SECTOR ASSESSMENT (SUMMARY): AGRICULTURE, NATURAL RESOURCES, and RUDAL DEVELOPMENT

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. The agriculture sector is a major source of food production in Pakistan. It accounted for 21% of gross domestic product (GDP) in fiscal year (FY) 2014. Although its share has decreased, as of [insert year], it remains the second largest contributor to the gross domestic product after the services sector, which contributed 58%. The country's population has grown from 33.7 million in 1951 to 191.2 million in 2015,[1] and it is projected to increase to 221.0 million by 2025.[2] The sector provides employment for 43.5%[1] of the nation's labor force and remains the main source of livelihood for the majority of Pakistan's rural population. In the Khyber Pakhtunkhwa province (KPP), the agriculture sector contributes 18% to the GDP of the province and it engages 36.8% of the total labor force.[3] The population of KPP has grown from 17.7 million in 1998 to an estimated 22.2 million in 2009 with an annual average growth rate of 2.1%.[4] If this rate of growth continues, the population of KPP is projected to increase to 31.0 million by 2025.

2. The depth of poverty runs at a very high level in Pakistan. Every third Pakistani is living his life below the poverty line. In KPP, about 32% of the population was living below the poverty line in 2012.[5] The rate of poverty in the rural areas of KPP was 41.1% compared with 28.1% for urban areas of KPP.[6] Food security is a continuous concern in KPP. Among the 24 districts of KPP, four districts are classified as *highly food insecure* (crisis) and 10 districts are classified as *moderately food insecure* (stressed) as of May 2015.[7] The Ministry of Planning and Development estimates that growth of at least 5% per year is required in the agriculture sector to reduce the poverty incidence and ensure food security, and for the national economy to reach its 7%–8% annual growth target.[8] The agriculture sector, however, has been performing below its potential. The average annual growth rate over the 2003–2013 period has been 3.3% (footnote 1). The Government of KPP aims to achieve a real agricultural growth rate of 4% per year in the decade 2010 to 2020.[9]

3. Pakistan's Indus Basin covers around 65% of the country's territory and the whole area of KPP and is its main source of water.10 The Indus Basin Irrigation System (IBIS) is the lifeline of Pakistan's agriculture sector. The performance of the IBIS is low, both in terms of water adequacy and reliability. Crop water requirements in the IBIS have increased dramatically as a

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[1] Ministry of Finance, Government of Pakistan. 2015. *Pakistan Economic Survey 2014–2015, June 2015*. Islamabad.
[2] Estimates by PPTA Consultants based on 1998 census survey and population growth rate.
[3] Bureau of Statistics, Planning & Development Department, Khyber Pakhtunkhwa Province (KPP). 2015. *Socio-Economic Indicators of Khyber Pakhtunkhwa 2015.* Peshawar.
[4] KPP Government. 2010. *Comprehensive Development Strategy 2010–2017*. Peshawar.
[5] Sustainable Development Policy Institute. 2012. *Clustered Deprivation–District Profile of Poverty in Pakistan*. Islamabad.
[6] KPP Government. 2010. *Comprehensive Development Strategy 2010–2017*. Peshawar.
[7] World Food Programme. 2015. *Pakistan Food Security Bulletin in May 2015*. Islamabad.
[8] Ministry of National Food Security and Research. 2013. *Draft Agriculture and Food Security Policy*. Islamabad.
[9] KPP Government. 2010. *Comprehensive Development Strategy 2010–2017*. Peshawar.
[10] Food and Agriculture Organization of the United Nations. [If the website provides the information, please add the date the information was published or updated] *Aquastat, FAO's Information System on Water and Agriculture*. http://www.fao.org/nr/water/aquastat/basins/indus/index.stm.

result of higher cropping intensity and cultivation of crops that consume large amounts of water, such as sugarcane and rice. While the demand for canal irrigation water has increased, surface water availability has remained essentially unchanged, with no new reservoirs constructed on the Indus River since 1976. Irrigation efficiency is low (about 40%), which means that 60% of the water available at the head of the main canal is lost in conveyance (some of which recharges groundwater) or during use at the farm level. The poor condition of the irrigation and drainage (I&D) infrastructure and weak management practices result in an unreliable surface irrigation service. IBIS is also financially unsustainable, recovering on average only 24% of funds needed to effectively manage the I&D infrastructure.11 As a result, asset management remains a pervasive problem, with irrigation departments routinely deferring operation and maintenance (O&M) because of lack of funds.

4. About 20% of Pakistan's cultivable area is outside the IBIS. Farming in most of these areas is almost exclusively dependent on rainfall, resulting in low agricultural productivity. Some of the country's poorest populations also reside in these *barani (rain-fed)* areas and are dependent on agriculture for most of their income. Improvement in their livelihood greatly depends on gains in agriculture. Without a secure source of water for irrigation, farming in *barani* areas often results in low productivity of farmlands due to inadequate water availability. Out of 22.04 million hectares (ha) of cultivated land in Pakistan, approximately 3.24 million ha are rain-fed (*barani*) agriculture areas, with the remainder being *irrigated* agriculture areas.[12]

5. In KPP as of the year 2013–2014, the total cultivable land is 5.73 million ha, cultivated area is 1.65 million ha, whereas the irrigated area only amounts to about 1.15 million ha. A major proportion of cultivable land is rain-fed and depends on the timeliness of rains, exposing a large proportion of the rural population to weather-induced risks. Out of the remaining land, 1.25 million ha is forested and 1.09 million ha is cultivable waste (footnote 4).

6. 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.[13] Key problems in agriculture include insufficient water availability, inefficient use of irrigation, ecological fragility of uncultivated land, fragmentation of holdings, low crop productivity, post-harvest losses of more than 10%,[14] limited institutional capacity, particularly for extension and research, deficient O&M of I&D system, limitation on financial services and social constraints (limited cooperative activities, and low attention to the role of women in agriculture).

7. 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. Additional storages on the Indus River can harness the flood flows for irrigation, hydropower development, and flood mitigation. In KPP, construction of small dams and extension of existing irrigation systems in rain-fed areas can develop irrigated agriculture, increase irrigated land and stabilize crop yield. These will improve rural livelihoods, reduce poverty, and contribute to greater food security in these areas. Improved I&D infrastructure and service delivery via irrigation reforms can minimize the impact of climate change and ensure the sustainability of irrigated agriculture, thereby contributing to food security.

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

[12] Pakistan Bureau of Statistics. 2013. *Agriculture Statistics 2011–2012*. Islamabad.

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

[14] Government of Khyber Pakhtunkhwa. 2010. *Comprehensive Development Strategy 2010–2017*. Peshawar.

8. Pakistan is susceptible to climate change impacts, including greater unpredictability in monsoon and rains leading to more frequent and intense floods or droughts. Already stressed water resources will be further strained by variability 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 a greater likelihood of increased storms. The climate change projections show that an average increase in precipitation of the order of 5% to 10% due to climate change is likely.[15] Similarly, temperatures are also expected to rise on average by about 3^{o}C up to the year 2050. The effects of increased temperature can be partly mitigated due to increase in rainfall. In addition, while annual rainfall is likely to increase, the monthly distribution of rainfall and temperature will also undergo change. The rainfall in monsoon period is likely to increase resulting in a cooler monsoon period, while in other months, particularly (April–May) rainfall is likely to be less and temperatures will be higher. These changes in rainfall intensity and pattern together with likely increased temperatures will adversely affect areas under rain-fed agriculture.

2. Government's Sector Strategy

9. The federal government's Framework for Economic Growth seeks to accelerate and sustain economic growth with a focus on improving productivity, to which the agriculture sector is a key contributor.[16] The growth strategy gives priority to investments for the development and efficient management of water resources through (i) augmentation of surface water resources through the construction of additional storage, (ii) conservation measures and efficiency enhancements for better management of the system, (iii) protecting systems from flood impacts, and (iv) addressing land degradation that results from water logging and salinity.

10. The Government of KPP's Comprehensive Development Strategy, 2010–2017 envisages increased water availability through (i) modernizing existing irrigation; (ii) investing in new I&D infrastructure and increasing conveyance efficiency from 40% to 45% to achieve equity in water distribution, water conservation, and groundwater regulation; and (iii) expanding flood protection efforts in response to potential climate change impacts.[17] The Government of KPP's Integrated Development Strategy, 2014–2018 (IDS)[18] also envisages improved water resource management contributing to enhanced income from agricultural land and mitigating water scarcity and improved governance. To meet the objective of enhanced income from agricultural land and mitigating water scarcity, the IDC plans include (i) construction and/or rehabilitation of I&D infrastructure; (ii) construction and/or rehabilitation of small dams, and storage ponds; (iii) strengthening and rehabilitation of flood protection infrastructure; (iv) improving management of drainage, hill torrent, rain and flood water; and (v) revamping and modernizing the abiana (see footnote for explanation) assessment and collection system in place.[19]

3. ADB Sector Experience and Assistance Program

11. Since 1970, ADB has provided $3.7 billion in loans and grants and $45.0 million in technical assistance to Pakistan's agriculture sector. The water resources subsector has been the largest recipient of ADB funding, with loans totaling $2.1 billion, followed by agricultural

[15] ADB. 2013. *Project Preparatory Technical Assistance for Khyber Pakhtunkhwa Water Resources Sector Project (Consultant Final Report)*. Manila.
[16] Government of Pakistan. Planning Commission. http://www.pc.gov.pk/feg/. Islamabad.
[17] Government of Khyber Pakhtunkhwa. 2010. *Comprehensive Development Strategy 2010–2017*. Peshawar.
[18] Government of Khyber Pakhtunkhwa. 2014. *Integrated Development Strategy 2014–2018*. Peshawar.
[19] Abiana is the irrigation service fee.

production and markets ($916 million), and area-based rural development ($311 million).[20] The recent focus of assistance has been on sector-specific policy reforms to promote freer markets in agricultural inputs and outputs, community-based area development projects, and rehabilitation of provincial I&D infrastructure through both sector and project loans. Under the previous country partnership strategy (CPS), 2009–2013, ADB provided support to the development of water resources to support investments and reforms in the I&D and flood protection subsectors.[21]

12. Under CPS, 2015–2019,[22] ADB continues to focus on improving agricultural productivity to enhance economic growth, reducing the high incidence of rural poverty and food insecurity, and improvements to the natural resource base. Ongoing and new water resource investments, with corresponding reforms, will contribute directly to achieving sector outcomes through (i) provision of better I&D and water resources infrastructure, and improved irrigation service delivery and water resources management; (ii) rehabilitation and upgrading of the IBIS and associated infrastructure; (iii) establishing new non-perennial irrigation systems with development of command areas in select rain-fed regions, with corresponding agriculture support services; (iv) supporting irrigation and water resources reform initiatives; and (v) strengthening government and local community capacity for better water management.

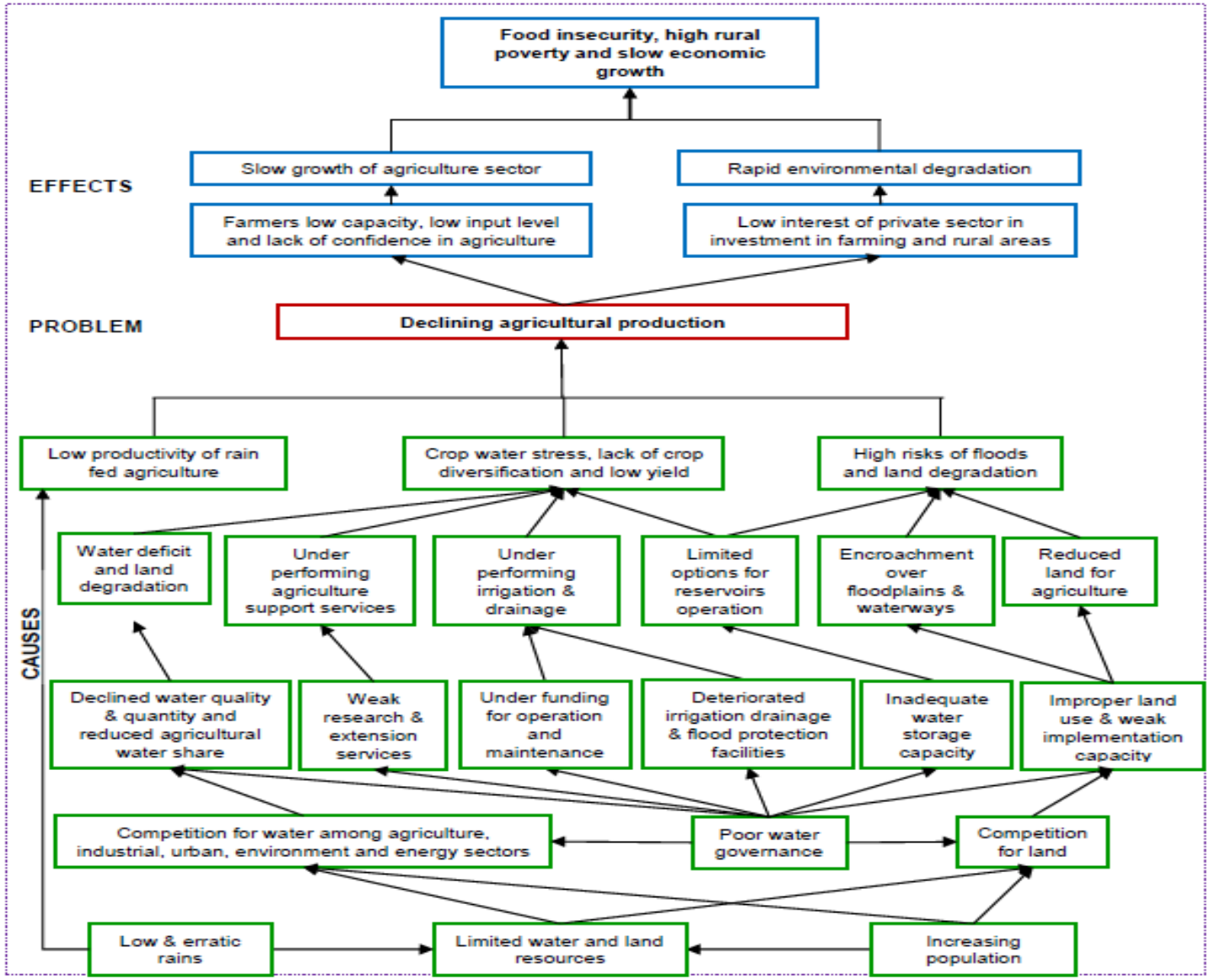
13. ADB will complete three ongoing projects under the $700 million multitranche financing facility (MFF) for the Punjab Irrigated Agriculture Investment Program and undertook a $150 million stand-alone project for rehabilitation and upgrade of the Trimmu and Panjnad barrages in Punjab. ADB will also support four new stand-alone interventions to increase agriculture productivity and improve the natural resource base in the arid and semi-arid areas of Balochistan, FATA, KPP, and Punjab.

14. To increase climate adaptability, ADB-supported large infrastructure schemes will be designed to be more climate-resilient.[23] ADB will also work with the government to prepare a flood policy and an integrated flood and drought management plan, and bring integrated water resources management practices into operation. ADB's climate-resilient interventions will support better watershed management, water harvesting, and appropriate cropping and farming systems in the fragile arid and semi-arid regions, and sustainable coastal management in Sindh and Balochistan provinces.

15. Women will be important beneficiaries of ADB's interventions. Lessons learned from ADB-funded water resources projects suggest providing interventions such as drinking water supply and provision of washing and sanitation facilities along the canals. Under the new CPS, ADB's support to the sector will significantly improve women's access to water and provide other gender-based opportunities, such as (i) increasing women's participation at the design and implementation stage, (ii) engaging women in water user groups and associations, and (iii) improving women's livelihood opportunities. ADB will also explore opportunities to support innovation and improved technologies through research efforts and development of knowledge products that could lead to private sector investment opportunities.

[20] *ADB. 2006. Evaluation of the Agriculture and Natural Resources Management Sector.* Manila.
[21] ADB. 2009. *Country Partnership Strategy: Pakistan, 2009–2013*. Manila.
[22] ADB. 2015. *Country Partnership Strategy: Pakistan, 2015–2019*. Manila.
[23] This will be achieved through increasing flood capacity, structural safety, and hydraulic performance.

PROBLEM TREE FOR THE AGRICULTURE, NATURAL RESOURCES AND RURAL DEVELOPMENT SECTOR



Source: ADB Country Partnership Strategy, 2015–2019.