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

A. Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. The People’s Republic of China (PRC) has made significant economic progress, which has transformed the lives of all people in the country and made the PRC economy the second largest in the world.¹ However, these achievements have not been without adverse environmental consequences. Intensification of agriculture driven by the use of high volumes of inputs such as chemical fertilizers, pesticides, and irrigation water has led to large volumes of waste materials and excessive discharge of pollutants, which in turn contributed to soil and water contamination and environmental degradation. Ongoing development is deemed environmentally unsustainable because the quality and availability of natural resources, notably arable land and water, are not adequate and concerns about food safety and human health are increasing.

2. Even with a focus on more sustainable development, environmental pressures will continue to grow and affect agricultural production in the near future because (i) continued population growth combined with higher levels of per capita consumption will require more food production; (ii) degraded and polluted land and water resources inhibit the production potential; (iii) agricultural infrastructure and facilities are weak; and (iv) increasing urbanization causes land resources to decline while increasing the demand for environmental infrastructure. In addition, climate change, which already poses serious threats to the natural and ecological environment, is further challenging sustainable development as it affects agricultural production and puts people’s livelihoods at risk.

3. Modern and sustainable agricultural development in Fujian Province faces many hurdles, most notably land degradation, declining quantity and quality of cultivated land, severe resource constraints on agricultural production, and inadequate agricultural infrastructure. Accelerated industrialization and urbanization gradually reduced the cultivated land area, from 1.26 million hectares in 1996 to about 1.12 million hectares by the end of 2010, a decrease of 11.0%. The overall quality of the cultivated land is not high. An evaluation of farmland productivity in Fujian Province shows that first-class land accounts for 21.9% of the total land area, second-class land for 32.1%, and third-class land for 46.0%.² Second-class farmland has crop growth limitations, which means that improvement measures should be taken to exploit the productive potential. Third-class farmland is influenced by natural factors such as topography, altitude, slope, climate, soil, and groundwater, which result in low and unreliable productivity. Large-scale capital investment in farmland and soil improvement is needed to develop the productive potential.

4. Water resources. Given its subtropical marine monsoon climate, Fujian Province has abundant water resources, i.e., a total annual average of 116.87 billion cubic meters, equivalent to 3,769 cubic meters per capita, or about 1.64 times the national average. However, precipitation is unevenly distributed over area and time. The rainy season from March to September accounts for over 80% of average annual precipitation, while the period from October to February is

¹ This summary is based on the consultant’s draft final report under ADB. 2016. Technical Assistance to the People’s Republic of China for Preparing the Fujian Farmland Sustainable Utilization and Demonstration. Manila. Available on request.
² The Regulation for Gradation on Agriculture Land Quality (GB/T 28407-2012) defines the criteria for classification, such as yield ratio, land use coefficient, ratio of yield to cost, land economic coefficient, standard farming system, and crop growth potential productivity.
relatively dry. This has a significant impact on crop production, requiring water conservation and irrigation during the dry season and advanced drainage systems during the rainy season to remove excessive water and avoid flooding. The ability to manage water resources efficiently and account for seasonal variations, and to have in place the required infrastructure is essential.

5. **Land degradation and erosion.** Soils in Fujian Province are typically red soils, strongly weathered and acidic, and have low fertility with a low cation-exchange capacity, and low organic matter content. The inherent nature of these soils makes them easily erodible, so when coupled with poor land management practices and seasonal high-intensity rainfall, soil erosion becomes the main constraint to Fujian agriculture. Loss of soil resources, low fertility, and poor soil condition make remedial actions essential. Long-term solutions involve proper field design with terraces, and irrigation and drainage canals to minimize erosion, and the application of organic matter and fertilizers to improve soil health.

6. **Agricultural infrastructure.** In general, agricultural infrastructure on valley-floor cropland is relatively weak and resilience to natural disasters is low. The condition of the main roads is good but the farm roads in most of the cropping areas are natural dirt roads and often too narrow and unsuited for motorized agricultural traffic. The rainy season often makes them inaccessible, constraining farm work. During autumn, transportation of agricultural produce is difficult. Irrigation infrastructure is generally old, still consisting of earthen channels and ditches that are dilapidated by sedimentation or otherwise in disrepair. Effective irrigation in the dry season and drainage in the wet season are lacking. The problems of floods, drought, and insufficient or excessive irrigation are serious. Electrical and mechanical equipment such as pumps is dilapidated, energy-intensive, and of low efficiency. All this combines to cause a serious waste of water resources and discourages proper operation and maintenance. The situation is not much better for sloping cropland, which is rainfed, lacks irrigation systems, and has natural dirt roads that become inaccessible during the wet season.

7. **Cropping systems.** Sloping land in Fujian Province is considered suitable for tea, tea oil, and other perennials such as pomelo and roselle. Valley-floor cropping systems are based on annual crops that may include rice, vegetables, grains, and lotus. Current agricultural practices in the project area, both on sloping and valley land, are outdated, typically amounting to extensive monocropped farming with (i) limited soil conservation and soil improvement techniques; (ii) slow uptake of improved seedlings; (iii) excessive use of chemical fertilizers and pesticides; (iv) poorly developed roads, irrigation systems, and associated infrastructure; (v) inappropriate machinery and low levels of mechanization; and (vi) a poorly developed and fragmented value chain. Moreover, the drainage and irrigation infrastructure is poorly developed, and lacks proper planning and sufficient investment. This makes the system vulnerable to natural disasters.

8. **Farmer institutions.** The Fujian Provincial Government and municipal and county governments have strengthened support for farmers' cooperatives since the Law on Farmers' Specialized Cooperatives became effective in October 2006. They have also encouraged leading enterprises in agriculture to improve their capacity and to build benefit-sharing mechanisms with small farmers. These enterprises have taken different approaches to setting up cooperation with small farmers, such as contract farming, fixed-price purchase of agricultural products from farmers, land leases or shareholding cooperation, and technical services and credit guarantees. All activities are designed to help farmers increase their incomes. However, most farmers' cooperatives are unable to associate with the enterprises because they typically lack professional capacity and entrepreneurship, and have weak financial capacity, which limits their access to production loans.
9. **Social development.** Fujian has a population of 37.5 million, of which 40% live in rural areas. The rural economy remains agrarian and agriculture still is the major source of rural livelihoods. The primary sector’s contribution to the province’s gross domestic product has declined, as has the proportion of those employed in agriculture.\(^3\) As a result of an original weak foundation and shortage of land resources per capita, the economic and social development of almost one-third of the counties in Fujian Province is similar to that in the central and western provinces of the PRC—3.21% of rural people live below the poverty line. In the project areas, the poverty rate is higher with 3.40% of rural people below the poverty line. Rural social economic development still faces many difficulties such as (i) conflicts between small-scale production and large-scale processing and marketing; (ii) fewer employment opportunities and outmigration of labor; (iii) weak social service system that needs to be improved; (iv) conflicts in the supply of and demand for rural development funds; and (v) need for stronger rural financial services. Assisting the rural poor to get out of poverty as soon as possible is key to achieving coordinated and sustainable economic and social development and to building a well-off society.

2. **Government’s Sector Strategy**

10. The overarching objective of the government is to build a harmonious and moderately prosperous society through livelihood improvement, equitable urbanization and coordinated urban–rural development, and regionally balanced and environmentally sustainable growth. The government recognized the massive environmental and ecological challenges that the country is facing, and made building an “ecological civilization” one of the most important policy areas in the Third Plenary Session of the 18th Central Committee of the Communist Party Congress.\(^4\) Renewed emphasis was placed on control of air, water, and soil pollution—it will be a key feature of the government’s focus on rural development under the Thirteenth Five-Year Plan, 2016–2020, which continues efforts to improve resource conservation; undertake environment-friendly development; and promote more sustainable use and management of land, water, and other natural resources.

11. Hence, transforming the agriculture sector is a top priority of the PRC government. The primary objectives are to ensure adequate supply of agricultural products and to continuously raise farmers’ incomes to close the rural–urban gap and stimulate the rural economy. Policies to promote agricultural modernization will focus on improving the capacity, competitiveness, and resilience of agricultural production; supporting development of agribusiness and agricultural value chains systems; promoting investment in technology, human resources, and innovative management to upgrade the sector; and encouraging participation of private entities and partnerships between multiple stakeholders in the sector.

12. The central government’s 2016 State Council Decree No. 1 identified several approaches and tasks to accelerate agricultural modernization and promote ecological progress. They include (i) protecting farmland and upgrading, developing, or rehabilitating large or medium-sized irrigation districts, and constructing on-farm infrastructure to strengthen agricultural production capacity; (ii) developing types of agriculture suited to local geographical conditions; (iii) setting up information platforms to trace and share quality and safety information on agricultural products; and (iv) promoting water-saving techniques, eco-friendly fertilizers and pesticides, and other

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\(^3\) Agricultural gross domestic product decreased from 17.0% in 2000 to 8.38% in 2014. The rural labor force engaged in agriculture declined from 7.76 million in 2000 to 6.16 million in 2013, or 37.6% of the rural labor force.

\(^4\) According to the government of the People's Republic of China, “ecological civilization” refers to achieving harmony between growth, people, and nature, requiring people to respect, protect, and maintain a harmonious relationship with nature. It includes activities to mitigate ecological damage, relieve pressures on natural resources, and improve the balance between the environment and the economy.
pollution-mitigating measures. The government also emphasized the importance of investing in stronger application of information technologies, better pricing mechanisms for agricultural inputs and products, and insurance for agriculture, all contributing to better rural livelihoods.

13. Underlying this transformation is sustainable land and water resource management, which was promoted through a series of larger ecological improvement programs aimed at halting land degradation, making use of water resources more efficient, improving water quality, and promoting ecological restoration. These activities strive to raise the livelihood conditions of the rural population and reduce the vulnerability of production and ecosystems to climate change.

14. The Fujian Provincial Government’s Thirteenth Five-Year Plan, 2016–2020 is promoting agriculture modernization and transformation in its mountainous landscape. Focusing on key commodities known as featured agriculture production bases, and staples such as grains, the province aims to (i) increase production capacity; (ii) apply improved and efficient production practices, including new technologies; (iii) promote land reclamation and enhance land protection; (iv) construct high-standard farmland; (v) upgrade farmland infrastructure; and (vi) establish product testing and quality standards.

B. ADB Sector Experience and Assistance Program

15. The Asian Development Bank (ADB) has developed a diverse and active portfolio in agriculture, natural resources, and rural development. It promoted environmental sustainability and climate resilience through projects supporting sustainable agriculture development; protection of biodiversity and ecosystems; integrated water resource management; irrigation, flood, and wetland management; and environmental and ecosystem protection. ADB’s assistance to the PRC’s agriculture sector has been effective in reducing poverty, decreasing income inequality and regional disparities, and promoting an environmentally sustainable and less carbon-intensive economy. Sovereign lending in the natural resources and agriculture sector in the PRC increased sharply during 2011–2015. Nonsovereign lending to agribusiness was also initiated with two transactions (one in cold storage and one in greenhouse agriculture) during 2012–2015. Technical assistance complemented lending by supporting capacity development, policy development, and introduction of good (international) practices. Technical assistance was also initiated in the areas of public expenditure in agriculture, rural finance, payment for ecological services, and eco-compensation regulation.

16. In line with the goals and objectives of the PRC, ADB will continue to assist the government in realizing its “ecological civilization” ambitions and in identifying and applying innovative interventions that demonstrate better climate resilience and environmental sustainability through more sustainable use and better protection of natural resources, particularly in those areas where environmental degradation and climate change have the greatest impact on rural and urban livelihoods. Support will be provided for integrated water resource management and sustainable land management, including strengthening water security and governance, and water and air pollution control; improving forestry management and disaster risk management; and promoting environmental regulation and compliance, innovative eco-compensation mechanisms, and other market-based instruments to support environmental protection and pollution control. Interventions are aligned with ADB’s Operational Plan for Agriculture and Natural Resources: Promoting Sustainable Food Security in Asia and the Pacific in 2015–2020 by (i) increasing productivity and reducing pre- and post-harvest loses of food harvests; (ii) improving market connectivity and value chain links; (iii) enhancing food safety, quality, and nutrition; and

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5 Featured agriculture production bases are those products that are suited to the local environment and have high market potential and value; in Fujian Province, such crops include tea and tea oil.
(iv) boosting management and climate resilience of natural resources. The interventions are also aligned with ADB’s Environmental Operational Directions, 2013–2020 to (i) promote a shift to sustainable infrastructure, (ii) invest in natural capital, (iii) strengthen environmental governance and management capacity, and (iv) respond to the climate change imperative. The interventions will also support ADB’s Water Operational Plan, 2011–2020, which recognizes the increasing demand for water and its impacts on food production resulting from rapid economic development, increasing urbanization, and the large growth in population.

17. ADB will foster inclusive growth and improve rural livelihoods by helping increase agricultural productivity, strengthen agricultural and rural infrastructure, promote application of information technologies, and expand financial services in rural areas, in line with ADB’s operational plan for agriculture and natural resources (footnote 6). Support will be provided to develop value chains, e.g., linking agribusinesses and local entrepreneurs with farmers through extension services; rehabilitate rural infrastructure; promote food safety and possibly food security; promote environmental sustainability and climate resilience; promote sustainable agribusiness by mitigating soil and water pollution; and broaden access to credits and markets. Nonsovereign assistance will be targeted to farming companies such as large-scale livestock farms, food processors, logistics companies, financial intermediaries, and to other projects that enhance productivity and standardization, inclusion of small farmers in value chains, food safety, and pollution control. Agricultural transformation projects will be designed using a participatory approach to ensure that low-income rural farmers in environmentally fragile areas earn higher incomes through market-driven opportunities, resource-friendly management systems, support for rural finance, and effective institutional arrangements. Special focus is given to improving the well-being of and opportunities for women and ethnic minorities, e.g., by improving women’s access to land management and decision-making positions in village committees, farmer associations, and similar rural bodies.

18. The proposed project builds on ADB’s experiences and lessons from previous projects, and knowledge generated from international and national best practice in agriculture and environmental and ecosystem improvement. The project design includes or supports (i) well-defined selection criteria and technical guidelines for subproject selection with an emphasis on a more narrow geographic focus; (ii) an integrated approach to farming systems that focuses on efficient use of inputs and conservation of natural resources to improve crop production and ecosystem health; (iii) the development, participation, and empowerment of farmers and farmer organizations based on improved production bases and equitable benefit sharing; (iv) cooperation with enterprises to organize and lead farmers in the application of new technologies, provide extension services, and open up access to markets; and (v) creation of an institutional framework that is conducive to improving and sustaining irrigation and drainage systems.

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