

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

Sector Road Map

A Sector Performance, Problems, and Opportunities

1. Tajikistan's population is predominantly rural and largely depends on agriculture. Agriculture accounts for about 25% Tajikistan's gross domestic product and export revenues, 39% of tax revenues, and approximately 50% of total employment.

2. Tajikistan is the country in Central Asia most vulnerable to food insecurity, given limited irrigated land (which accounts for 95% of crop production), underdeveloped agriculture,¹ and poor connectivity between markets and agricultural production areas. Forty five percent of the country's employment and 57% of all rural employment is still in agriculture. Given the widespread emigration of male Tajik workers, women constitute the majority of employees in the agriculture sector (accounting for 53% of the economically active population in agriculture).² Almost 80% of the country's working poor live in rural areas and half of the working poor are in agriculture, mainly because of the low wages.³

3. One-quarter of Tajikistan's total land area (14 million hectares [ha]) is agricultural land, and this has declined significantly since independence, reflecting progressive corrections of inflated Soviet statistics, land reform, and land use privatization.⁴ In 2010, less than one-fifth of the agricultural land was classed as arable. Tajikistan's cultivated land is 0.1 ha per capita, the smallest among Central Asian countries (footnote 1).

4. Irrigation is critical for the development of Tajikistan's agriculture sector, food security, and economic advancement. By 1960, 51% of the arable land was irrigated following extensive irrigation investments in cotton production areas in the 1950s, and this had increased to over 90% by 2010. The current total area developed for irrigation is about 748,000 ha. However, the actual annual irrigated area including areas with poor irrigation and drainage (I&D) conditions is estimated at 700,000 ha because of deteriorating I&D infrastructure, salinization, waterlogged soils, unreliable electricity supplies to pump stations, and state authorities' limited resources. The Agency of Land Reclamation and Irrigation (ALRI) estimated in 2012 that all interfarm canals (6,000 kilometers), the majority of I&D wells (more than 60%), and more than one-third of pump stations were in need of major repair, and there is still more than 53,000 ha of land that has unsatisfactory ameliorative status because of deteriorated drainage systems.⁵

5. Tajikistan's primary crops are cereals (mainly wheat) and cotton. Cropping patterns have remained the same since independence, although their relative importance has changed—cereals and legumes have steadily increased, while industrial crops (mainly cotton) have fallen. Wheat comprise 35% of the total arable cropped area and fodder 15%, and cotton comprises 43% of the irrigated area. Kitchen garden and presidential (i.e., allocated by presidential decree)

¹ Food and Agriculture Organization of the United Nations (FAO). 2012. *Irrigation in Central Asia in Figures (AQUASTAT Survey-2012)*. Rome.

² FAO. 2011. *Women in Agriculture—Closing the Gender Gap for Development*. Rome.

³ World Bank. 2009. *Republic of Tajikistan Poverty Assessment*. Washington, DC.

⁴ Statistical corrections were necessary because of (i) increasing salinity, mainly of cotton fields; (ii) agricultural land lost by erosion or covered under mudslides; and (iii) radioactive or hazardous land taken out of use.

⁵ ALRI took over the responsibility for irrigation and drainage development and operation and maintenance from the Ministry of Land Reclamation and Water Resources after it was abolished in November 2013.

plots account for 33% of the area planted to wheat and about two-thirds of the area planted to potatoes and vegetables.

6. Agricultural productivity in Tajikistan is low compared to other countries in the region. For example, yields of major crops (2.2 tons [t] per ha for wheat, 1.7 t/ha for cotton, and 21.9 t/ha for potatoes) are significantly lower than Uzbekistan's yields (4.5 t/ha for wheat, 2.3 t/ha for cotton, and 24.5 t/ha for potatoes). Yields for irrigated wheat should be in the range of 5–6 t/ha. Water productivity for fully irrigated wheat (unconstrained by water) with sufficient related inputs should be around 0.8–1.0 kilograms (kg) per cubic meter (m³) (based on a potential yield of 4 t/ha and annual water demand of 4,000 m³/ha).⁶ However, the water productivity of Tajikistan's wheat was estimated at less than 0.5 kg/m³ in all four river basins in 2012. This low productivity may reflect irrigation constraints (supply) and limits on farm inputs.

7. Tajikistan is considered highly vulnerable to the adverse effects of climate change, and typically ranks highest among Central Asian countries in international climate change vulnerability ratings. Key areas, such as the Pyanj River basin, already suffer from routine damage caused by natural disasters including flooding, mudslides, and drought. Climate scenarios indicate that Tajikistan will experience temperature increase of up to 2° Celsius by 2050 and decreased snowfall. Increased mean temperature will lead to accelerated glacial retreat, with glacial extent expected to decline by 50% from 2010 to 2050.⁷ Peak seasonal runoff is expected to shift from early spring to late winter.⁸ These changes will have significant consequences for water availability in the face of rising demand. Climate change may compound existing food security issues and impact heavily upon those dependent on agriculture.

8. Among Central Asian countries, Tajikistan has the second lowest level of total actual renewable water resources per capita (Uzbekistan has the lowest), which is a key indicator of water stress. Further, Tajikistan is the worst performing in terms of access to improved water sources, at 65% of the population in 2010 (footnote 1). From 1990 to 2004, annual diversions from surface and groundwater declined from 13.7 cubic kilometers (km³) to 12.3 km³ and water delivered declined from 12.0 km³ to 9.0 km³. This resulted in a decrease of water delivery efficiency from 88% to 75%.⁹ This is attributed to the deteriorating water resources management (WRM) infrastructure (particularly I&D, as 91% of diverted water has been used for irrigation), and the weak capacity of WRM institutions, including government agencies and water users' associations (WUAs), to conduct operation and maintenance (O&M) activities.

B. Government's Sector Strategy

9. Since independence, the government has introduced a range of reforms to transform various sectors. In the agriculture and natural resources (ANR) sector, the government has implemented major policy initiatives, including (i) privatizing farms, (ii) increasing competition in the provision of essential agricultural support services, (iii) liberalizing prices and

⁶ International Water Management Institute. 2007. *A Comprehensive Assessment of Water Management in Agriculture*. London.

⁷ Asian Development Bank (ADB). 2014. *Climate Change and Sustainable Water Management in Central Asia*. Manila.

⁸ ADB. 2011. *Republic of Tajikistan: Climate Resiliency for Natural Resources Investment in Tajikistan*. Technical Assistance Consultant's Report. Manila.

⁹ Scientific Information Center of the Interstate Coordination Water Commission of Central Asia (SIC ICWC). 2011. *Water Quality in the Amu Darya and Syr Darya River Basins* (Updated data is not available).

privatizing agribusiness enterprises, (iv) reforming water sector and promoting land reform to increase privatization and cost recovery, and (v) restructuring government institutions to fit a market-oriented economy. The main objectives of the government's poverty reduction strategy include better access of the poor to land and water, and the creation of a favorable framework for private sector involvement in agriculture. From 1999 to 2005, more than 500 large collective farms were restructured into smaller collective *dekhan* farms.¹¹ In 2006, about 200 additional large collective farms were restructured into smaller farms. Overall, during this period, nearly 700 large collective farms were restructured into more than 5,000 individual *dekhan* farms. Official statistics suggest that an estimated 45% of total arable land was affected by farm restructuring and land reform by 2007. As a result of these reforms, overall crop yields in the country have improved in the past few years.

10. The government has prioritized efforts to increase the effectiveness and efficiency of WRM and agriculture production. It targets the improvement of irrigated agriculture covering 320,000 ha and the creation of 1,500 ha of irrigated land to achieve an increase of 7% in the value of agricultural products by 2015 to meet national food demand. To achieve these targets, it calls for \$262 million for better WRM and \$24 million for better agriculture investment.¹² Identified significant gaps against targets at December 2015 were restated in the draft Land Reclamation and Irrigation Development Strategy.¹³

11. The government is also reforming the WRM system. The Ministry of Land Reclamation and Water Resources was abolished in November 2013 and its responsibilities were reassigned to the newly formed (i) Ministry of Energy and Water Resources, responsible for the policy and regulations on WRM; and (ii) the ALRI, responsible for development and management of WRM infrastructure. Further reforms include (i) the change in WRM areas from territorial administrative areas to hydrological areas; and (ii) the establishment of (a) river basin management plans (RBMPs) to clarify and monitor water allocations; and (b) water governance institutes such as river basin organizations to develop RBMPs and river basin councils which will provide a participation mechanism for different water users and approve RBMPs, in line with principles of integrated WRM. These reforms were reflected in the Water Sector Reform Programme (2016–2025) approved in December 2015.¹⁴

12. The government has adopted more than 30 laws and by-laws on nature protection, and developed a number of national environmental programs and action plans. However, to date, there are still limited accounts related to climate change in most of Tajikistan's national development policies, plans, programs, and budget. The National Disaster Risk Management Strategy and Action Plan acknowledges that climate change is likely to increase the intensity and frequency of certain risks, but there has been little concrete action in this area. Capacity within the government for developing climate resilience and adaptation programs and projects and activities is low. A national adaptation strategy is currently under development, in parallel with the updating of the National Development Strategy.¹⁵

¹¹ *Dekhan* farms are privately owned small farms.

¹² Government of Tajikistan. 2012. *Living Standards Improvement Strategy of Tajikistan for 2013–2015*. Dushanbe.

¹³ ALRI. 2015. *Land Reclamation and Irrigation Development Strategy (draft)*. Dushanbe.

¹⁴ Ministry of Energy and Water Resources. 2015. *Water Sector Reform Programme for 2016-2025*. Dushanbe.

¹⁵ Government of Tajikistan. 2012. *Living Standards Improvement Strategy of Tajikistan for 2013–2015*. Dushanbe.

C. Asian Development Bank Sector Experience and Assistance Program

13. Since 1999, the Asian Development Bank (ADB) has provided loans and grants of over \$150 million and technical assistance (TA) of over \$17 million to the ANR sector and disaster and risk management operations.¹⁶ The WRM subsector, including I&D and flood management, has been the major recipient of ADB support (over \$100 million), followed by climate change adaptation (over \$29 million), rural development (over \$20 million), and the cotton industry (\$15 million).

14. The amount of ADB's financing to the ANR sector and disaster and risk management operations declined to 6.7% in 2010–2014 as ADB prioritized other sectors. ADB's previous strategies focused on land reform, farm restructuring, and rural private sector development to support Tajikistan's transition to a market-based economy. These strategies also provided direct support to rehabilitate I&D systems. The second strategy included measures to mobilize and strengthen WUAs and farmer organizations, address cotton-related debt, and improve sustainable land management. During 2010–2014, ADB's assistance to the sector was for climate change adaptation projects and TA.

15. ADB's performance in the ANR sector has been mixed. The 2014 country assistance program evaluation noted that projects suffered from (i) complex and ambitious project design, (ii) deficient scale in the on-farm components, and (iii) the deterioration of infrastructure investments because of insufficient O&M.¹⁷ It also suggested that ADB should (i) shift from conventional I&D rehabilitation to I&D modernization to improve sustainability, (ii) continue to support policy reform in the ANR sector, (iii) involve nongovernment organizations in projects, and (iv) develop a long-term plan for increasing institutional and financial sustainability.

16. ADB will sharpen its focus on sustainable, inclusive food security and enhanced WRM through a river basin approach, and with better O&M methods to ensure long-term sustainability. ADB's interventions will also support ongoing government reforms to WRM and measures to strengthen climate change resilience. ADB's future interventions will be informed by the findings and lessons of previous projects, including (i) the importance of focusing on full rehabilitation for effective system performance, (ii) the need to anticipate and address implementation challenges, (iii) high administrative costs of projects dispersed over a broad geographic area, (iv) the importance of improving on-farm agricultural productivity for project sustainability, and (v) the necessity to ensure sufficient funds are raised to ensure the sustainability of WUAs and long-term coverage of O&M costs.¹⁸ Finally, women have been excluded from positions that could greatly enhance water management. This has resulted in women continuing to work in low-skilled, manual roles with lower wages than men.

17. Other development partners are also actively supporting the ANR sector. The World Bank has been supporting WRM reforms at a national level and in the Kafernigan River basin,¹⁹ and the Swiss Agency for Development and Cooperation also initiated support in the Syr Darya basin. The World Bank is also supporting the improvement of food security by financing rehabilitation of I&D infrastructure and the increase of the capacity for climate change adaptation in agriculture and weather forecasting. The United Nations Development Programme is also major partner in supporting the government's efforts to improve climate change adaptation.

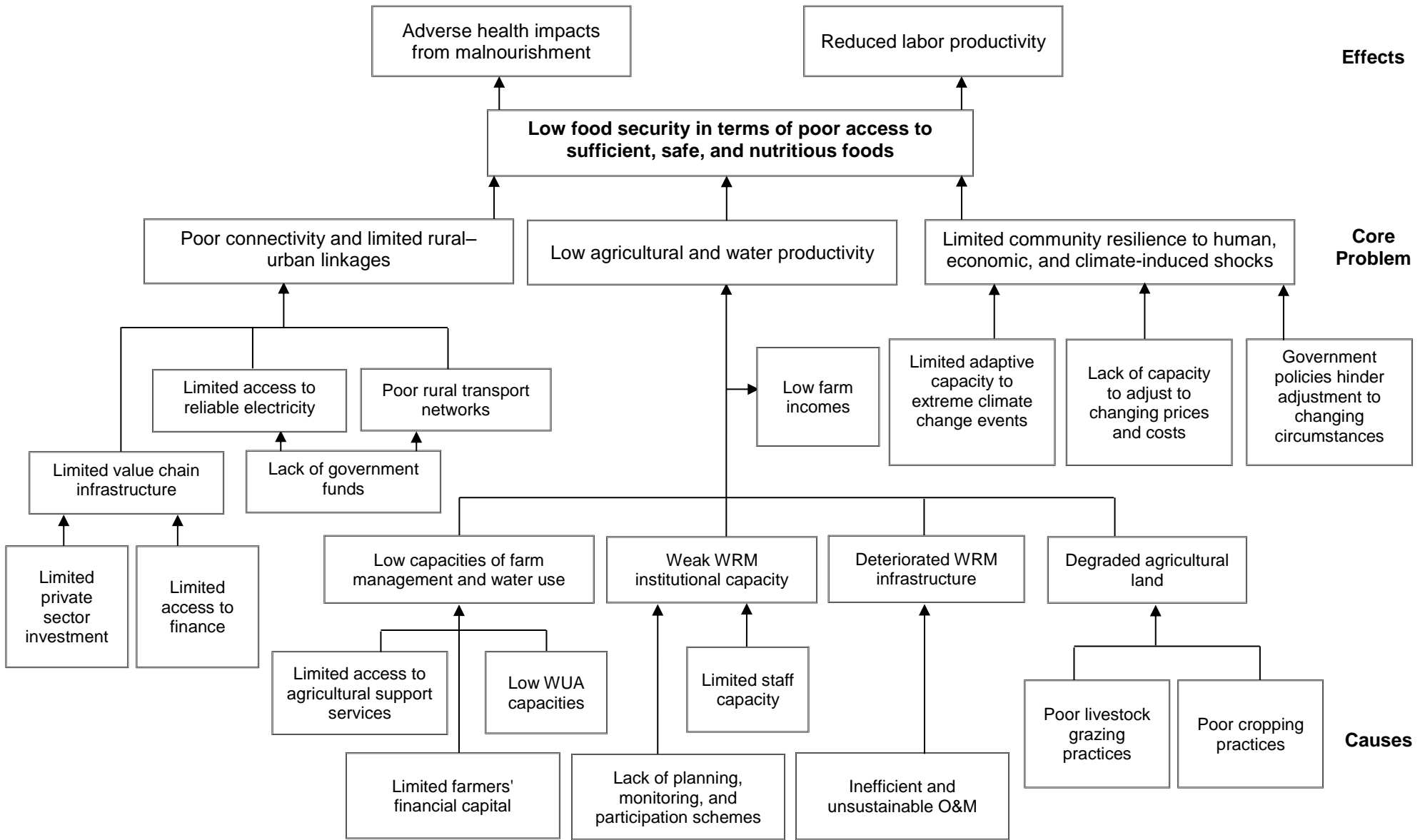
¹⁶ These include ADB's administered cofinancing grants and TA resources.

¹⁷ ADB. 2014. *Country Assistance Program Evaluation-Tajikistan*. Manila

¹⁸ ADB. 2012. *Project Completion Report for Loan 2124-TAJ: Irrigation Rehabilitation Project*. Manila.

¹⁹ World Bank. 2012. *Tajikistan Second Public Employment for Sustainable Agriculture and Water Resources Management Project*. Washington, DC.

Problem Tree for the Agriculture and Natural Resources Sector



O&M = operation and maintenance, WRM = water resources management, WUA = water users' association.