a view to converting the provincial irrigation departments into autonomous irrigation and drainage authorities. Under the reform, the canal circles responsible for operation and maintenance of irrigation and drainage canals at the system level in the existing irrigation departments were to be converted into self-accounting area water boards that would take over and manage canals, while the farmer organizations would manage infrastructure at the distributary and minor level. However, their capacities are still not sufficient to carry out their intended tasks.

9. **Barani (rain-fed) area.** About 20.0% (approximately 3.24 million ha) of Pakistan's cultivable area is outside IBIS, where farming is in *barani* (rain-fed) areas, resulting in low agricultural productivity. Punjab accounts for 56.8% of the nation's cultivable area. Although Punjab accounts for 77.7% of the nation's irrigated area, about 13.3% of cultivable land in Punjab is still rain fed.¹⁴ Some of the country's poorest populations also reside in these *barani* areas and are dependent on agriculture for most of their income. Without a secure source of water for irrigation, however, farming in *barani* areas is both a low-productivity and a high-risk venture.

10. **Climate change impacts.** Pakistan is susceptible to climate change impacts, including greater unpredictability in monsoon and rains leading to more frequent and intense floods or droughts. The already stressed water resources will be further strained by fluctuations in flows in the Indus River system as a result of glacial melt. Sea-level rise will exacerbate saline water intrusion and further damage the already fragile coastal zones and marine ecosystems, with greater likelihood of increased storms.¹⁵

11. **Challenges and opportunities.** Population increase and rapid urbanization exacerbates Pakistan's already alarming water stress. Pakistan's dependence on a single river system, the Indus, makes its water economy highly risky because of threats from climate change impacts. In the short to medium term, Pakistan needs to invest more in increasing water productivity to ensure food security, including water conservation, high-efficiency irrigation, capturing unclaimed monsoon flows to irrigate rain-fed areas, and modernizing irrigation systems together with measures to improve asset management and irrigation service delivery. Pakistan also needs to invest in additional storage reservoirs that can harness the flood flows, mitigate flood damage, generate hydro power, and increase irrigation coverage, contributing to greater food security and alleviating rural poverty through creation of rural employment.

12. Indeed, opportunities exist to bring an additional 8.3 million ha of arable land under irrigation and improve the water and land productivity by 1.5–2.0 times.¹⁶ Construction of small dams and irrigation systems and extension of existing irrigation systems in rain-fed areas can develop irrigated agriculture and stabilize crop yields through supplemental irrigation, thereby improving rural livelihoods, reducing poverty, and contributing to greater food security in these areas. Improved irrigation infrastructure and service delivery can minimize the impact of climate change and ensure the sustainability of irrigated agriculture, thereby contributing to food security.

¹⁴ Government of Pakistan. Bureau of Statistics. 2013. *Agriculture Statistics 2011–2012*. Islamabad.

¹⁵ The details are provided in the supplementary linked document: Climate Change Risk Vulnerability and Adaptation Assessment Report (available from the list of linked documents in Appendix 2 of the report and recommendation of the President).

¹⁶ This is possible through the availability of IBIS surplus summer flows and its interprovincial water allocation, increase in groundwater use, and provincial autonomy to reallocate the IBIS share of water within the provincial irrigation system.

2. Government's Sector Strategy

13. The federal government's Framework for Economic Growth sought to accelerate and sustain economic growth, to which the agriculture sector is a key contributor. The growth strategy accorded priority to investments for the development and efficient management of water resources. The government of Punjab also sees agriculture as central to economic growth and development, and envisions growth in agriculture by facilitating productivity, increasing competitiveness in agriculture marketing and trade, and improving supply chain and value addition. In recognition of the province's heavy reliance on irrigation, the government of Punjab places high priority on improving irrigation infrastructure to improve the productivity of water use, and plans to invest in construction of the Jalalpur canal, construction of small dams in the Potohar area, and management of hill torrents in Dera Ghazi Khan and Rajapur districts.¹⁷

3. ADB Sector Experience and Assistance Program

14. ADB has provided long and intensive support to Pakistan's agriculture sector, particularly in the irrigation subsector. Since its inception in 1967, ADB has approved \$4.1 billion for the agriculture, natural resources, and rural development sector, which is 13.8% of the total cumulative lending in Pakistan.¹⁸ The current portfolio (public sector loans) in the water resources subsector amounts to more than \$8 million, and includes the Punjab Irrigated Agriculture Investment Program, Trimmu and Panjnad Barrage Improvement Project, Federally Administered Tribal Area Water Resources Development Project, and Pehur High Level Canal Extension Project. These projects were planned and are being implemented in close coordination with other major development partners active in the sector, such as the Japan International Cooperation Agency, the United States Agency for International Development, and the World Bank, who complement the ADB program and provide support to the irrigation subsector for increased water security, enhanced agricultural production, and strengthened capacity of sector institutions.

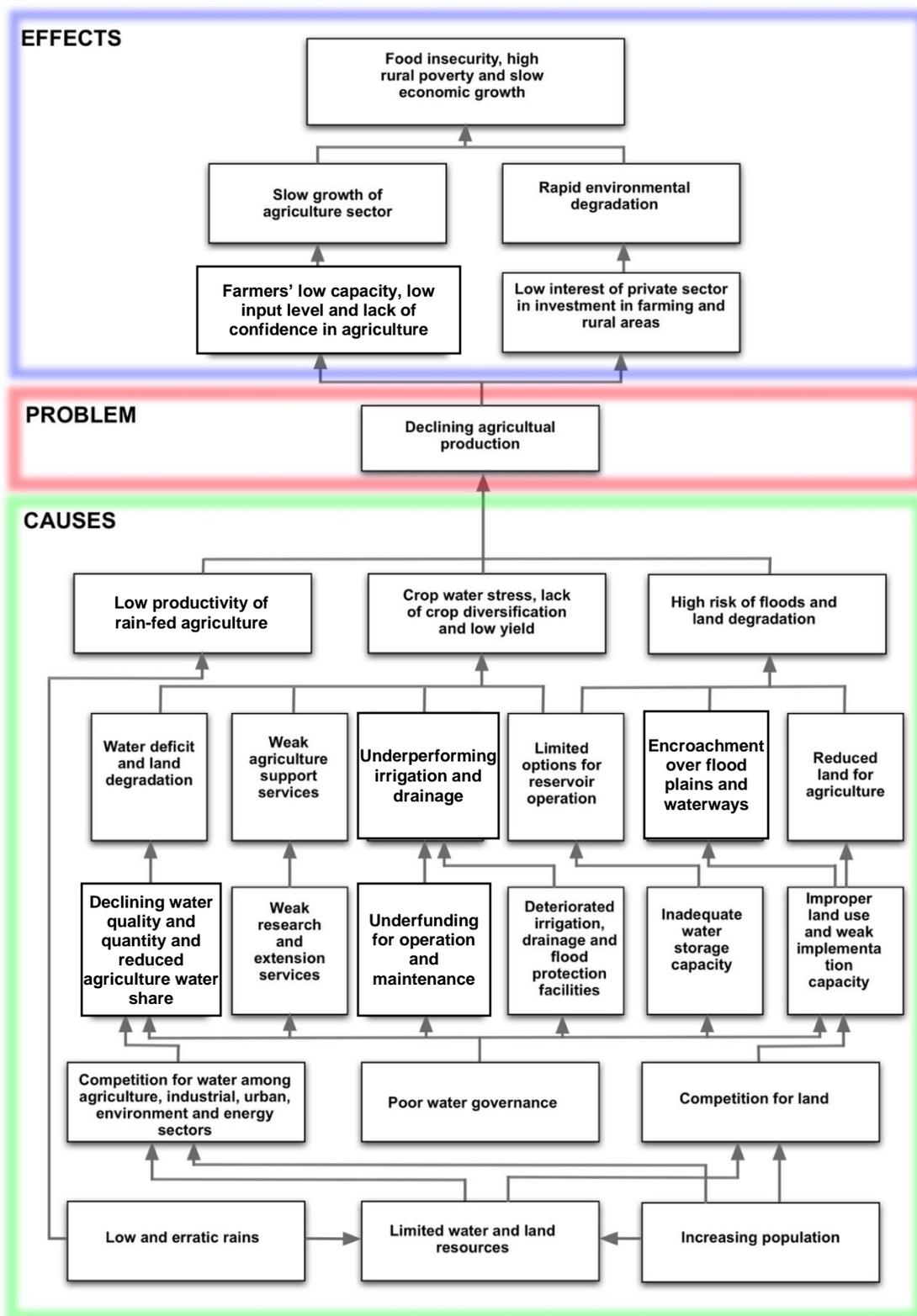
15. Under the 2015–2019 country partnership strategy,¹⁹ ADB will continue to focus on improving agricultural production and economic growth and reducing rural poverty and food insecurity, while conserving the natural resource base. Ongoing and new water resource investments will directly contribute to achieving sector outcomes through (i) provision of better irrigation and water resources infrastructure, and improved irrigation service delivery and water resources management; (ii) rehabilitation and upgrading of IBIS and associated infrastructure; (iii) establishing new nonperennial irrigation systems; (iv) supporting irrigation and water resources reform initiatives; and (v) strengthening government and local community capacity for better water management. Recognizing the challenges posed by the increased water stress and the threats posed by the climate change impacts, ADB also supports the government of Punjab through capacity development technical assistance for the Institutional Transformation of the Punjab Irrigation Department to a Water Resources Department. Under the technical assistance, a comprehensive policy and institutional review will be carried out, including the ongoing sector reform process, and support will be given for a complete transformation of the Irrigation Department into a responsive water resources department capable of managing diversified and complex water issues and operationalizing emerging approaches such as integrated water resources management and disaster risk management.

¹⁷ Government of Punjab. Planning and Development Department. 2015. *Punjab Growth Strategy 2018 – Accelerating Economic Growth and Improving Social Outcomes*. Lahore.

¹⁸ ADB. 2017. *Asian Development Bank and Pakistan: Fact Sheet*. Manila.

¹⁹ ADB. 2015. *Country Partnership Strategy: Pakistan, 2015–2019*. Manila.

Problem Tree for Agriculture, Natural Resources and Rural Development Sector



Source: Asian Development Bank. 2015. *Country Partnership Strategy: Pakistan, 2015–2019*. Manila.