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17 October 2016

Proposed Loan  
Fujian Farmland Sustainable Utilization and  
Demonstration Project  
(People's Republic of China)

1. The Report and Recommendation of the President (RRP: PRC 47071-002) on the proposed loan to the People's Republic of China for the Fujian Farmland Sustainable Utilization and Demonstration Project is circulated herewith.
2. This Report and Recommendation should be read with *Country Operations Business Plan: People's Republic of China, 2016–2018*, which was circulated to the Board on 21 January 2016 (DOC.IN.23-16).
3. In the absence of any request for discussion and in the absence of a sufficient number of abstentions or oppositions (which should be communicated to The Secretary by the close of business on 7 November 2016), the recommendation in paragraph 33 of the paper will be deemed to have been approved, to be so recorded in the minutes of a subsequent Board meeting. Any notified abstentions or oppositions will also be recorded in the minutes.

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# Report and Recommendation of the President to the Board of Directors

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Project Number: 47071-002  
October 2016

## Proposed Loan People's Republic of China: Fujian Farmland Sustainable Utilization and Demonstration Project

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Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 1 October 2016)

Currency unit	–	yuan (CNY)
CNY1.00	=	\$0.1501
\$1.00	=	CNY6.6638

## ABBREVIATIONS

ADB	–	Asian Development Bank
EMP	–	environmental management plan
FPG	–	Fujian Provincial Government
IEE	–	initial environmental examination
PAM	–	project administration manual
PIU	–	project implementation unit
PPMO	–	provincial project management office
PPE	–	participating private enterprise
PRC	–	People's Republic of China
SOE	–	state-owned enterprise

## NOTE

In this report, “\$” refers to US dollars.

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## PROJECT AT A GLANCE

1. Basic Data		Project Number: 47071-002	
Project Name	Fujian Farmland Sustainable Utilization and Demonstration Project	Department /Division	EARD/EAER
Country Borrower	China, People's Republic of China, People's Republic of	Executing Agency	Fujian Provincial Government (FPG)
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Agriculture, natural resources and rural development	Agricultural production	25.00	
	Irrigation	25.00	
	Land-based natural resources management	40.00	
	Water-based natural resources management	10.00	
	Total	100.00	
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG) Environmentally sustainable growth (ESG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Adaptation (\$ million)	31.00
	Global and regional transboundary environmental concerns	Climate Change impact on the Project	High
	Natural resources conservation		
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD) Partnerships (PAR)  Private sector development (PSD)	Institutional development	Effective gender mainstreaming (EGM)	✓
	Organizational development		
	Implementation		
	Private Sector		
	Promotion of private sector investment		
5. Poverty and SDG Targeting		Location Impact	
Project directly targets poverty and SDGs	Yes	Rural	High
SDG-targeting (TI-S)	SDG8, SDG13, SDG15, SDG17		
6. Risk Categorization: Low			
7. Safeguard Categorization		Environment: B Involuntary Resettlement: B Indigenous Peoples: C	
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		100.00	
Sovereign Project loan: Ordinary capital resources		100.00	
Cofinancing		0.00	
None		0.00	
Counterpart		91.42	
Government		72.35	
Others		19.07	
Total		191.42	
9. Effective Development Cooperation			
Use of country procurement systems		Yes	
Use of country public financial management systems		Yes	

## **I. THE PROPOSAL**

1. I submit for your approval the following report and recommendation on a proposed loan to the People's Republic of China (PRC) for the Fujian Farmland Sustainable Utilization and Demonstration Project.<sup>1</sup>

2. The project will improve rural farmland infrastructure and demonstrate sustainable farming practices in 13 project counties of Fujian Province to reduce land and environmental degradation.<sup>2</sup> Sustainable farming systems simultaneously maintain agricultural productivity; enhance the natural environment; promote more efficient use of key inputs, including water, crop nutrients, pesticides, energy, land, and labor; and contribute to better ecosystem services.<sup>3</sup>

## **II. THE PROJECT**

### **A. Rationale**

3. Agriculture development has increased productivity yet caused high levels of land degradation. In the PRC, 70%-80% of croplands, forestlands, and grasslands are degraded.<sup>4</sup> Major problems are water and wind erosion of soils, reduced soil fertility, over-exploited water resources, nonpoint source pollution, and deforestation. Driven by inefficient irrigation, overuse of chemical fertilizers and pesticides, improper waste treatment, and poor land use practices, land degradation is now the most limiting factor to agriculture production and poses a serious threat to food security, rural livelihoods, and rural economic growth. Reduced agriculture productivity due to land degradation was \$37.09 billion in the PRC or about 1% of the gross domestic product in 2007 (footnote 4). Yet land degradation can be prevented and reversed with soil conditions improved and productivity restored. The cost of reversing land degradation and applying sustainable land management practices is considerably lower than the loss caused by land degradation.

4. In line with this approach, the National Agricultural Sustainable Development Plan, 2015–2030 focuses on tackling the major causes of degradation and promoting sustainable land and resource use.<sup>5</sup> Key targets are to reduce chemical fertilizer and pesticide use, improve soil health, control soil erosion, and promote ecological, featured, and high-efficiency agriculture based on high-quality products and production systems. To achieve these targets, the focus is on investment in (i) water and soil resource protection,<sup>6</sup> (ii) agricultural and rural environmental control,<sup>7</sup> and (iii) ecological rehabilitation. To implement this plan, the government will pilot and

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<sup>1</sup> The design and monitoring framework is in Appendix 1.

<sup>2</sup> The 13 project counties are Wuyishan, Guangze, Datian, Youxi, Ninghua, Yongding, Xinluo, Pinghe, Zhangpu (Hua'an), Jiaocheng, Zherong, Dongqiao, and Fu'an. These counties were selected based on demand for sustainable agriculture practices and poverty alleviation priority counties. The selection criteria and process are summarized in Annex 2 of the project administration manual (accessible from the list of linked documents in Appendix 2).

<sup>3</sup> The Asian Development Bank (ADB) provided project preparatory technical assistance for the Fujian Farmland Sustainable Utilization and Demonstration Project (TA 8741-PRC).

<sup>4</sup> X. Deng and Z. Li. 2016. Economics of Land Degradation in China. In E. Nkonya, et al. ed. Economics of Land Degradation and Improvement: A Global Assessment for Sustainable Development. Springer International Publishing.

<sup>5</sup> Released by the Ministry of Agriculture, National Development and Reform Commission, Ministry of Science and Technology, Ministry of Finance, Ministry of Land and Resources, Ministry of Environmental Protection, Ministry of Water Resources, and State Forestry Administration on 20 May 2015.

<sup>6</sup> Such as high-standard farmland construction, protection and improvement of cultivated farmland, high-efficiency water saving (promoting sprinkler irrigation, micro irrigation, rainfall collection and irrigation, and integral control of water and fertilization), and monitoring of agricultural resources.

<sup>7</sup> Specifically, waste management, chemical fertilizer and pesticide control, recycling and reuse of agricultural film and pesticide packaging, straw utilization, and rural environmental integrated management.

demonstrate sustainable agricultural production practices in selected provinces based on the urgency of their rehabilitation needs. Fujian Province has been designated as a priority province.

5. Fujian Province is mostly mountainous and supports an agrarian rural economy that accounts for 75.9% of the output of the primary sector and supports 39.2% of the total provincial population (14.81 million people living in rural areas).<sup>8</sup> Because of the topography, agriculture produces either perennial tree crops on sloping land or annual crops grown in the valley floor, such as tea, tea oil, pomelo, rice, Chinese pearl barley, and lotus.<sup>9</sup> The difficult terrain and poor land management practices have caused widespread land and environmental degradation, which is further exacerbated by a changing climate and extreme weather conditions. This makes agricultural production and rural livelihoods difficult to sustain. Per capita income in the rural areas of Fujian is CNY11,184, or only 36.3% of urban per capita income (CNY30,816)—the rural–urban disparity. Farmers need additional support to have a viable livelihood option based on sustainable agriculture rather than turn to urban migration for an alternative livelihood. As a leading province for ecological civilization, Fujian is required to manage its environment, safeguard ecological security, adapt to climate change, improve resource conservation, undertake environmentally friendly development, and use and manage more sustainably land, water, and other natural resources to provide sustainable livelihood opportunities.<sup>10</sup>

6. **Land degradation.** Land resources in Fujian Province are limited, allowing an average of 0.058 hectares (0.88 *mu*) of farmland per rural person, which is only about 65% of the national average.<sup>11</sup> Moreover, the land is typically of poor quality and low crop productivity—78.1% of the province's arable land is rated as low to medium quality because of poor soil health, high rates of soil erosion, and outdated agricultural infrastructure, all of which constrains production. The infrastructure also has low resilience to natural disasters. The narrow dirt roads are not suited for motorized agricultural traffic and are inaccessible during the rainy season. Irrigation systems are generally old, made of earthen channels and ditches that are dilapidated by sedimentation or otherwise in disrepair, resulting in low irrigation efficiency of about 40%, lower than the national average. Effective irrigation in the dry season and drainage in the wet season is not possible. Efficient and productive water use would require rehabilitation and modernization of irrigation and drainage infrastructure. The soils erode easily, especially when coupled with poor land management practices and infrastructure as well as seasonal high-intensity rainfall. Loss of soil resources, reduced fertility, and poor soil condition make remedial actions imperative. These include proper field design with terraces, and irrigation and drainage canals to minimize erosion, and the application of organic matter and fertilizers to restore soil health, which in turn will restore degraded land resources and increase productivity.

7. **Polluting and unproductive cropping systems.** Inefficient water use, overuse of chemical fertilizers and pesticides, and lack of capacity among farmers are the main constraints to crop productivity. In 2013, total fertilizer and pesticide application per unit area in Fujian Province was 4.13 million tons, 15% higher than the national average.<sup>12</sup> Limited guidance on

<sup>8</sup> National Bureau of Statistics of China. National Data. <http://data.stats.gov.cn/easyquery.htm?cn=E0103> (accessed 31 August 2016). The province's gross domestic product was CNY2,405.58 billion in 2014; the primary sector's contribution was 8.38% (CNY201.48 billion), to which the agriculture sector contributed CNY152.96 billion.

<sup>9</sup> Fujian Province is the biggest tea producer in the PRC, contributing 18.5% to national production. Tea production reached 347,000 tons in 2013, involving 10% of the provincial population.

<sup>10</sup> According to the PRC government, "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.

<sup>11</sup> A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters).

<sup>12</sup> Government of the PRC, Fujian Provincial Government. 2014. *Fujian Provincial Statistic Book*. Fuzhou.

proper use rates caused an overuse of fertilizers and pesticides leading to nonpoint source pollution and soil degradation, reduced profits to farmers, and increased concerns about food safety. Solving this problem requires (i) precise fertilizer application through soil and water testing, improved soil and crop management, and use of organic fertilizers; (ii) capacity building of farmers; and (iii) the promotion of organic, green, and nonpolluting products, as well as institutional interventions. Water use efficiency will hinge on adequate operation and maintenance of irrigation systems, e.g., by setting up dedicated water user groups, water-saving irrigation techniques, and better agricultural water management practices.

8. Agriculture is highly vulnerable to climate change. Coping with the significant variability of future climatic impacts requires efficient water resource management, boosting the capacity of agricultural support institutions and related stakeholders, and improving the support services to farmers as well as building resilience into production systems and the ecosystem.

9. **Inefficient smallholder agriculture.** Smallholder farmers struggle to earn a decent income from farming, which causes rural–urban income disparity and limits socioeconomic development. Key hurdles are the large number of smallholder farmers, skilled labor shortage, and the lack of adequate training to improve farmers’ technical knowledge and environmental awareness. Moreover, farmers do not always benefit from the adoption of sustainable practices because they lack access to quality-certification schemes that would boost recognition of their organic or green produce. Fujian Province is promoting land consolidation<sup>13</sup> and cooperation models<sup>14</sup> to establish links between state-owned enterprises (SOEs), private enterprises, cooperatives, and farmers as a means to organize farmers, facilitate access to markets, increase large-scale purchasing of inputs at lower prices, and transfer knowledge and services to their members as a means to increase rural economic development. Cooperation models can provide training in modern agricultural practices, including proper fertilizer and pesticide applications, organic and green production practices, land management, and on-farm guidance. This would result in better-quality products, product certification, and greater market competitiveness.<sup>15</sup> However, concerns have emerged about the development, performance, and governance of SOE, private enterprises, and farmers’ cooperatives, and whether benefits are shared equitably. Additional support is required to ensure that technical and management capacities are up to the task and to promote equitable and inclusive economic and rural livelihood development opportunities.

10. As the PRC strives to build an “ecological civilization,” managing the environment is of paramount concern as is improving rural livelihoods, and are the basis for sustainable agriculture systems. These multifaceted systems will be piloted in Fujian Province to demonstrate (i) protection of arable land resources and optimal development; (ii) enhanced agricultural productivity and promotion of sustainable utilization through efficient water use and less environmental pollution; and (iii) cooperation models between enterprises, cooperatives, and farmers.

11. **Strategic fit.** The project supports the government’s overarching strategic goal of building a harmonious and prosperous society through regionally balanced, inclusive, and

<sup>13</sup> Government of the PRC, State Council. 2014. *Opinion on Taking Measures to Guide Orderly Transfer of Rural Land Use Rights for Developing Scaled Agriculture*. Beijing.

<sup>14</sup> Government of the PRC, State Council. 2012. *Opinion on Supporting the Development of Agricultural Industrialization Leading Enterprises No. 10*. Beijing.

<sup>15</sup> Green food is certified as pollution-free, safe, high-quality food with the green food trademark. Organic products are produced according to organic agricultural production requirements and related standards, and certified through a legitimate, independent organic food certification organization.



environmentally sustainable growth. The project supports the National Agricultural Sustainable Development Plan, 2015–2030 (footnote 5) and the State Council No. 1 Document (2016) promoting agriculture reform and modernization. The project is in line with the priorities of the country partnership strategy, 2016–2020 of the Asian Development Bank (ADB) for the PRC—i.e., to manage climate change and the environment, support inclusive economic growth under the “new normal,” and achieve an “ecological civilization”<sup>16</sup>—and ADB’s Operational Plan for Agriculture and Natural Resources, which promotes greater productivity and stronger efficiency in resource use, agribusiness development, and enhanced food safety and quality.<sup>17</sup> It is also in line with the Sustainable Development Goals 8, 13, 15, and 17.<sup>18</sup>

12. **Lessons.** The project design incorporates lessons from international and national best practices in agriculture, environment, and ecosystem improvement, focusing on the development, participation, and empowerment of farmers and farmer organizations for improved production bases and equitable benefit sharing. The project will work through enterprises<sup>19</sup> to help farmers organize themselves and apply new technologies, provide extension services, and open up access to markets. Lessons from the Fujian Soil Conservation and Rural Development I and II projects were also incorporated,<sup>20</sup> which focused on soil conservation and value chain development resulting in reduced soil erosion and specialized agriculture products being promoted. The proposed project focuses on rehabilitation of already degraded land by demonstrating sustainable land development and rehabilitation practices and by implementing sustainable, climate-resilient farming practices. The capacity and knowledge gained from these projects will ensure that Fujian Province has the capacity to halt degradation, rehabilitate degraded lands, and promote sustainable agriculture development that brings benefits to farmers, stimulates the rural economy, and is climate-resilient.

## B. Impact and Outcome

13. The project impact will be reduced land and environmental degradation and improved rural livelihoods in Fujian Province. The project outcome will be long-term farmland productivity and better climate resilience.

## C. Outputs

14. **Output 1: Productive farmland established.** This output will rehabilitate 63,700 *mu* of valley-floor cropland and 200,000 *mu* of sloping land. Valley-floor improvements will comprise land leveling and development of farm infrastructure, such as roads that are suited to tractors and water-conserving facilities (25 kilometers of dikes and embankments for flood prevention, drainage ditches, irrigation canals, and irrigation facilities), for cropping grains, vegetables, and lotus seeds. Rehabilitation of sloping land, which is used for growing tea, tea oil, and orchards,

<sup>16</sup> ADB. 2016. *Transforming Partnership: People's Republic of China and Asian Development Bank (2016–2020)*. Manila.

<sup>17</sup> ADB. 2015. *Operational Plan for Agriculture and Natural Resources: Promoting Sustainable Food Security in Asia and the Pacific in 2015–2020*. Manila.

<sup>18</sup> United Nations. Sustainable Development Goals. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

<sup>19</sup> Selection criteria for SOEs and PPEs were business operations in project related agri-value chains and interest to cooperate with and provide equitable benefit sharing to farmers. The selection criteria and process are summarized in Annex 2 of the project administration manual (accessible from the list of linked documents in Appendix 2).

<sup>20</sup> ADB. 1995. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grants to the People's Republic of China for Fujian Soil Conservation and Rural Development Project*. Manila; ADB. 2004. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for Fujian Soil Conservation and Rural Development Project II*. Manila.

includes the repair of existing terracing, farm infrastructure such as tractor roads, and water-conserving facilities such as storage ponds, and spray and/or drip irrigation equipment.

15. **Output 2: Sustainable farming technology and practices adopted.** This output will support farmers and cooperatives to improve access to resources and technology through cooperation with SOEs and private enterprises and demonstrate improved and climate-resilient cropping practices. It includes the provision of agricultural equipment and materials to implement sustainable farming techniques such as soil conservation (e.g., applying organic fertilizer, implementing zero or low tillage, new crop varieties, and establishing tree plantations for windbreaks and shade), integrated pest management, improved cropping practices (e.g., intercropping and crop rotation), and equipment to test the quality of soil and water. The output will also assist the certification process for green and organic tea, and tea oil products.

16. **Output 3: Institutional, technical, and management capacity strengthened.** This output includes (i) training for farmers' cooperatives on cooperative operation, production technology, and marketing; (ii) training for project implementation units (PIUs) and farmers on good agricultural practices and technology, including certification of green and organic products; (iii) establishment and capacity development of farmland infrastructure management and maintenance associations; and (iv) training on gender and development to ensure inclusion of women and the poor in project activities.

17. **Demonstration features.** The project will demonstrate sustainable farming systems and practices that will offer a range of productivity, socioeconomic, and environmental benefits to farmers and to society in general—e.g., high and stable productivity and profitability, adaptation and resilience to climate change, and a better environment and less degradation. These systems are replicable throughout the PRC to combat land and soil degradation. Key demonstration features are:

- (i) **Private sector-led development.** Promotion of farmer-cooperative-enterprise cooperation models based on mutually beneficial mechanisms that allow farmers access to new technologies and practices combined with extension services and training, better infrastructure and market access, guaranteed prices for their products, and improved due process for land leasing to increase the scale of farm systems. This approach is promoted by the government to supplement regular government services that cannot reach and benefit all farmers.
- (ii) **Climate-resilient agriculture.** The project (a) applies water management practices that capture and store water for irrigation, offer potential for energy, water, and money savings, and boost crop yields by reducing drought impacts, maintaining soil health, and reducing runoff to minimize soil erosion and transfer of pollutants; (b) selects crops and varieties that are well adapted, high-yielding, and resistant to biotic and abiotic stresses; and (c) provides good-quality seeds and seedlings to ensure high-quality varieties.
- (iii) **Integrated pest management.** The project applies integrated management of pests, diseases, and weeds by using suitable physical and biological measures, and selective and low-risk pesticides. This will reduce the use of chemical pesticides, environmental pollution, and improve product quality and food safety.
- (iv) **Better crop nutrition thanks to healthy soils.** Healthy soils can be achieved through crop rotations and by using organic fertilizer while minimizing inorganic fertilizer. The project will provide soil-testing and water-testing equipment to enable fertilizing recommendations based on crop and soil needs, and promote the use of organic matter to maintain, improve, and rebuild soils. This will improve nutrient supply, water-retention, soil structure, and erosion prevention.

## D. Investment and Financing Plans

18. The project is estimated to cost \$191.42 million (Table 1). Detailed cost estimates are provided in the project administration manual (PAM).<sup>21</sup>

**Table 1: Project Investment Plan**  
(\$ million)

Item	Amount <sup>a</sup>
<b>A. Base Cost<sup>b</sup></b>	
1. Productive farmland established	110.45
2. Sustainable farming technology and practices adopted	38.44
3. Institutional, technical, and management capacity strengthened	2.66
Project management	18.12
<b>Subtotal (A)</b>	<b>169.68</b>
<b>B. Contingencies<sup>c</sup></b>	<b>15.93</b>
<b>C. Financing Charges During Implementation<sup>d</sup></b>	<b>5.81</b>
<b>Total (A+B+C)</b>	<b>191.42</b>

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> Includes taxes and duties of \$4.44 million to be financed from the Asian Development Bank (ADB) loan, \$0.85 million from the participating private enterprises, \$3.09 million from state-owned enterprises, and \$0.12 million from government resources.

<sup>b</sup> In mid-2015 prices. Of the base cost, 67.6% will finance civil works; 19.1%, equipment and materials; 2.6%, research and development and training; 0.3%, consulting services; and 5.5%, project management and others.

<sup>c</sup> Physical contingencies computed at 5% for all expenditure categories. Price contingencies computed based on escalation factors at 2.4% on local currency costs in 2017 and 2.5% thereafter, and 1.4% on foreign exchange costs in 2017 and 1.5% thereafter.

<sup>d</sup> Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year United States dollar swap rate plus a spread of 0.5% and an average loan maturity premium of 0.1%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

19. The Government of the PRC has requested a loan of \$100 million from ADB's ordinary capital resources to help finance the project. The loan will have a 26-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan and project agreements.<sup>22</sup> The Fujian Provincial Government (FPG) will bear the foreign exchange and interest rate risk of the loan. FPG will in turn onlend all the loan proceeds to project county governments, which will make the loan proceeds available to nine SOEs on the same terms and conditions as those of the ADB loan to the national government, and to 10 participating private enterprises (PPEs) on the terms and conditions set in the relending agreement with the FPG, which will be the same other than the amortization period of no more than 15 years, including a grace period of 5 years.

20. The financing plan is in Table 2. The ADB loan will finance 52.24% of the project costs, including civil works, goods, and taxes and duties for eligible ADB-financed expenditures. The FPG will make counterpart funds available for project management. The SOEs and PPEs will finance their own costs related to research and development, training, project management, physical and price contingencies, and financing charges during implementation.<sup>23</sup>

<sup>21</sup> Project Administration Manual (accessible from the list of linked documents in Appendix 2).

<sup>22</sup> The interest and commitment charges during implementation will not be capitalized in the loan.

<sup>23</sup> SOEs and PPEs will provide contributions from their own budgetary resources (no commercial bank loans).

**Table 2: Financing Plan**

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (loan)	100.00	52.24
Government	2.66	1.39
State-owned enterprises	69.69	36.41
Participating private enterprises	19.07	9.96
<b>Total</b>	<b>191.42</b>	<b>100.00</b>

Source: Asian Development Bank estimates.

## E. Implementation Arrangements

21. The FPG will be the executing agency of the project. The provincial project management office (PPMO), established under the Fujian Agriculture Department, will provide oversight, coordination, and project management. County project management offices are the implementing agencies. The implementation arrangements are summarized in Table 3 and described in detail in the PAM (footnote 21).

**Table 3: Implementation Arrangements**

Aspects	Arrangements		
Implementation period	December 2016–May 2022		
Estimated completion date	31 May 2022 (loan closing date: 30 November 2022)		
Management			
(i) Oversight body	Provincial Project Leading Group Vice governor of the FPG (chair)		
(ii) Executing agency	FPG, represented by the Fujian Agriculture Department		
(iii) Implementing agencies	Wuyishan, Guangze, Datian, Youxi, Ninghua, Yongding, Xinluo, Pinghe, Zhangpu (Hua'an), Jiaocheng, Zherong, Dongqiao, and Fu'an county project management offices		
(iv) Implementation units	19 implementing units formed from the nine SOEs and 10 PPEs.		
	National competitive bidding	98 contracts	\$102.27 million
	Shopping	110 contracts	\$11.16 million
Retroactive financing and/or advance contracting	Advance contracting and retroactive financing will be used. Retroactive financing will finance up to \$20 million of eligible expenditure (20% of the ADB loan) incurred prior to loan effectiveness but not earlier than 12 months before the loan agreement is signed.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, FPG = Fujian Provincial Government, PPE = participating private enterprise, SOE = state-owned enterprise.

Source: Asian Development Bank.

## III. DUE DILIGENCE

### A. Technical

22. The project was prepared in accordance with PRC guidelines and regulations and took into account consultants' recommendations during project preparation. The technical feasibility was confirmed to be adequate after detailed examination of the project's compatibility with local conditions. A climate risk and vulnerability assessment highlighted the threat that climate change poses to project viability as high. Modeling indicates that until at least 2050, mean annual temperatures will rise, the risk of extreme climate events (particularly drought and flood) will increase, and variability in precipitation will increase. Crops will need more water at times and that water availability for irrigation will be reduced at times. It also means an increase in the incidence of crop diseases and/or pests under the warming conditions, and flooding of valley-floor land. The project will deal with these issues by improving on-farm water storage, boosting

water use efficiency with better irrigation, applying integrated pest control management, establishing shelterbelts, dike embankments, and providing comprehensive training on better farming practices.<sup>24</sup> Analyses confirm that even under the least favorable climate scenarios, the project's water use requirements are sustainable. The project will strengthen climate resilience and will demonstrate the importance of adaptation measures to the project counties.

## **B. Economic and Financial**

23. The economic analysis indicates that the project is economically viable, with an overall economic internal rate of return of 15.8% and a net present value of CNY305.9 million. The analysis also confirms the economic viability of all subprojects, with economic internal rates of return ranging from 12.3% to 22.5%. Sensitivity analysis showed that the project is resilient to negative scenarios such as an increase in investment costs, revenue reduction, and increase in operation and maintenance cost. The financial analysis confirms (i) financial viability of revenue-generating subprojects, (ii) financial sustainability of nonrevenue subprojects, and (iii) financial management capacity of subprojects. The financial sustainability of the subprojects was assessed based on the fiscal impact of counterpart funds during the project, operation and maintenance costs, and the loan repayment obligation. The analysis confirmed the financial sustainability of the project, since the project will have substantially limited fiscal consequences for the FPG and project county and city governments.<sup>25</sup>

## **C. Governance**

24. An assessment of the procurement capacity confirmed that the executing agency, implementing agencies, and PIUs, acting through a procurement agency and with assistance from ADB and loan implementation consultants, have adequate capacity. The financial management assessment indicated that the FPG has sufficient capacity, whereas most implementing agencies meet basic requirements but need further training. The financial management risk was assessed as moderate on a pre-mitigation basis and based on the FPG's previous experience with ADB projects. The FPG will ensure that (i) additional training on ADB's disbursement procedures is provided, (ii) unified financial management guidelines are formulated with assistance from the loan implementation consultants, (iii) PIUs assign qualified finance staff to manage its project account, and (iv) additional assistance and training in project management is provided by the PPMO and municipal project management offices. Given the mitigating measures, these financial management arrangements are deemed adequate.

25. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and the FPG. The specific policy requirements and supplementary measures are described in the PAM (footnote 21).

## **D. Poverty and Social**

26. The project offers opportunities for local people to cooperate with agricultural enterprises in improving farming practices in 122 villages in 51 towns or townships in 13 counties. The project will benefit 16,397 households and 62,507 people, including 26,826 women and 3,181 rural poor who will directly participate in project activities. The total population of 227,788 in project villages is expected to benefit indirectly from better farming infrastructure and various training opportunities. Benefits include jobs created during construction and operation, access to

<sup>24</sup> Detailed results and recommendations are in the Technical Report on Agriculture: Climate-Smart Agriculture, Soil Conservation, and Irrigation Water Resources Management (accessible from the list of linked documents in Appendix 2).

<sup>25</sup> Economic Analysis and Financial Analysis (accessible from the list of linked documents in Appendix 2).

farm inputs and markets, and better farming skills. The project is classified as *effective gender mainstreaming*. A gender action plan and a social development action plan were prepared and include the following measures with specific targets for women: (i) training of project staff and technical training for farmers (50% women); (ii) consultation and information disclosure; (iii) avoidance of adverse impacts on farmers and ensuring of due process for land lease and benefit-sharing arrangements; (iv) capacity building for farmers' cooperatives; (v) local employment of 58,200 workers during construction (at least 35% women); (vi) community participation in design and implementation of project activities; and (vii) use of local construction materials and resources.<sup>26</sup> The PPMO has endorsed the gender action plan and social development action plan.

## **E. Safeguards**

27. **Environment.** The project is classified as category B for environment. An initial environmental examination (IEE), including an environmental management plan (EMP), was prepared and is consistent with the requirements of ADB's Safeguard Policy Statement (2009). The IEE was disclosed on the ADB website on 10 February 2016 and is consistent with the domestic environmental assessments. Consultations involved key stakeholders, including communities and government agencies in the 13 project counties, and the outcomes are integrated in the project design. The FPG, through the PPMO, will be responsible for the implementation of and compliance with the EMP, which includes inspection, monitoring, reporting, and launch of any corrective actions needed. The PPMO will implement and have final responsibility for an environmental, social, and general grievance redress mechanism to handle disputes. The PIUs will be responsible for site-based implementation of the EMP and grievance redress mechanism.

28. The project is expected to achieve significant environmental benefits, particularly better control of soil erosion, sustainable use of water resources, and less use of chemicals. Strong integrated planning for the project design and safeguards included a comprehensive screening and selection process for subprojects, which resulted in significant avoided impacts, such as the exclusion of sites in or near natural habitats and water-source protection areas. Soil erosion (during construction), expanded use of fertilizers and pesticides, and unsustainable water demand (during operation) were seen as other key environmental risks. These were mitigated through project design and safeguards, which target soil-protecting farming practices (including mulching and shelterbelts), conversion to organic fertilizers, integrated pest management, and greater water use efficiency. The EMP contains safeguard measures to mitigate soil erosion during construction; manage construction waste; and clarify environmental monitoring and reporting, roles and responsibilities, and capacity building. The IEE concludes that effective EMP implementation, along with the prescribed training, will result in acceptable impacts.

29. **Involuntary resettlement.** The project is classified as category B for involuntary resettlement. Due diligence on the 28 contracts governing the transfer of land-use rights and of 231 cooperation agreements concluded that legal procedures were followed, parties were informed and consulted, contracts and agreements were voluntary, and farmers will benefit from land rents, jobs, training and/or other benefits specified in the contracts and agreements. Due diligence confirmed that there will be no involuntary resettlement impacts.<sup>27</sup> An external monitor will monitor the contracts during project implementation. The project activities will not involve

<sup>26</sup> Gender Action Plan (accessible from the list of linked documents in Appendix 2). The Social Development Action Plan is included in the PAM.

<sup>27</sup> The Due Diligence Report on the Transfer of Land-Use Rights and Cooperation Agreements (accessible from the list of linked documents in Appendix 2).

land expropriation. The construction or rehabilitation of some infrastructure works may impact portions of farmlands permanently or temporarily, requiring land readjustments and/or compensation measures within the affected village. A resettlement framework was prepared to further screen impacts during detailed design and to prepare the resettlement plan. The resettlement framework was endorsed by the project management office and disclosed publicly.

30. **Indigenous peoples.** The project is classified as category C for indigenous peoples. A poverty and social analysis was conducted and verified that no ethnic minority people live in the project villages.

## F. Risks and Mitigating Measures

31. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.<sup>28</sup> The risk assessment for the overall project is medium, and the integrated benefits and impacts are expected to outweigh the costs.

**Table 4: Summary of Risks and Mitigating Measures**

Risks	Mitigating Measures
Implementation delays due to limited experience of county project management offices and implementing agencies.	PPMO will hire a qualified tendering agent with ADB procurement experience. The project will provide consulting services for technical support and on-the-job training on procurement, disbursement, and financial management. The PPMO has experience from two previous ADB-funded loan projects and will provide additional coaching to the implementing agencies for smooth project implementation.
Farmers are reluctant to adopt sustainable farming technology and practices.	Training will be provided to all project farmers during implementation. Participating private enterprises will further support the adoption of sustainable farming technologies and practices where weaknesses are identified.

ADB = Asian Development Bank, PPMO = provincial project management office.

Source: Asian Development Bank.

## IV. ASSURANCES AND CONDITIONS

32. The government and the FPG have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents. The government and the FPG have agreed with ADB on certain covenants for the project, which are set forth in the loan agreement and project agreement. Additionally, no withdrawal from the ADB loan account will be made for any civil works relating to a PPE or a SOE until the subloan agreement has been duly executed.

## V. RECOMMENDATION

33. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$100,000,000 to the People's Republic of China for the Fujian Farmland Sustainable Utilization and Demonstration Project, from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 26 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Takehiko Nakao  
President

14 October 2016

<sup>28</sup> Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

## DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned with			
Land and environmental degradation in Fujian Province reduced			
Rural livelihoods in Fujian Province improved			
(National Agricultural Sustainable Development Plan, 2015–2030) <sup>a</sup>			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<b>Outcome</b>  Long-term farmland productivity and climate resilience improved	By end of 2023 within the 13 project counties:  a. 4 sustainable and environment-friendly farmland development and utilization models (farmland restoration, efficient irrigation water use, soil health improvement, and integrated pest management) demonstrated (2016 baseline: 0)  b. Overall irrigation water use efficiency increased to 65% (2016 baseline: 40%)  c. Overall soil health improved, measured by 2% increase in soil organic matter levels (2016 baseline: <1%)  d. Pesticide use reduced by 5% (2016 baseline: 100%)  e. Area of green and organic agricultural production bases increased to 50,517 <i>mu</i> (2016 baseline: 4,291 <i>mu</i> )	a–e. Quarterly project progress report; PPMO  a–e. Project completion report: PPMO  b and e. County annual statistics books; county bureaus of statistics	Farmers are reluctant to adopt sustainable farming technology and practices.
<b>Outputs</b> 1. Productive farmland established	By end of 2022:  1a. At least 200,000 <i>mu</i> of slope land rehabilitated and/or established (2016 baseline: 0)  1b. At least 63,700 <i>mu</i> of valley-floor cropland rehabilitated and/or established (2016 baseline: 0)  1c. At least 250,000 <i>mu</i> of farmland with irrigation systems established (2016 baseline: 0)  1d. At least for 63,700 <i>mu</i> of valley-floor cropland with irrigation and drainage facilities improved (2016 baseline: 0)  1e. At least 1,000 km of farm access roads built (2016 baseline: 0)  1f. At least 25 km of dikes and/or embankment protection established (2016 baseline: 0)  1g. Community participation in detailed design and implementation of project	1a–1h. Project progress and completion reports, and loan review missions	SOEs and PPEs fail to develop and implement appropriate training programs in a timely manner.  Implementation delays due to limited experience of county project management offices and implementing agencies.



Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	activities, including 50% women (2016 baseline: 0)  1h. Employment of local people (58,200) during construction, including at least 35% women (2016 baseline: 0)		
2. Sustainable farming technology and practices adopted	2a. 4 participating enterprises equipped with soil nutrient base testing equipment (2016 baseline: 0)  2b. Balanced fertilization application rates adopted on at least 63,700 <i>mu</i> of valley-floor cropland (2016 baseline: 0 <i>mu</i> )  2c. Organic fertilizer adopted on at least 250,000 <i>mu</i> of farmland (2016 baseline: 90,000 <i>mu</i> )  2d. Integrated pest management practices adopted on at least 80,000 <i>mu</i> of tea and tea oil gardens, and pomelo orchards (2016 baseline: 0 <i>mu</i> )  2e. 8 participating enterprises equipped with product quality testing equipment (2016 baseline: 0)  2f. PPEs provide employment to local people (3,200), including at least 35% women (2016 baseline: 0)	2a–2f. Project progress and completion reports, and loan review missions	
3. Institutional, technical, and management capacity strengthened	3a. 70 farmer institutions (including farmers' cooperatives and agricultural infrastructure maintenance units) collaborating with participating enterprises (2016 baseline: 2)  3b. At least 60,000 person-days of training on sustainable farming technologies conducted for farmers, of which 50% are women (2016 baseline: 0)  3c. At least 7,500 person-days of training provided to PIUs, farmers' cooperatives, agricultural infrastructure maintenance units, and water user associations on management, maintenance, improved production technology, and marketing; 30% of training participants are women (2016 baseline: 0)  3d. At least 42 government officials, of which 50% are women, trained on project management, agricultural technology, safeguards, and gender issues (2016 baseline: 0)	3a–3d. Project progress and completion reports, and loan review missions	

**Key Activities with Milestones****1. Productive farmland established**

- 1.1 Prepare detailed designs for valley-floor farmland preparation, slope land terrace rehabilitation, irrigation facility improvement, rainfall collection tanks for slope land, and dike rehabilitation (Q3 2016–Q3 2020).
- 1.2 Prepare and approve the resettlement plans prior to related civil works award (Q3 2016–Q4 2016).
- 1.3 Upgrade and rehabilitate slope land (terrace rehabilitation with drainage ditches) (Q1 2017–Q4 2021).
- 1.4 Upgrade and rehabilitate valley-floor cropland (land leveling and terrace reconstruction) (Q1 2017–Q4 2021).
- 1.5 Upgrade and construct irrigation, water conservation, and drainage facilities for valley-floor croplands (Q1 2017–Q2 2021).
- 1.6 Install water-conservation and irrigation facilities for slope land (Q1 2017–Q2 2021).
- 1.7 Construct and improve farm access roads (Q1 2017–Q3 2020).
- 1.8 Rehabilitate 25 km of dike and embankments (Q1 2017–Q1 2021).

**2. Sustainable farming technology and practices adopted**

- 2.1 Procure agricultural machinery, and equipment to test soil and water, and the quality of agricultural products (Q3 2016–Q4 2019).
- 2.2 Implement the balanced fertilizer program with fertilizer application rate recommendations based on results of soil tests and crop demand (Q3 2016–Q2 2021).
- 2.3 Implement the soil improvement program through promotion of organic matter and organic fertilizer application on the rehabilitated farmland (Q1 2017–Q2 2021).
- 2.4 Implement and promote improved agricultural practices (no-tillage, variety selection, soil cover crops, tending practices, intercropping, and forest shelterbelts) for soil management in the rehabilitated slope land (Q1 2017–Q2 2021).
- 2.5 Implement integrated pest management technologies for disease and insect control in rehabilitated tea and tea oil gardens and pomelo orchards (Q1 2017–Q2 2021).
- 2.6 Implement improved agricultural practices (reduced tillage, crop rotation, water use-efficient irrigation, crop and soil nutrient management, and pest management) in valley-floor crop production systems (Q1 2017–Q4 2021).
- 2.7 Initiate national standard certification for green and organic agro-food products (Q2 2018–Q2 2021).

**3. Institutional, technical, and management capacity strengthened**

- 3.1 Establish and train farmer institutions, including farmers' cooperatives and agricultural infrastructure maintenance units (Q3 2016–Q3 2018).
- 3.2 Train farmers on improved agricultural practices for slope land and valley-floor crop production systems (Q3 2016–Q2 2021).
- 3.3 Train provincial and local government officials on project management, improved agricultural technology and practices, safeguards, and social and gender issues (IEE/EMP, GRM, SDAP, GAP, and resettlement framework) (Q2 2016–Q4 2021).

**Project Management Activities**

Mobilize project implementation consultants (Q4 2016).

Establish PPMS, monitor project implementation progress, and submit semiannual project progress reports to ADB (Q4 2016–Q4 2021).

Implement environmental management plan and submit semiannual environmental safeguard monitoring reports to ADB (Q3 2016–Q4 2021).

Implement resettlement framework, resettlement plans, SDAP, and GAP, and submit semiannual social safeguard monitoring reports to ADB (Q2 2016–Q4 2021).

**Inputs**

ADB: \$100 million (loan)

Government: \$2.66 million

SOEs: \$69.69 million

PPEs: \$19.07 million

**Assumptions for Partner Financing**

Not applicable.

ADB = Asian Development Bank, EMP = environmental management plan, GAP = gender action plan, GRM = grievance redress mechanism, IEE = initial environmental examination, km = kilometer, PIU = project implementation unit, PPE = participating private enterprise, PPMO = provincial project management office, PPMS = project performance management system, Q = quarter, SDAP = social development action plan, SOE = state-owned enterprise.

Note: A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters).

<sup>a</sup> Government of the People's Republic of China. 2015. *National Agricultural Sustainable Development Plan, 2015–2030*. Beijing.

Source: Asian Development Bank.

### **LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/RRPs/?id=47071-002-3>

1. Loan Agreement
2. Project Agreement
3. Sector Assessment (Summary): Agriculture, Natural Resources, and Rural Development
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Financial Analysis
8. Economic Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Gender Action Plan
12. Initial Environmental Examination
13. Resettlement Framework
14. Risk Assessment and Risk Management Plan

### **Supplementary Documents**

15. Due Diligence Report on Land Use Rights Transfer and Cooperation Agreements
16. Financial Management Assessment Report
17. Project Procurement Capacity and Risk Assessment
18. Technical Report on Agriculture: Climate-Smart Agriculture, Soil Conservation, and Irrigation Water Resources Management
19. Technical Report on Farmer Institution Operation