SECTOR ASSESSMENT (SUMMARY):
AGRICULTURE, NATURAL RESOURCES, AND RURAL DEVELOPMENT; AND
INFORMATION AND COMMUNICATION TECHNOLOGY

A. Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. The Government of the People’s Republic of China (PRC) continues to highlight the need to address persistent income inequality and poverty in rural areas of lesser-developed regions of the PRC. Increasing productivity and value addition through modernizing agricultural production and processing, enhancing market linkages to provide high-quality food to the increasingly wealthy urban population, and more recently promoting e-commerce has considerable potential for poverty reduction in the PRC where the agriculture sector still accounts for more than 25% of total employment. Yet, the transition to modern agriculture has been unable to keep pace with the increasing demand for high-quality produce resulting from rapid urbanization and industrialization together with the associated growth in the middle class. This is largely because of weak agricultural infrastructure and facilities, expansion of agricultural production into increasingly marginal land, and rising labor and input prices.

2. Gansu province is the seventh-largest province in the PRC with a population of 26.20 million, of which 14.44 million (55.1%) live in rural areas. In 2016, Gansu’s total gross domestic product was CNY720 billion, of which agriculture accounted for 13.7%. In 2017, Gansu’s gross domestic product per capita of CNY29,326 (equivalent to about $4,417) was the lowest of all provinces in the PRC, and about half of the province’s 87 counties are designated as national poverty counties. Although agriculture remains an important source of rural livelihoods in Gansu province, the opportunities for income generation remain limited because of low productivity, largely related to the poor soil quality and lack of rainfall, and low value addition because of the types of agricultural commodities commonly produced.

3. The internet has become one of the key driving forces in accelerating economic development in the PRC, and the scale of internet use has been increasing rapidly. According to the China Internet Information Center, as of December 2017 there were 772 million internet users in the PRC. Internet penetration was 55.8%, up 2.6% from the end of 2016. There were 209 million internet users in rural areas, a penetration rate of 27% and up 4% from the end of 2016. The number of people accessing the internet via mobile phones reached 753 million, up 8.2% from the end of 2016. The percentage of internet users making online payments with mobile phones increased from 50.3% in 2016 to 65.5% in 2017, and for rural internet users this ratio increased from 31.7% to 47.1%. The government has attached great importance to the construction of internet infrastructure, substantially increasing the coverage of the rural network. According to data from the National Statistics Bureau, by the end of 2016 90.0% of the administrative villages in the PRC had access to broadband. The Ministry of Industry and

---

3 Based on an average 2016 exchange rate of $1.00 = CNY6.64.
4 In the proposed project prefectures (Baiyin, Lanzhou, Tianshui, Wuwei, and Zhangye) 6.6%–10.5% of the rural population lives below the national annual income poverty line of CNY2,300 per capita.
Communication will invest CNY140 billion during 2015–2020 to achieve 98.0% broadband coverage of administrative villages nationally.

4. The major internet service providers in Gansu province are China Mobile, China Unicom, China Telecom, and Provincial Radio and Television Network Company. About 81% of the provincial population (21.08 million) possess a mobile phone. There are about 15.98 million (61.4% of the provincial population) mobile internet users, while 2.4 million households (32.6% of households) use broadband services. Mobile coverage rates are 98.0% for 2G and 72.0% for 3G, while 46.0% of administrative villages are enabled with 4G service infrastructure.

5. The province hosts a number of digital service providers. Prominent information and communication technology (ICT) companies present in the province include China Mobile, China Unicom, China Telecom, China Huawei, Gansu Central Network Communication Technology Company, Gansu World Wide Web Information Technology Company, and Gansu Credible Information Technology Company. Dedicated ICT training institutes such as Mdt Infotech Limited and Beida Green Bird Education Development companies are present in the province. Major national e-commerce providers, such as Alibaba and JD.com, are operating in the province. In addition to the private sector, local government agencies are gradually adopting e-governance service delivery, predominantly using private service providers.

6. Some farmers in the province have high awareness of “internet-of-things” technology, in particular relating this technology to smart greenhouse initiatives and efficiency in input use such as irrigation and fertilizer application. Awareness of big data systems, block chains, and artificial intelligence is negligible. An estimated 1.49 million farmers in the province use the WeChat application for information sharing. Further, 14 cities and 86 counties have agriculture information websites.

7. **Inefficient primary production.** Agricultural production systems, which have played a key role in supporting and contributing to economic growth and providing livelihood income for a large part of the rural population, continue to be based on low-value cropping because of poor natural resource quality, in particular inherently low soil fertility, lack of water availability, and a climate that is not conducive to reliable production of high-value crops. As a result, farmers have tended to continue to focus on production of low-value staple crops with less production risk while simultaneously satisfying basic food needs. Where higher value crops have been adopted, or farmers have tried to increase production of staples, lack of agricultural support services has resulted in the excessive use of inputs in parallel with a low rate of technology adoption. This has further highlighted deficiencies in the farming systems. Modernization of agricultural production systems, including online expert advice based on internet-connected sensors for farm inputs and outputs, presents an opportunity to adjust to high-value cropping and to optimize input use within the resource quality constraints.

8. **Poor access to high-value e-commerce markets.** Farmers and farmer groups including cooperatives suffer from lack of access to high-value e-commerce markets, which affects the value of both current production and new high-value crops that might be adopted. This is predominantly because of poor links between primary producers and upstream parts of the value chain, including processors. This weakness further affects the primary producers by limiting the availability of modern online supported agricultural support services. The proposed project will strengthen all of these linkages to allow more efficient production of high-value crops and support producer access to higher value specialty markets.
9. **Inefficient processing subsector.** Much of the agricultural production in Gansu suffers from inefficient processing, which is characterized as being both out of date and lacking the necessary links that define a well-functioning value chain. As a result, the quality of raw materials is both variable and inadequate, which has negative implications for upstream processing and quality of processed commodities. This limits the potential to produce high-value goods, which are increasingly demanded by the expanding middle class.

2. **Government’s Sector Strategy**

10. The government has initiated internet-plus policies with the objective of integrating the agriculture sector into the wider economy through linking rural economic development approaches with ICT solutions to service delivery in rural areas. The government has released a rural vitalization strategy for 2018–2022 to promote poverty reduction, rural development, and green and inclusive growth. The rural vitalization strategy focuses on modernizing agriculture with ICT applications, which is intended to increase agriculture productivity, reduce food safety risks, and cut pollution from fertilizers and pesticides.\(^5\) The government is committed to eradicating poverty and closing the income gap between urban and rural populations. E-commerce and internet-based support services are accelerating growth in rural areas, which is contributing to structural reforms towards increased quality and market orientation of the agricultural supply chain. The Gansu Supply and Marketing Cooperatives Union with service branches in rural areas represents the backbone of agricultural services and has therefore been identified as the primary organization to deliver internet-plus services to accelerate agriculture sector modernization and integration.

11. The government has requested the Asian Development Bank (ADB) to provide lending support for the Gansu Internet-Plus Agriculture Development Project. The Gansu Supply and Marketing Cooperatives Union has already prepared internet-plus agriculture pilot interventions and is therefore well-placed to lead the implementation of this demonstration project for enhanced rural development. Gansu province’s agro-ecological conditions, with specialty products, have the potential to capture high-value markets through e-commerce technology application. Gansu province’s potential to achieve rural–urban integration through e-commerce interventions has been assessed in a case study in an ADB-financed policy advisory technical assistance project.\(^6\)

B. **ADB Sector Experience and Assistance Program**

12. ADB has developed a diverse portfolio in agriculture, natural resources, and rural development and has 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.

13. In line with the goals and objectives of the PRC, ADB will continue to assist the government in realizing its rural vitalization ambitions and in identifying innovative interventions that demonstrate better climate resilience and environmental sustainability through more sustainable

---


use and protection of natural resources, particularly in those areas where environmental degradation and climate change have the greatest impact on rural livelihoods. Support will be provided for integrated water resource management and sustainable land management, including strengthening water security and governance; strengthening land, water, and air pollution control; improving forestry management and disaster risk management; and promoting environmental regulation and compliance, 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 increasing productivity, improving market connectivity and value chain links, and boosting management and climate resilience of natural resources. The interventions are also aligned with ADB’s Environment 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.

14. ADB will foster inclusive growth and improve rural livelihoods by helping to increase agricultural productivity, strengthen agricultural and rural infrastructure, promote the use of information technologies, expand financial services in rural areas, promote environmental sustainability and climate resilience, and mitigate soil and water pollution. Nonsovereign assistance will be targeted to farming companies, food processors, logistics companies, and other projects that enhance productivity, including for 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 increase incomes through market-driven opportunities, resource-friendly management systems, support for rural finance, and effective institutional arrangements. Special focus is given to improve the well-being of and opportunities for women and ethnic minorities, e.g., by improving women’s involvement in village committees, farmer associations, and similar rural bodies.

15. Support to rural development, through agricultural modernization and value chain promotion approaches, is one of the strategic priorities of ADB’s country partnership strategy for the PRC and is also aligned with ADB’s Operational Plan for Agriculture and Natural Resources (footnote 6). Support for internet-plus activities will further optimize both agricultural modernization and value chain development.

---

PROBLEM TREE

Persistent poverty and low-income population in rural areas in Gansu province

Lack of viable jobs in the rural areas in Gansu province

Unproductive and low value-added agriculture

Limited government support to agriculture and its related industry

Poor infrastructure and public services in rural areas in Gansu province

Inefficient primary production subsector

Ineffective use of inputs

Poor access to support services

Low technology adoption rate

Concentration on low-value crop production

Poor natural resource quality, e.g., soil fertility, water availability, climate.

Inefficient processing subsector

Inadequate capacity for information technology application along agricultural value chain

Poor links between primary production and the agricultural value chain including processing

Inadequate quality assurance capacity for raw material sourcing

Inadequate processing, storage, and transportation facilities

Difficulty in sourcing quality raw materials on time

Low technology adoption rate

Poor access to high-value e-commerce markets

Inefficient use of inputs

Poor access to support services

Low technology adoption rate

Concentration on low-value crop production

Poor natural resource quality, e.g., soil fertility, water availability, climate.