

# Environmental Monitoring Report

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# 8 Semiannual Report  
April 2023

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

Prepared by the Fujian Provincial Government for the Asian Development Bank.

## NOTES

- (i) The fiscal year (FY) of the Government of the People's Republic of China and its agencies ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2019 ends on 31 December 2019.
- (ii) In this report, "\$" refers to United States dollars.

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# Environmental Monitoring Report

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Project Number: L3450-PRC  
April 2023

## PRC: Fujian Farmland Sustainable Utilization and Demonstration Project

### Semi-annual Environmental Monitoring Report for 1 July to 31 December 2022

Prepared by Fujian Provincial Department of Agriculture (Fujian Provincial Agricultural Affair Office) for the Fujian Provincial Government and the Asian Development Bank.

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Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 6 March 2023)

Currency unit	–	Yuan (CNY)
CNY1.00	=	\$ 0.1442
\$1.00	=	CNY 6.9320

## ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank	GHG	Greenhouse gas
BOD <sub>5</sub>	5-day biochemical oxygen demand	GRM	Grievance redress mechanism
CNY	Chinese Yuan	IEE	Initial environmental examination
COD	Chemical oxygen demand	LIEC	Loan implementation environment consultant
CPMO	County Project Management Office	MEP	Ministry of Environment Protection
CSC	Construction Supervision Company	MPMO	Municipal Project Management Office
DO	Dissolved oxygen	PDRC	Provincial Development and Reform Commission
DOEP	Department of Environmental Protection	PIU	Project Implementing Unit
EEB	Environment and Ecology Bureau	PPE	Participating Private Enterprise
EHS	Environmental, Health and Safety	PPMO	Provincial Project Management Office
EIA	Environmental impact assessment	PPTA	Project Preparatory Technical Assistance
EIR	Environmental Impact Report	PRC	People's Republic of China
EIT	Environmental Impact Table	REA	Rapid Environmental Assessment
EMP	Environmental Management Plan	SOE	State Owned Enterprise
EMS	Environment Monitoring Station	SPS	Safeguard Policy Statement
FPG	Fujian Provincial Government	WHO	World Health Organization
FSR	Feasibility Study Report	WRB	Water Resources Bureau
FYP	Five Year Plan		
GDP	Gross domestic product		

## SUMMARY PROJECT INFORMATION

GENERAL INFORMATION	
Project title:	Fujian Farmland Sustainable Utilization and Demonstration Project
Date of project effectiveness:	22 May 2017
Executing agency:	Fujian Provincial Government
Implementing agency:  19 PIUs at appraisal stage. After midterm review (MTR), number of PIUs changed to 11.	11 Project implementing units (PIUs): 1) Nanping: Wuyishan: Wuyishan Zhuzi Ecological Agriculture Co., Ltd 2) Nanping: Guangze: Fujian Zhengyuan Ecological Food Town Co., Ltd 3) Nanping: Pucheng: Pucheng Farmland Development and Utilization Co., Ltd 4) Sanming: Datian: Fujian Datian County Golden Phoenix Agricultural Development Co., Ltd 5) Sanming: Ninghua: Ninghua State-owned Ecological Forestry Co., Ltd 6) Longyan: Yongding: Longyan Municipality Longyu Ecological Industry Development Co. Ltd 7) Longyan: Xinluo: Longyan Municipality Greenland Ecological Agriculture Development Co. Ltd 8) Zhangzhou: Pinghe: Fujian Xinghe Investment Development Co. Ltd 9) Ningde: Jiaocheng: Fujian Lvyin Agriculture Co., Ltd 10) Ningde: Fu'an: Fujian Farms Agribusiness Tea Co. Ltd. 11) Ningde: Shouning: Shouning County State-owned Asset Investment and Operation Co., Ltd
PMO (name of agency):	The PPMO is established in the Fujian Provincial Department of Agriculture. County Project Management Offices, representing County governments, in County Agriculture Bureaus of 13 project counties, including:  Longyan (Yongding, Xinluo); Nanping (Wuyishan, Guangze); Ningde (Jiaocheng, Tuorong, Dongqiao, Fu'an.); Sanming (Datian, Ninghua, Youxi); Zhangzhou (Pinghe, Hua'an)  After the MTR, County Project Management Offices changed from 13 to 11, with 4 dropped and 2 new added, including Longyan (Yongding, Xinluo); Nanping (Wuyishan, Guangze, Pucheng); Ningde (Jiaocheng, Fu'an, Shouning); Sanming (Datian, Ninghua); Zhangzhou (Pinghe)
PMO Environment Officer (name, email):	1 from each PMO
Loan implementation consultant / firm:	NAREE
LIEC:	Yuan Jingwei from NAREE
Construction supervision company(ies):	See Table 2
Contractor(s):	See Table 2
ADB web link to EMP:	<a href="https://www.adb.org/projects/documents/prc-fujian-farmland-sustainable-utilization-and-demonstration-project-iee">https://www.adb.org/projects/documents/prc-fujian-farmland-sustainable-utilization-and-demonstration-project-iee</a>
Domestic web link to EMP:	Not available

<b>ENVIRONMENTAL SAFEGUARD MONITORING</b>	
ADB environment safeguard category:	B
Environmental report prepared as per ADB requirements for this category:	Initial Environmental Examination
Domestic safeguard report:	13 EIA Table (one for each PIU) at appraisal; 3 EIA Table for Shouning, Pinghe and Guangze, 1 EIA registration form for Pucheng for new proposed subprojects after MTR
Period covered by this report:	1 July 2022 to 31 December 2022
# EMRs to date including this report:	7
Agency/person responsible for internal environmental monitoring:	11 person (One from each PIU)
Agency/person responsible for external environment monitoring (EMC):	7 EMCs 1) Fujian Sanming Houde Testing Technology Co., Ltd. (for Datian and Ninghua) 2) Fujian Zhongke Environmental Monitoring Co. Ltd (for Wuyishan, Jiaocheng, and Fu'an) 3) Fujian Zhongkai Test Technology Co. Ltd. (for Yongding) 4) Fujian Huafei Test Technology Co., Ltd (for Xinluo) 5) Fujian Keyi Test Technology Co., Ltd (for Pinghe) 6) Fujian Huaqi Test Technology Co., Ltd (for Shouning) 7) Fujian Minjinlan Test Technology Co., Ltd (for Pucheng)
Agency/person responsible for EMP implementation and progress monitoring:	Yuan Jingwei, LIEC from NAREE
Agency/person responsible for independent compliance monitoring:	This is environment safeguard category B project. No independent compliance monitoring for this project is required
Overall status of environmental safeguards:	On track

ADB = Asian Development Bank, EMP = environmental management plan, EMR = environment monitoring report, LIEC = loan implementation environment consultant, PMO = project management office.

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## EXECUTIVE SUMMARY

### A. Overview

1. This is the 8<sup>th</sup> environmental monitoring report presenting the status of compliance with the environment management plan (EMP) during the project implementation from 1 July 2022 to 31 December 2022. The key environment issues caused by project construction have been discussed, and corresponding improvement measures and follow up actions have been suggested according to the issues found.

2. For the second half of 2022, there are seven newly mobilized civil packages i.e., three civil works packages in Datian and four in Shouning. Within this reporting period, subprojects in Datian, Pinghe, Pucheng, and Shouning have on-going construction activities, including four civil work packages in Datian, two in Pinghe, three in Pucheng and six in Shouning in total. The two civil work packages in Pinghe completed in October 2022 wherein as of 31 December 2022, completion inspection has yet to be completed. No significant design change during this reporting period.

### B. Progress in Implementing the EMP

3. **Contractual arrangement.** The PPMO has distributed the EMP to MPMOs, CPMOs, PIUs and design institutes. Relevant environmental requirements including COVID-19 prevention and control measures have been included in the bidding documents, civil works contracts with contractors and supervision contracts with construction supervision companies. The contractual arrangement is fully in compliance with the EMP. There are four project counties (Datian, Pinghe, Shouning and Pucheng) have on-going construction activities during this reporting period.

4. **Institutional setup.** PPMO, CPMOs, CPMOs and 10 PIUs have designated environment persons to conduct environment management. An environment person has been appointed by each contractor and each supervision company to be responsible for the implementation of environmental mitigation measures and on-site internal monitoring. The institutional arrangement is complied with the EMP.

5. **Implementation of mitigation measures.** No environmental pollution, health and safety incident was recorded during this reporting period. The implementation of mitigation measures complied with the EMP requirements.

6. **Internal monitoring.** The CSCs, environmental officers of PMOs at all levels and PIUs have been working effectively on the project inspection and supervision with the support of local Ecology and Environment Bureaus (EEBs) and Loan Implementation Environmental Consultant (LIEC). Regular site inspections have been performed by CSCs on a weekly basis. The internal monitoring results have been submitted to PIUs for review on a monthly basis. Random site inspections performed by PIUs, PPMO and MPMOs and CPMOs. The internal monitoring is in compliance with the EMP.

7. **External monitoring.** There are four subprojects with 15 civil work packages has on-going construction activities during this reporting period. The monitoring results of Datian, Pinghe and Pucheng showed compliance with the ambient air, noise and surface water quality standards. The water quality of nearby creeks in Shouning and Pinghe showed slightly exceedance of COD of Grade III (Surface Water Quality Standard) but within the limits of Grade V. The PIUs and

CSCs explained that the contractors do not have accommodation on site and no domestic sewage discharge to the creeks. The exceedance is mainly caused by non-point pollution in rural area rather than project activities. This will be verified during the site inspection scheduled in May 2023 by the LIEC and details will be provided in the next EMR.

8. **Public consultation and GRM.** At the project preparation stage, PIUs, design institutes, EIA Institutes have conducted related public consultation activities in accordance with ADB requirements. The GRM has been established and carried out by PPMO, MPMOs, CPMOs and PIUs. All subprojects PIUs publicized GRM entry points by erecting bulletin boards at construction sites and posting notice at information board of nearby village committees and this is quite welcomed by the local people. During this reporting period, the contractors of Datian, Shouning, Pucheng and Pinghe have kept close communication with people from local villages in the daily works, include consulting with the villagers on the construction time arrangement and traffic disruption during construction of tractor roads. No complaints have been received at all GRM entry points during this reporting period. Similarly, there are no pending / outstanding complaints. Public consultation and GRM are complied with the Table A1.2 of the EMP.

9. **Training.** Total of seven environmental officers/persons from PPMO, and PIUs of Shouning, Datian, Pinghe and Pucheng attended the on-line ADB safeguards training program organized by ADB PRC Resident Mission, including environmental session on 29 August 2022. The topics of the environmental training session covered environmental due diligence, environmental monitoring, EMP implementation and project completion. After the training, PPMO and PIUs have better understanding of the environmental requirements during loan implementation. An online training on environmental management requirements for operation phase was provided to the PIUs and PMOs by NAREE on 19 December 2022 with 19 participants (5 female and 14 male) from PMO and PIUs. The training explained monitoring and reporting requirements for operation phase, practices on pesticide and fertilizer management and the participants gained better awareness of EMP implementation during operation.

10. During this reporting period, the project has successively carried out technical training and guidance for agricultural cooperatives and farmers in the project area. Training courses on cultivation skills, startup, seedling care, green planting technology, farmer entrepreneurship etc. was offered to 2,379 people in total, including 1,094 women (45.9%) and 78 people (3.2%) from the low-income population.

**C. Key issues, actions and work plan for next reporting period**

11. Actions are planned for January to June 2023 and will be reported on in the next EMR.

Issue/Subject	Action	By When	By Whom
External monitoring frequency	Conduct external environmental monitoring at the frequency specified in Table A1.3b: External Environmental Monitoring Program in the EMP: 4 times/per year for noise and air quality during construction.  Subprojects of Wuyishan and Jiaocheng are in operation for one year and will conduct operation monitoring in 2023: 2 times/year for the water quality of rivers nearby.	Q1 and Q2 of 2023	PIUs of Datian and Pucheng
Site inspection	Conduct external environmental monitoring at the frequency specified in Table A1.3b: External Environmental Monitoring Program in the EMP: 4 times/per year for noise and air quality during construction.  Subprojects of Wuyishan and Jiaocheng are in operation for one year and will conduct operation monitoring in 2023: 2 times/year for the water quality of rivers nearby.	May 2023	LIEC
Operation monitoring	Subprojects of Wuyishan and Jiaocheng are in operation for one year and will conduct operation monitoring in 2023.	End of 2023	EMCs, LIEC and PIUs
EMP implementation training	Provision of EMP implementation training to the new contractors and CSCs, PIUs and EMCs, including topics on information disclosure, public consultation, good construction management practices, and monitoring requirements (key points of daily site inspection, monitoring locations and monitoring frequency) etc. ;	May 2023	LIEC

## II. INTRODUCTION

### A. Purpose of report

12. The purpose of this environmental monitoring report (EMR) is to describe and assess progress for implementation of the environmental management plan (EMP) for the Fujian Farmland Sustainable Utilization and Demonstration Project, for the reporting period 1 July to 31 December 2022. This EMR is submitted in compliance with the Safeguard Policy Statement (SPS)<sup>1</sup> of the Asian Development Bank (ADB) and the loan agreement between ADB and the project executing agency.

13. This is the 8<sup>th</sup> EMR for the project. It covers part of the design, bidding, construction and operation phases of the project. The report describes: (i) institutional setup with respect to fulfilling environmental requirements (ii) implementation of mitigation measures; (iii) monitoring activities; (iv) public consultations (including grievance redress); (v) training and capacity building; (vi) expenditures for EMP implementation (including mitigation, monitoring, and training); (vii) reporting; and (viii) an overall assessment of key achievements, challenges, issues, corrective actions, and lessons learned, during the reporting period.

### B. Project outcome, outputs and subcomponents

14. The project outcome will be climate-resilient and sustainable crop farming systems demonstrated in 13 project counties. The project outputs will be (i) productive farmland established, (ii) sustainable farming technology and practices adopted, and (iii) institutional capacity strengthened.

15. **Output 1: Productive farmland established.** This output will rehabilitate degraded (i) valley floor crop land (land preparation, flood protection, soil health); and (ii) sloping land (terracing and drainage). Valley floor crop land improvement demonstration will include 63,700 *mu* of crop land improved for growing grains, vegetables, and lotus seeds. The activities will comprise land levelling and development of farm infrastructure such as farm tractor roads and water conservancy facilities (25 kilometres of dikes/embankments for flood prevention, drainage ditches, irrigation canals, and irrigation facilities). Sloping land rehabilitation demonstration will include 250,000 *mu* to be improved for tea, tea oil, and orchards. The rehabilitation activities include repairing existing terracing, farm infrastructure such as farm tractor roads, and water conservancy facilities such as water storage ponds and spray/drip irrigation equipment.

16. **Output 2: Sustainable farming technology and practices adopted.** This output will support project implementation units (PIUs), comprising state-owned enterprises (SOEs) and participating private enterprises (PPEs) in cooperation with farmers and cooperatives to establish crop model demonstration sites. Activities include provision of (i) agricultural equipment and materials to implement sustainable farming technology and practices such as soil conservation measures (e.g., applying organic fertilizer, implementing zero or low tillage, introducing new crop varieties, and establishing tree plantations for windbreaks and shade), integrated pest management, and improved cropping practices (e.g., intercropping and crop rotation); and (ii) soil, water, and organic fertilizer quality-testing equipment required for formulation of balanced fertilizer application. In addition, the output will facilitate the certification process for green and organic tea, tea oil and other products.

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<sup>1</sup> ADB. 2009. Safeguard Policy Statement. Manila.

17. **Output 3: Institutional capacity strengthened.** This output will support: (i) training specialized farmer cooperatives on cooperative operation, production technology, and marketing; (ii) training PIUs staff and farmers on good agricultural practices and technology, including green and organic product certification, and will be inclusive of women and the poor; (iii) establishing of and developing the capacity of farmland infrastructure management and maintenance associations; (iv) training on gender and development for the PPMO, MPMOs, county project management offices (CPMOs), and participating enterprises; and (v) training for PIUs and PMOs on procurement and improved project management.

18. The IEE was prepared in 2016 and originally comprised 19 subprojects in 13 counties. In 2021, minor changes in the project scope were requested by the government, and the IEE was updated between November 2021 and January 2022 to reflect these changes. The changes are: (i) components under 13 subprojects totally or partly removed from the project, (ii) locations changed for some components under 2 subprojects, and (iii) 2 subprojects were added.

19. The updated project scope will be implemented by 11 (originally 19) agricultural enterprises engaged in tea and tea-oil production on slope land areas and cropping, including rice, in the valley floors. These enterprises comprise state owned enterprises (SOEs) and participating private enterprises (PPEs) and are collectively termed the project implementing units (PIUs).

### C. Project implementation progress

20. For this reporting period, there are no changes in the project design and scope hence no IEE / EMP updating is required.

21. Implementation progress for the civil works contracts is summarized in Table 1. During this reporting period, subprojects in Datian, Pinghe, Pucheng, and Shouning have on-going construction activities, including four civil work packages in Datian, two in Pinghe, three in Pucheng and six in Shouning. The two civil work packages in Pinghe completed in October 2022 and as of December 2022, waiting for construction completion acceptance inspection organized by the PIU, with participation of local construction quality supervision authority, design institute, CSC and contractor <sup>2</sup>. Once completed, these facilities are transferred to the village committee or township government for O&M.

22. The status of the remaining subprojects are summarized below:

- **Wuyishan:** No scope change comparing with appraisal stage, all contract packages completed in 2021.
- **Jiaocheng (Lvjin):** No scope change comparing with appraisal stage, all contract packages completed in 2018.
- **Xinluo:** Allocated 10 million USD loan but only use 0.35 million USD loan for 1 contract package and completed in 2021; the remaining contract packages cancelled after the mid-term review (MTR).

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<sup>2</sup> The construction completion acceptance inspection refers to the quality and cost audit after completion. Note that these subprojects are not required to prepare environmental impact assessment or environmental acceptance upon completion.

- **Yongding:** Loan allocated changed from 8 million USD to 1.5 million USD after the MTR. The 1.5 million USD loan has been used for two civil contract packages and completed in 2019.
- **Ninghua:** Allocated 9.5 million USD loan but only 0.5 million USD used for 2 contract packages and completed in 2019; the remaining contract packages cancelled after the MTR.
- **Fu'an:** 2 civil contract packages completed and waiting for completion inspection in 2022. The remaining three contract packages are goods supply.
- **Guangze:** Expressed its interest to exit from the project during the review mission in November 2022 and no contract packages mobilized until 31 December 2022.

**Table 1. Project civil work implementation progress as of 31 December 2022**

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
<b>Datian Subproject, PIU = Fujian Datian County Golden Phoenix Agricultural Development Co., Ltd</b>							
1	FJ-DT-CW-01-01 Qianping Township Grain Production Base Establishment	· Paddy land leveling: 2000mu · In-stream weirs (No.): 2 · Water collecting tanks (No.): 3 · Sprinkling irrigation pipes: 4km · Drainage ditches: 5.7km · Tractor roads: 6.7km	Released	Contract signed on 7 January 2019. As the served farmland was changed to industrial land, the contract was discontinued. ADB approved the release of this contract on 11 October 2021.	/	Fujian Dongyu Construction Engineering Co., Ltd.	Fujian Zhongxu Construction Co., Ltd.
2	FJ-DT-CW-01-02 Qianping Township Paddy Land Leveling	· Tractor roads: 0.4km · Riverbank revetment: 1.04km	Operation	Contract signed on 7 January 2019. 100% completed in early 2020.	July 2019	Richang (Fujian) Group Co., Ltd.	Fujian Zhongxu Construction Co., Ltd.
3	FJ-DT-CW-01-03 Reconstruction of low yield oil tea garden in Qianping Area of Qianping Town	· To be designed	Design	Advertisement is expected on Q3 2023.	/	/	/
4	FJ-DT-CW-01-04	· To be designed	Design	Advertisement is expected on Q3 2023.	/	/	/
5	FJ-DT-CW-02-01 (Huaxing Township)	· Tractor road widening: 9.7km · Drainage ditches: 9.9km · Embankment: 33m · New tractor road: 48km	Operation	100% completed	December 2020	Fujian Fangxin Construction Group. Co., Ltd	/
6	FJ-DT-CW-02-02 Reconstruction of low-yield camellia garden in Huaxing Township	· Water construction tank: 3 · Water ponds: 177 · Irrigation ditches: 7.6km · Drainage canals: 0.42km · Tractor roads: 44.3km	Design	Advertisement is expected on Q2 2023.	/	/	/
7	FJ-DT-CW-03-01 Taoyuan Township Grain Production Base Establishment (Taoyuan Village)	· Tractor roads: 17km · Drainage ditches: 1.2km · Irrigation channels: 2.9km · In-stream weirs: 14 · Pump stations: 3 · Water ponds: 3 · Sprinkling irrigation: 400mu	BD preparation	Advertisement is expected on Q2 2023.	/	/	/

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
8	FJ-DT-CW-03-02 Xi'an Village of Taoyuan Township Grain Production Base Establishment	· Newly-built tractor road: 6.4km · Irrigation ditches: 4.5km	Operation	100% completed in end of 2020	March 2020	Fujian Hongchang Project Management Co., Ltd.	Sanming Lianmeng Engineering Consulting Co. Ltd.
9	FJ-DT-CW-03-03 Dongban Area of Taoyuan Township	· Tractor roads : 17km · Drainage ditches: 1.2km · Irrigation canals: 2.9km · In-stream weirs: 6 · Sprinkling irrigation: 400mu	On-going construction	50% completed	26 Sep 2022	Fujian Yiqi Construction Co., Ltd.	Hefei Yiteng Engineering Consulting Col. Ltd.
10	FJ-DT-CW-04 (Dongfeng farm)	· Tractor roads:4.7km · Drainage ditches: 5.6km · Irrigation canals: 5.7km · In-stream weirs: 2 · pump station: 1 · Riverbank revetments: 0.84km	Operation	100% completed in April 2021	December 2020	Fujian Hongchang Project Management Co., Ltd	Sanming Liansheng Construction Consulting Co., Ltd.
11	FJ-DT-CW-05-01 Tea garden and paddy field rehabilitation in, Xiangji Village, Jiyang township	· Tractor road:10.81km · Drainage canals: 1.06km · Irrigation ditch of 5.5km	Operation	100% completed in early 2020.	June 2019	Fujian Hongchang Project Management Co., Ltd.	Fujian Zhongxu Construction Co., Ltd.
12	FJ-DT-CW-05-02 (Shangfeng village, Jiyang Township)	· Weir: 1; · Flood drainage channel: 338 m; · Retaining wall 30 m; · Field road: 3335 m; · Branch road: 1250 m; · X726 road renovation (Shangfeng to Jiyang): 5.953 km.	Operation	100% completed.	July 2020	Datian Dongyu Construction Engineering Co., Ltd	Fujian Huahong Engineering Management Co., Ltd
13	FJ-DT-CW-05-03 (Jiyang township)	· Road pavement 2.669 km; · Concrete canal 28448.38 m.	On-going construction	90% completed	July 2022	Fujian Yiqi Construction Co., Ltd.	Nanping Jiancheng Water Engineering Supervision Co., Ltd
14	FJ-DT-CW-06-01 (Shipai town)	· To be designed	Design	Advertisement is expected on Q3 2023.	/	/	/
15	FJ-DT-CW-06-02 (Shipai town)	To be designed	Design	Advertisement is expected on Q3 2023.	/	/	/



No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
16	FJ-DT-CW-07-01 (Pingshan township)	Road pavement 6.267 km; Concrete canal 6.991 km	On-going construction	20% completed	July 2022	Jiangxia (Fujian) Construction Engineering Co., Ltd.	Fujian Luhai Engineering Management Co., Ltd.
17	FJ-DT-CW-07-02 (Neiyang village, Pingshan township)	Earth borrowing 85625.55 m3; Ditch excavation 594 m3; Concrete pipe 120 m; 2 wells	Operation	100% completed	July 2021	Jiangxia (Fujian) Construction Engineering Co., Ltd.	Fujian Hongtao Construction Consulting Co., Ltd.
18	FJ-DT-CW-07-03 (Pingshan township)	Road pavement 2258 m; Concrete canal 224.66 m	Operation	100% completed	July 2021	Jiangxia (Fujian) Construction Engineering Co., Ltd.	Hefei Yiteng Construction Consulting Co., Ltd.
19	FJ-DT-CW-07-04	To be designed	Design	Advertisement is expected on Q3 2023.	/	/	/
20	FJ-DT-CW-08-01 (Keshan village, Wushan Township)	New tractor roads: 2.12km Tractor roads rehabilitate: 2.64km Irrigation canal: 6.4km	Operation	100% completed	May 2020	Sanming Hongchang Construction Engineering Co., Ltd.	Nanping Jiancheng water conservancy and Hydropower Engineering Supervision Co., Ltd.
21	FJ-DT-CW-08-02 (Wushan township)	Paddy Land Leveling: 700 mu Terrace Rehabilitation: 2500 mu Tractor roads: 10.24km Drainage ditches: 4km Irrigation canals: 18.24km Water collecting tanks: 35 In-stream weirs: 6 Pump station: 7 Pipe irrigation: 1000mu Sprinkle irrigation: 1200mu	On-going construction	70% completed.	May 2022	Fujian Yiqing Construction Co., Ltd.	Fujian Hongjian Engineering and Cost Consulting Co., Ltd.
22	FJ-DT-CW-09 (Junxi town)	· Water storage tanks: 5 set; · Field road: 6855 m; · Culvert: 168 m; · Retaining wall 30 m; · Sedimentation tank: 2	Design	· Advertisement is expected on Q2 2023.	/	/	/
23	FJ-DT-CW-10 (Wuling township)	· Drainage channel: 9959 m; · Field road: 14332 m;	Design	· Advertisement is expected on Q2 2023.	/	/	/

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
		· Culvert: 240 m.					
24	FJ-DT-CW-11 (Xieyang township)	· Drainage channel: 2710 m; · Field road: 6506 m.	Design	· Advertisement is expected on Q3 2023.	/	/	/
25	FJ-DT-CW-12 (Shangjing town)	· Nanxi village road pavement: 2.329 km; · Nanxi village concrete canal: 2328.58 m; · Shangping village road pavement: 3.058 km; · Shangping village concrete canal: 3043.95 m	Design	· Advertisement is expected on Q3 2023.	/	/	/
<b>Wuyishan Subproject, PIU = Wuyishan Zhuzhi Ecological Agriculture Co., Ltd.</b>							
1	FJ-WYS-CW-01 Water Infrastructure and Ecological Revetment Infrastructure Transformation	· 5000 mu of paddy field-water conservancy infrastructure renovation, ecological bank protection improvement. · 3 irrigation ditches: 4.32km · 2 drainage canals: 1.66km · River embankment: 3.2km · Improve 15 field roads: 11.85km	Operation	100% completed	28 Jun 2019	Fujian Dongyu Construction Engineering Co., Ltd.	Fujian Hongjian Engineering Consulting Co. Ltd.
2	FJ-WYS-CW-02-01 5000 mu paddy field water infrastructure improvement, transportation and ecological embankment upgrading and transformation	· Construct irrigation ditch: 110m; · Construct protective retaining wall: 50m; · Upgrading ecological embankment: 1.44km · Improve 4 field roads: 7.4km	Operation	100% completed	21 May 2020	Fujian Dongyu Construction Engineering Co., Ltd.	Xiamen Jianshi Engineering Management Co, Ltd.
3	FJ-WYS-CW-02-02 5000 mu Paddy field-Transportation	· Field road improvement: 1.47km	Operation	100% completed	Jun 2019	Wuyishan Xingyi Highway Maintenance Engineering Co., Ltd.	Wuyishan Anda Construction Supervision Co. Ltd.
4	FJ-WYS-CW-03 5000 mu Paddy field	· Field roads · Land levelling	Operation	100% completed	2021	Fujian Hongri Water Conservancy and	/

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
						Hydropower engineering Co., Ltd	
<b>Pinghe Subproject, PIU = Fujian Xinghe Investment Development Group Co., Ltd.</b>							
1	FJ-PH-CW-01-01 Oil-tea Garden Improvement in Qiling Township of Pinghe County	<ul style="list-style-type: none"> <li>· Construction of 6.732 km Tractor Roads.</li> <li>· Construct field road: 4.793 km</li> <li>· Construct 3 small water drops</li> </ul>	Operation	100% completed in January 2021.	22 Dec. 2019	Fujian Minying Construction Development Co., Ltd	Fuzhou Xintiandi Engineering Management Co., Ltd.
2	FJ-PH-CW-01-02 (Qiling Township)	<ul style="list-style-type: none"> <li>· Field roads: 21.10km</li> <li>· Drainage ditches: 28.84km</li> <li>· Water ponds: 5</li> <li>· Pesticide pools: 208</li> <li>· Sprinkling irrigation: 4375mu</li> <li>· Terrace rehabilitation: 5966mu</li> </ul>	Released	Released.	/	/	/
3	FJ-PH-CW-02 (Qiling Township)	<ul style="list-style-type: none"> <li>· Water ponds: 19</li> <li>· Pesticide pools: 292</li> <li>· In-stream weirs: 2:</li> <li>· Tractor roads: 3.67km</li> <li>· Field roads: 65.12km</li> <li>· Drainage ditches: 14.06km</li> <li>· Drip irrigation: 5182mu</li> <li>· Sprinkling irrigation: 89.23mu</li> <li>· Terrace rehabilitation: 5271mu</li> </ul>	Operation	100% completed in December 2021.	December 2020	Fujian Province Zhongda Construction and Development Co., Ltd	Fujian Province Forestry Investigation and Design Institute
4	FJ-PH-CW-03 (Sankeng village, Jiufeng Township)	<ul style="list-style-type: none"> <li>· Tractor roads: 3.29km</li> <li>· Field roads: 1.57km</li> <li>· Drainage ditches: 4.86km</li> <li>· Sprinkling irrigation: 1880mu</li> <li>· Terrace rehabilitation: 1880mu</li> </ul>	Operation	100% completed.	November 2020	Zhongliguan Construction Group (Fujian) Co., Ltd	Fujian Xiangjiang Project Management Co., Ltd
5	FJ-PH-CW-04 (Meishan village, Jiufeng Township)	<ul style="list-style-type: none"> <li>· Water ponds: 2</li> <li>· Tractor roads: 12.96km</li> <li>· Field roads: 1.78km</li> <li>· Drainage ditches: 7.61km</li> <li>· Sprinkling irrigation: 1506mu</li> <li>· Terrace rehabilitation: 1506mu</li> </ul>	Operation	100% completed	December 2020	Fujian Province Shengyu Construction and Development Co., Ltd	Fujian Hengmaoyuan Project Management Co., Ltd
6	FJ-PH-CW-05-01 5050mu Pomelo Orchard Improvement in	<ul style="list-style-type: none"> <li>· Tractor roads (3.0m width): 6.7km</li> <li>· Tractor roads (3.5m width): 6.7km</li> <li>· Field roads: 0.431 km</li> </ul>	Operation	100% completed	22 Dec. 2019	Fujian Jingfang Construction Engineering Co., Ltd	Fujian Hongye Construction

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
	Banzi Township of Pinghe County - Farmland Infrastructure Construction	<ul style="list-style-type: none"> <li>· Astern turntable: 4</li> <li>· Passing bay: 12</li> <li>· Cover culvert: 3</li> <li>· Water drops: 7</li> </ul>					Supervision Co. LTD
7	FJ-PH-CW-05-02 (Banzai Township)	<ul style="list-style-type: none"> <li>· Drip irrigation main pipe: 10675m</li> <li>· Drip irrigation branch pipe: 16159m</li> <li>· Anchor block: 72</li> <li>· Valve well: 238</li> <li>· 55kW booster pump: 3</li> <li>· Supporting pump house: 1</li> <li>· Suction tank: 1</li> <li>· New agricultural Bridge: 1</li> <li>· Slab culvert: 1</li> <li>· Tractor road: 0.768km</li> </ul>	Waiting for construction completion inspection – also refer to para 21	100% completed on Oct 2022.	14 March 2022	Zhongda (Fujian) construction Service Co., Ltd	Fujian Hengmaoyuan Engineering Management Co., Ltd
8	FJ-PH-CW-06	<ul style="list-style-type: none"> <li>· Water ponds: 4</li> <li>· Tractor roads: 11.12km</li> <li>· Field roads: 1.42km</li> <li>· Drainage ditches: 3.59km</li> <li>· Drip irrigation: 4277mu</li> <li>· Terrace rehabilitation: 4277mu</li> </ul>	Waiting for completion inspection – also refer to para 21	100% completed on Oct 2022.	August 2021	Yuehong Construction and Development Co., Ltd associated with Fujian Huitong Construction Co., Ltd.	Zhangzhou Jinlou Construction Management Co., Ltd.
9	FJ-PH-CW-07 Xiaoxi Town	<ul style="list-style-type: none"> <li>· Tractor road: 9240m;</li> <li>· Shoulder retaining wall: 1700m;</li> <li>· Passing lane: 6;</li> <li>· Reversing table: 2;</li> <li>· Downfield ramp: 12;</li> <li>· Crossing culvert pipe: 35;</li> <li>· Drainage and irrigation canal: 2350m;</li> <li>· Water diversion pipe: 4380m;</li> <li>· Reservoir: 400 m<sup>3</sup>;</li> <li>· Pump house: 2;</li> <li>· 2060 Mu micro spraying construction.</li> </ul>	Design	Advertisement is expected on Q1 2023.	/	/	/

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
10	FJ-PH-CW-08 Banzai Town	<ul style="list-style-type: none"> <li>· Tractor road: 10375m;</li> <li>· Passing lane: 9;</li> <li>· Reversing table: 3;</li> <li>· Downfield ramps: 25;</li> <li>· Crossing culvert pipe: 12;</li> <li>· Step road: 2835m;</li> <li>· Reservoir: 110m<sup>3</sup>;</li> <li>· 550 mu of micro spraying construction.</li> </ul>	Design	Advertisement is expected on Q1 2023.	/	/	/
11	FJ-PH-CW-09 Shange Town	<ul style="list-style-type: none"> <li>· Field trunk road: 2060m;</li> <li>· Passing lane: 2;</li> <li>· Downfield ramp: 4;</li> <li>· Culverts: 2.</li> </ul>	Design	Advertisement is expected on Q1 2023.	/	/	/
12	FJ-PH-CW-10 Nansheng Town	<ul style="list-style-type: none"> <li>· Tractor road: 450m;</li> <li>· Crossing culvert pipe: 9;</li> <li>· Picking path: 5130m;</li> <li>· Anti-scour revetment: 1440m;</li> <li>· Reservoir: 200m<sup>3</sup>;</li> <li>· Pump house: 1;</li> <li>· 875 mu of micro spraying construction.</li> </ul>	Design	Advertisement is expected on Q1 2023.	/	/	/
13	FJ-PH-CW-11 Daxi Town	<ul style="list-style-type: none"> <li>· Tractor road: 6340m;</li> <li>· Passing lane: 5;</li> <li>· Reversing table: 2;</li> <li>· Xiatian ramp: 10;</li> <li>· Crossing culvert pipe: 3;</li> <li>· Drainage channel: 3030m;</li> <li>· Anti-scour revetment: 1110m;</li> <li>· Reservoir: 15m<sup>3</sup>;</li> <li>· 70 mu of micro spraying construction.</li> </ul>	Design	Advertisement is expected on Q2 2023.	/	/	/
14	FJ-PH-CW-12 Wuzhai Town	<ul style="list-style-type: none"> <li>· Tractor road: 7465m;</li> <li>· Passing lane: 7;</li> <li>· Reversing table: 3;</li> <li>· Downfield ramp: 12;</li> </ul>	Design	Advertisement is expected on Q2 2023.	/	/	/

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
		<ul style="list-style-type: none"> <li>· Crossing culvert pipe: 11;</li> <li>· Anti-scour revetment: 845m;</li> <li>· Reservoir: 180m<sup>3</sup>;</li> <li>· Pump house: 1;</li> <li>· 870 mu of micro spraying construction.</li> </ul>					
<b>Ninghua Subproject, PIU = Ninghua State-owned Ecological Forestry Co., Ltd.</b>							
1	FJ-NHLC-CW-06 Oil-tea Garden Rehabilitation and Infrastructure Construction Project (Zhongsha Town)	Land Rehabilitation of 844 mu of low-yield Camellia oleifera garden in Zhongsha Township: land remediation, land cultivation, irrigation and drainage renovation, field roads, farmland protection projects <ul style="list-style-type: none"> <li>· Terrace rehabilitation: 844mu</li> <li>· Water ponds: 9</li> <li>· Tractor roads: 2.5 km</li> <li>· Field roads: 7.7 km</li> <li>· Irrigation canals: 2.5 km</li> <li>· Micro irrigation facilities: 844mu</li> </ul>	Operation	100% completed	Oct 2019	Ninghua County Forestry Corporation	Fujian Guangxia Engineering Consulting Co., Ltd
2	FJ-NHLC-CW-07 Oil-tea Garden Rehabilitation and Infrastructure Construction Project (Jicun Town)	Land Rehabilitation of 273 mu of low-yield Camellia oleifera garden in Jicun Township: land remediation, land cultivation, irrigation and drainage renovation, field roads, farmland protection projects <ul style="list-style-type: none"> <li>· Terrace rehabilitation: 166 mu</li> <li>· Water ponds: 4</li> <li>· Tractor roads: 1.6 km</li> <li>· Field roads: 1.4 km</li> <li>· Drainage canals: 1.3 km</li> <li>· Sprinkling irrigation: 166 mu</li> </ul>	Operation	100% completed	Oct 2019	Ninghua County Economic and Forestry Service Center	Fujian Guangxia Engineering Consulting Co., Ltd
<b>Fu'an Subproject, PIU = Fujian Farms Agribusiness Tea Co., Ltd.</b>							
1	FJ-FANK-CW-01-01 Land Rehabilitation in 1000 mu and	<ul style="list-style-type: none"> <li>· Irrigation ditches: 4 km</li> <li>· Tractor roads: 7.7 km</li> <li>· Terrace rehabilitation: 89.2 mu</li> </ul>	Waiting for construction completion	100% completed.	May 2020	Shanxi Jiexingyuan Construction	Xiamen Gangwan Consulting Manager Co., Ltd

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
	Construction of Farm Infrastructures in 3800mu Tea Gardens		inspection – also refer to para 21			Engineering Co., Ltd.	
2	FJ-FANK-CW-02	380 V high-voltage power supply line	Operation	100% completed.	August 2021	Fujian Jinli Construction Engineering Co., Ltd	Gongcheng Management Consulting Co., Ltd
<b>Yongding Subproject, PIU = Longyan Municipality Longyu Ecological Industry Development Co. Ltd</b>							
1	FJ-YDLY-CW-04 Rehabilitation of Slopeland, Construction of Farm Infrastructures in the 5565 mu Oil-tea Plantations	<ul style="list-style-type: none"> <li>· Slopeland rehabilitation: 5565mu</li> <li>· Irrigation ponds: 6</li> <li>· Pipeline for irrigation: 5565mu</li> <li>· Tractor roads: 16.7km</li> <li>· Field road: 16.7km</li> </ul>	Operation	100% completed	April 2019	Fujian Yong Wang Construction Group Co. Ltd.	Longyan Rundaxin Engineering Managements Co. Ltd
<b>Jiaocheng Subproject, PIU = Fujian Lvyin Agriculture Co., Ltd.</b>							
1	FJ-JCLY-CW-01 4460 Oil-tea Plantation– Rehabilitation of slopeland and construction of access roads	<ul style="list-style-type: none"> <li>· Slopeland rehabilitation: 2500mu</li> <li>· Tractor roads: 13.38km</li> <li>· Field rods: 138km</li> </ul>	Operation	<ul style="list-style-type: none"> <li>· Slopeland rehabilitation: 100%</li> <li>· Tractor roads: 100%</li> <li>· Field roads: 100%</li> </ul>	2 Dec 2017	Fujian Yuanhong Construction Engineering Co., Ltd.	Yucheng Company
2	FJ-JCLY-CW-02 4460 Oil-tea Plantation– Construction of Water Conservancy Facilities	<ul style="list-style-type: none"> <li>· Water ponds: 40</li> <li>· Open canals: 5km</li> <li>· Sprinkling irrigation: 2500mu</li> <li>· Piped irrigation: 1960mu</li> <li>· Drainage ditches: 13.38km</li> </ul>	Operation	<ul style="list-style-type: none"> <li>· Water ponds: 100%</li> <li>· Open canals: 100%</li> <li>· Sprinkling irrigation: 100%</li> <li>· Piped irrigation: 100%</li> <li>· Drainage ditches: 100%</li> </ul>	22 Jan 2018	Fujian Yuanhang Construction Engineering Co., Ltd.	Yucheng Company
<b>Xinluo Subproject</b>							
1	FJ-XLLD-CW-01-01 Construction of Water Conservancy Facilities and Farming Machine Access Roads in Paddy Land Base in Zhongxin Village and Zhongxi Village of Shizhong Township	<ul style="list-style-type: none"> <li>· Open ditches: 3.92 km</li> <li>· Tractor roads: 8.26 km</li> <li>· Revetment: 320 m</li> <li>· Embankment: 3.581 km</li> </ul>	Operation	· 100% completed	Mar. 2020	Fujian Minying Construction Development Co., Ltd	Fujian Shuicheng Construction Co., Ltd

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
2	FJ-XLLD-CW-01-02	· Water tanks: 2 · Water ponds: 2 · Culverts: 4 · Open ditches: 31km · Tractor roads: 20.27km	Cancelled	· Not initiated	/	/	/
3	FJ-XLLD-CW-02	· Water tanks: 1 · Drainage ditches: 12.88km	Cancelled	· Not initiated	/	/	/
4	FJ-XLLD-CW-03	· Land levelling: 1209mu · Water ponds: 2 · Irrigation canals: 11.4km · Agricultural bridge: 1 · Hydraulic drops: 265 · Field roads: 12.4km · Tractor roads: 13.3km	Cancelled	· Not initiated	/	/	/
5	FJ-XLLD-CW-04	· Terrace rehabilitation: 1820mu · Water ponds: 18 · Piped irrigation: 1820mu · Tractor roads: 10km	Cancelled	· Not initiated	/	/	/
6	FJ-XLLD-CW-05	· Terrace rehabilitation: 1200mu · Water ponds: 4 · Piped irrigation: 1100mu · Sprinkling irrigation: 100mu	Cancelled	· Not initiated	/	/	/
7	FJ-XLLD-CW-06-01 (Zhongxin village, Shizhong Township)	· 3 agricultural bridges	Operation	· 100% completed	May 2020	Fujian Shiwei Construction Co., Ltd	Anhui Yuanxin Engineering Project Management Co., Ltd
8	FJ-XLLD-CW-06-02	· Embankment: 8.5km · Riverbank revetment: 3.74km · Drainage ditches: 1.37km	Cancelled	· Not initiated	/	/	/
<b>Pucheng Subproject</b>							
1	FJ-PC-CW-01	Field trunk road 6871m Side ditch 6793m Culverts:24 Flood discharge ditch: 3427.95m Revetment: 2576.92m	Ongoing construction	60%	July 2022	Fujian Water Conservancy and Hydropower Engineering Bureau Co., Ltd.	JV of Fujian Runmin Engineering Consulting Co., Ltd. and vertical and horizontal Mutual



No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
							Construction Project Management Co., Ltd
2	FJ-PC-CW-02	Field trunk road 6018m Side ditch 3520m, Culverts:31 Revetment: 401.725m Barrages: 2	Ongoing construction	Water conservancy facility: 98% completed; Field road: 65% completed.	June 2022	JV of China Sixth Metallurgical Construction Co., Ltd. and Fujian Hengyu Construction Co., Ltd.	JV of Fujian Runmin Engineering Consulting Co., Ltd. and vertical and horizontal Mutual Construction Project Management Co., Ltd
3	FJ-PC-CW-03	Field trunk road 2560m, Side ditch 935m, Culverts:11 Flood drainage ditch 1232.46m, The revetment is 3502.26m.	Ongoing construction	Water conservancy facility: 100% completed; Field road: 10% completed.	June 2022	Fujian Water Conservancy and Hydropower Engineering Bureau Co., Ltd.	JV of Fujian Runmin Engineering Consulting Co., Ltd. and vertical and horizontal Mutual Construction Project Management Co., Ltd
4	FJ-PC-CW-04	to be determined	/	/	/	/	/
5	FJ-PC-CW-05	to be determined	/	/	/	/	/
6	FJ-PC-CW-06	to be determined	/	/	/	/	/
7	FJ-PC-CW-07	to be determined	/	/	/	/	/
<b>Shouning Subproject</b>							
1	FJ-SN-CW-01	Drainage ditch: 1 Tractor road: 24819m Return platform: 5 Passing lane: 79 Drainage culvert pipe: 15	Ongoing construction	80%	March 2022	Wenzhou Kaida Transport Engineering Co., Ltd	Fujian Gongbiao Construction Development Co., Ltd
2	FJ-SN-CW-02	Field Road: 14600m drainage ditch:1 revetment:1	Ongoing construction	10%	April 2022	Zhejiang Taishun County Transportation	Yunnan Shengmeng Engineering

No.	Contract No.	Construction Activities	Status	Implementation Description	Starting date	Name of contractor	Name of CSC
		culverts				Engineering Co., Ltd.	Consulting Co., Ltd.
3	FJ-SN-CW-03	Field Road: 16,863m Drainage ditch revetment:1	On-going construction	50% completed	Aug 2022	Zhejiang Taishun County Transportation Engineering Co., Ltd.	Jiangsu Anda Engineering Management Co., Ltd.
4	FJ-SN-CW-04	Tractor road in Nanyang town.	On-going construction	60% completed	Oct 2022	Guizhou Qinfasheng Construction Engineering Co., Ltd.	Jiangsu Weixin Engineering Consulting Co., Ltd.
5	FJ-SN-CW-05	Field Road: 27,390m drainage ditch revetment: 1	On-going construction	50% completed	Sep 2022	Zhejiang Taishun County Transportation Engineering Co., Ltd.	Fujian Zhonglutianchen Construction Development Co., Ltd.
6	FJ-SN-CW-06	Infrastructure Rehabilitation in Qingyuan Township, Tuoxi Town and Zhuguanling Town of Shouning.	On-going construction	20% completed.	Aug 2022	Hunan Xiezhou Project Management Co., Ltd in association with Henan Shuicheng Construction Co., Ltd.	Fujian Zhonglutianchen Construction Development Co., Ltd.
7	FJ-SN-CW-07	/	/	Not initiated	/	/	/
8	FJ-SN-CW-08	/	/	Not initiated	/	/	/
9	FJ-SN-CW-09	/	/	Not initiated	/	/	/

Source: PMO, 2022

CSC = construction supervision company, PIU = project implementation unit

### III. SUMMARY OF THE PROJECT ENVIRONMENTAL MANAGEMENT PLAN

23. The project environmental management plan (EMP) is the primary reference document for the government and ADB for all environment-related mitigation, monitoring, reporting, and training activities for the project. Timely and effective implementation of the EMP is a key condition of the loan agreement between the government and ADB. The EMP was prepared as part of the initial environmental examination in 2016. The EMP is being implemented over 4.5 years, comprising 4 years of construction. The content of the EMP includes: institutional roles and responsibilities for EMP implementation; mitigation measures for environmental safeguard risks; environmental monitoring and reporting; training and capacity building; grievance redress mechanism (GRM); public consultation; cost estimates; and, other information e.g. terms of reference for key positions. No change on the EMP during this reporting period.

24. **Project institutional arrangements (Section B of the EMP).** This section of the EMP describes the roles and responsibilities of relevant agencies for EMP implementation. For this project, the principal person responsible for EMP coordination is the PMO Environment Officer (Mr. Wu Xionghai, division director, PPMO), acting on behalf of the PMO. On-site implementation of the EMP is by the implementing agencies, contractors, and construction supervision companies (CSCs). Guidance and supervision to the PMO Environment Officer is given by the Loan Implementation Environment Consultant (LIEC) (Ms. Yuan Jingwei, from NAREE).

25. **Project readiness assessment (Section C of the EMP).** This is the first key step prior to the start of project civil works, to ensure that preparations for EMP implementation have been completed.

26. **Potential impacts and mitigation (Section D of the EMP).** This section of the EMP summarizes the potential environmental impacts and mitigation measures for the different phases of the project: detailed design and pre-construction phase; construction phase; and operations phase. Table A1.2 in the EMP summarizes the environmental risks and mitigation measures, and agencies responsible for implementation and supervision of these measures. For this project, the key potential impacts and/or issues of concern are: soil erosion, ecological impacts, water balance, non-point source pollution and due diligence of existing facilities.

27. **Training (Section F of the EMP).** This section of the EMP describes the training program for environmental safeguards, including the recipients and frequency of training.

28. **Grievance Redress Mechanism (Section G of the EMP).** This section of the EMP identifies the mechanisms to receive and manage any public environmental and/or social issues which may arise due to the Project.

29. **Environmental monitoring program (Section E of the EMP).** The program comprises three types of monitoring: (i) internal monitoring; (ii) external monitoring; and (iii) compliance monitoring. Internal monitoring is assessment by the project implementation units (PIUs) and/or CSCs to ensure the contractors are implementing mitigation measures as described in their contractual arrangements and EMP. External monitoring is the measurement of specific environmental variables (e.g., air quality, dust levels, noise emissions) to ensure that the construction activities do not exceed the legal parameters and standards specified for the project. This is being conducted by a certified external monitoring agency. It has been agreed that each PIU will hire one external agency. Compliance monitoring is the overall assessment of whether all EMP measures are being complied with, and is conducted by the PMO Environment Officer,

supported by the LIEC. This monitoring does not involve quantitative measurement of environmental variables, but is based on visual inspection, site visits, and review of the progress reports for internal and external monitoring.

30. **Costs (Section H of the EMP).** This section of the EMP describes the estimated costs for EMP implementation over 5 years. The cost estimates in the EMP include the costs for the mitigation measures, training, and monitoring.

31. **Reporting (Section E of the EMP).** This section of the EMP describes the reporting requirements for the project, including the responsible agencies and reporting frequency.

#### IV. ENVIRONMENTAL MANAGEMENT DURING THE REPORTING PERIOD

32. This section summarizes the progress made to implement the project EMP during the current reporting period.

##### A. Institutional setup

33. **EA/PPMO environment officer.** Fujian Provincial Government is the executing agency (EA). The PPMO established by the provincial government have the overall accountability for the overall project and its subprojects for ensuring compliance with the PRC's laws and regulations as well as the provisions of ADB's Safeguard Policy Statement (2009). The PPMO is also responsible for replying to petitions and/or complaints from the affected people in the project area. Mr. Wu Xionghai (division director) has been designated as PPMO environment officer.

34. **IA/MPMOs/CPMOs environment officer.** As the implementing agencies, each municipal government will be accountable for ensuring the implementation of the environmental management plan and coordinating the environmental audit and monitoring of the subproject(s) in the respective district/county. The district/county governments (CPMOs) will be responsible for ensuring the implementation of the specific mitigation measures in cooperation with PIUs as prescribed in the EMP. Each MPMO and each CPMO has designated an environment officer.

35. **PIU environment person.** Each PIU will be responsible for (i) implementing the EMP and developing further implementation details; (ii) supervising their staff and contractors' implementation of mitigation measures during construction; (iii) implementing training programs for construction crews; (iv) incorporating environmental management, monitoring, and mitigation measures into construction and operation management plans; (v) developing and implementing internal regular environmental monitoring, including construction and operation; (vi) redressing public grievances; and (vii) reporting performance of the EMP to CPMOs. All PIUs have designated environment person. The designated environment persons of the PIUs as of 31 December 2022 are provided in Table 2 below.

**Table 2 List of Designated Environment Persons of the PIUs<sup>3</sup>**

City	County/district	PIU name	Name of the person in charge	Contact
Nanping	Wuyishan	Wuyishan Zhuzi Ecological Agriculture Co., Ltd	Mao Xinjian	13950628851
	Guangze	Fujian Zhengyuan Ecological Food City Co., Ltd	Shi Bin	18650601582
	Pucheng	Pucheng County Farmland Development and Utilization Co., Ltd	Ye Huijuan	18706056780
Sanming	Datian	Golden Phoenix Agricultural Development Co., Ltd. of Datian County, Fujian Province	Yan Jianxue	13860523334
	Ninghua	Ninghua State-owned Ecological Forest Farm Co., Ltd	Nie Caikui	13806966008
Long Yan	Yongdian	Longyan Longyu Ecological Industry Development Co., Ltd	Qiu Zuxin	18760003956

<sup>3</sup> Note: Guangze had expressed exiting from the project during the review mission in November 2022. Updated list of designated environmental persons in charge will be provided in the next EMR.

	Xinluo	Longyan Greenland Ecological Agriculture Development Co., Ltd	Xie Yiqin	13860296685
Zhangzhou	Pinghe	Fujian Xinghe Investment and Development Group Co., Ltd	Lin Yijin	15260567712
Ningde	Fu'an	Fujian Nongken Tea Industry Co. Ltd	Yu Weijie	18805936876
	Jiaocheng	Fujian Green Silver Agriculture Co. Ltd	Jiao Huibin	18650588555
	Shouning	Shouning County State-owned Assets Investment Management Co. Ltd	Huang Fangxiang	18860178210

36. **Environment monitoring company.** It has been planned by the PPMO, CPMOs and PIUs that each PIU will contract one external environmental monitoring company (EMC) one month before civil work construction commencement. Till the end of 31 Dec 2022, 10 PIUs have contracted EMCs who have obtained China Metrology Accreditation (CMA).

37. **LIEC.** The LIEC will ensure the compliance of construction and initial operation activities with the mitigation and management measures in the EMP and report to the ADB. Ms. Yuan Jingwei, environment specialist under the NAREE consulting team, is the new LIEC for this project since May 2021 to replace the previous LIEC from ESD. The IEE and EMP were updated by the LIEC from ESD to reflect the project change during midterm review, which were approved by ADB in January 2022.

38. **Environment person of construction supervision companies (CSCs).** Environment persons of CSCs will have the principal responsibility for observing contractor construction activities, and for ensuring that those activities are accomplished in compliance with the Project's environmental requirements, specifications, goals and objectives. They will ensure coordination at field level with representatives of government agencies in charge of EMP supervision as well as those in charge of control and monitoring activities. During this reporting period, corresponding CSCs environment persons have been appointed for all the work contracts that have entered construction stage and received training on EMP and ADB's safeguards requirements (Table 3).

39. **Environment person of contractors.** An environment person will be appointed by each Contractor to be responsible for the implementation of environmental mitigation measures and internal monitoring. During this reporting period, corresponding environment persons have been appointed for all the work contracts that have entered construction stage (Table 3).

40. For the completed project facilities, the environmental responsibilities of contractors and CSCs have been completed. The local village committee or township government are responsible for the maintenance of the project facilities. The local agricultural bureau is responsible for the management and supervision of use of fertilizer and pesticides, and disposal of agricultural waste from farming activities.

41. **COVID-19 prevention and control.** The above-mentioned environmental persons are also responsible for implementation of measures for COVID-19 prevention and control. Each contractor has prepared on-site health and safety plan including emergency response plan with institutional set up, responsibilities, resources and procedures.

**Table 3 List of Designated Environment Persons of the Contractors and CSCs under Construction during this reporting period**

During this reporting period

No.	Contract Name	Organization	Name of organization	Environment person name	Contact
Datian Subproject					
1	FJ-DT-CW-03-03	Contractor	Fujian Yiqing Construction Co., Ltd.	Tu Zhenli	13605990688
		CSC	Hefei Yiteng Engineering Consulting Co., Ltd	Chen Lin	18359076150
2	FJ-DT-CW-05-03	Contractor	Fujian Yiqing Construction Co., Ltd.	Tu Zhenli	13605990688
		CSC	Nanping Jiancheng Water Engineering Supervision Co., Ltd.	Chen Sizheng	18359076150
3	FJ-DT-CW-07-01	Contractor	Jiangxi (Fujian) Construction Co., Ltd	Zhang Guoliang	13515989008
		CSC	Fujian Luhai Engineering Management Co., Ltd.	Ying Guoqiang	15377905087
4	FJ-DT-CW-08-02	Contractor	Fujian Yiqing Construction Co., Ltd	Tu Zhenli	13605990688
		CSC	Fujian Hongjian Engineering and Cost Consulting Co., Ltd.	Lin Tingquan	13626000803
Pinghe Subproject					
1	FJ-PH-CW-05-02	Contractor	Zhongda (Fujian) Construction Service Co., Ltd	Li Liandeng	13358332618
		CSC	Fujian hengmaoyuan Engineering Management Co., Ltd	Chen Changzeng	15280060095
2	FJ-PH-CW-06	Contractor	Yuehong Construction and Development Co., Ltd associated with Fujian Rentao Construction Co., Ltd.	Lin Shihong	13906060558
		CSC	Zhangzhou Jinlou Construction Management Co., Ltd.	Xie Shuiyuan	13599672559
Pucheng Subproject					
1	FJ-PC-CW-01	Contractor	Fujian Water Conservancy and Hydropower Engineering Bureau Co., Ltd.	Li Genyuan	13728965607

No.	Contract Name	Organization	Name of organization	Environment person name	Contact
		CSC	JV of Fujian Runmin Engineering Consulting Co., Ltd. and vertical and horizontal Mutual Construction Project Management Co., Ltd	Wu Weilin	18706065823
2	FJ-PC-CW-02	Contractor	JV of China Sixth Metallurgical Construction Co., Ltd. and Fujian Hengyu Construction Co., Ltd.	Zhao Yibo	1576567657
		CSC	JV of Fujian Runmin Engineering Consulting Co., Ltd. and vertical and horizontal Mutual Construction Project Management Co., Ltd	Wu Weilin	18706065823
3	FJ-PC-CW-03	Contractor	Fujian Water Conservancy and Hydropower Engineering Bureau Co., Ltd.	Huang Jindi	13809598069
		CSC	JV of Fujian Runmin Engineering Consulting Co., Ltd. and vertical and horizontal Mutual Construction Project Management Co., Ltd	Yao Jihua	17359926133
Shouning Subproject					
1	FJ-SN-CW-02	Contractor	Wenzhou Kaida Transport Engineering Co., Ltd	Wang Zhenzhong	13959356588
		CSC	Fujian Gongbiao Construction Development Co., Ltd	He Yi	18950522319
2	FJ-SN-CW-03	Contractor	Zhejiang Taishun County Transportation Engineering Co., Ltd.	Lin Yunting	13738312558
		CSC	Yunnan Shengmeng Engineering Consulting Co., Ltd.	Guo Zongle	15306055507
3	FJ-SN-CW-04	Contractor	Guizhou Qinfasheng Construction Engineering Co.. Ltd.	Wang Junmin	17586777773



No.	Contract Name	Organization	Name of organization	Environment person name	Contact
		CSC	Jianngsu Weixin Engineering Consulting Co., Ltd.	Ye Jianxing	13905931110
4	FJ-SN-CW-01	Contractor	Wenzhou Kaida Transportation Engineering Co., Ltd	Lin Yunting	13738312558
		CSC	Fujian Gongbiao Construction Development Co., Ltd	Guo Zongle	15306055507
5	FJ-SN-CW-05	Contractor	Zhejiang Taishun County Transportation Engineering Co., Ltd	Wang Jianguan	13958987373
		CSC	Fujian Zhonglutianchen Construction Development Co., Ltd.	You Hua	18960616366
6	FJ-SN-CW-06	Contractor	Hunan Xiezhou Project Management Co., Ltd in association with Henan Shuicheng Construction Co., Ltd.	Zhang Chunxiang	18806090301
		CSC	Fujian ZhongluTiancheng Construction Development Co., Ltd	Nibinbin	13959333469

Note: CSC = construction supervision company

42. **Contractual arrangement.** There are seven new civil work packages mobilized in the second half of 2022, including three in Datian and four in Shouning. In accordance with requirements of the loan agreement and EMP, the environmental provisions have been clearly listed in the bidding documents and contracts.

43. General Contract Conditions of the bidding documents have clearly defined as: 1) the contractor shall be responsible for the safety of all activities on the site; 2) the contractor shall take all reasonable measures according to applicable environmental protection laws and regulations to protect the environment on and in vicinity of the site and avoid damages or nuisances to personnel or to property of the public and others resulting from pollution, noise or other causes arising as a consequence of the contractor's acts and/or operation.

44. Particular conditions of the contract requires that the contractor shall comply with (i) all environmental laws and regulations of the People's Republic of China; (ii) the Financial Institution's environmental safeguards; (iii) the measures and requirements set forth in the environmental impact assessment (EIA) and the environmental management plan (EMP) attached; and (iv) any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time for monitoring the EIA and EMP implementation;

(v) the Contractor shall allocate a budget for compliance with these measures, requirements and actions.

## B. Implementation of the project mitigation measures

45. Implementation of the mitigation measures in the EMP is summarized in Table 4. This table is the same as Table A1.2 of the EMP but has 2 additional columns, to summarize the implementation status and compliance for each listed mitigation measure within the reporting period. Due to the travel restrictions of COVID-19, the LIEC was unable carry out on-site inspection during this reporting period. The implementation of environmental mitigation measures mainly relied on the environmental monitoring report provided by the CSCs. Supplementary proof is requested by the LIEC via the PIU environmental persons. Site inspections are scheduled for May 2023 and details of the implementation progress will be provided in subsequent EMRs.

**Table 4. Project impacts, mitigation measures, and implementation status**

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
<b>Pre-construction</b>				
1.1 Prerequisite steps and Detail Design Stage	Confirmation of slope land boundaries	Confirm that final slope land boundaries of subprojects avoid regrowth natural forest and shrubland as agreed in screening.	It has been confirmed that all subprojects slope land boundaries avoid regrowth natural forest and shrub land.	Complied
	Water extraction permission	Obtain a water use permit for water inputs from the local Water Resources Bureaus – providing all details required for that application to the WRB	The design institutes have provided all details required for the application to the WRBs.	Complied
1.2 Project environmental Support	Establish and implement environmental support positions	Contract a Loan Implementation Environmental Consultant (LIEC)	The LIEC of ESD has been in place since March 2018. The consulting service contract of ESD was expired in first half of 2020. There was a 10-month period between July 2020 and April 2021 when environmental support services were missing. This was corrected with the mobilization with the new LIEC in May 2021.	Complied.
		Contract Environmental Monitoring Stations in each county for external monitoring	10 PIUs have contracted monitoring company (EMC) for external monitoring <sup>4</sup> .	Complied
		Appoint Environmental Officers at PPMO and CPMOs	Environmental officers have been appointed at PPMO, Municipal PMOs, and CPMOs in May 2018.	Complied
		Assign environment officers at each PIU	Each PIU has assigned environment officers in May 2018. Pucheng and Shouning appointed environment officers in June 2022.No personnel change during this reporting period.	Complied
1.3 Construction	Update EMP	Update mitigation measures defined in this EMP based on the detailed design.	EMP was updated in November 2020. COVID-19 prevention and control	Complied

<sup>4</sup> Note: Guangze had expressed its interest to exit from the project during the review mission in November 2022 and no contract packages mobilized until 31 December 2022.

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
Preparation Stage			measures are included in the updated EMP. The IEE, including EMP was further updated due the scope change during MTR and endorsed by ADB in Jan 2022.	
	Construction plans and documents	• Prepare environment section in the terms of reference for construction bidders;	Environmental section was included in TOR for bidders and the first bidding documents has been reviewed and approved by the ADB. No design or scope change during this reporting period.	Complied
		• Prepare environmental contract clauses for construction, using reference to EMP and monitoring table.	The EMP has been translated into Chinese and attached to each civil work contract.  The EMP has been updated to cover the new subprojects of Pucheng and Shouning. The updated EMP has been translated into Chinese in January 2022 and attached to the civil work contracts.  Three civil packages in Shouning and four in Datian were mobilized in the second half of 2022. EMP requirements was incorporated into the civil work contracts.	Being complied
	Establish and publicize GRM	• Identify GRM entry points and brief them on their role;	GRM has been established and entry points has been identified	Being complied
		• Publicize GRM entry points, people and contacts at each PIU construction site, in local newspapers, websites and village committee and community premises before construction commences	10 PIUs have publicized GRM entry points, people and contacts at each construction site, and in village committee information boards.	Being complied
	Construction site planning	• Prepare Site Construction Plans including appropriate parts for each PIU from the project EMP, including an environmental health and safety plan	All contractors, including the civil work contractors of Shouning and Datian prepared site construction plans.	Being complied
		• Nominate an Environmental, Health and Safety Officer (EHSO) in contractors' team	Each contractor nominated an Environmental, Health and Safety Officer.	Being complied
		• Develop site environmental health and safety plan.	Environmental health and safety plans are developed and submitted to the PIUs.	Being complied
	Environmental Training	• LIEC to provide training on implementation and supervision of environmental mitigation measures to contractors	LIEC provided training on supervision of environmental mitigation measures, GRM and new subproject selection criteria to environmental officers of PPMO, MPMOs, CPMOs and PIUs in	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
			<p>training workshop conducted on 13 June 2019.</p> <p>Moreover, LIEC provided training on supervision of environmental mitigation measures implementation Ningde MPMO, Jiaocheng CPMO and Fu'an PIU during site visits meetings on 12 June 2019.</p> <p>LIEC also conducted environmental training focusing on project environmental management, the EMP implementation and new subproject selection criteria via various (almost monthly) phone calls to the environment officers of various level PMOs staff and PIUs.</p> <p>Trainings on ADB environmental management requirements were provided to CPMOs and PIUs of Pucheng and Shouning by the LIEC from NAREE during the site visit meeting on May 2021.</p> <p>On job trainings were provided to the CSCs, contractors and PIUs of Wuyishan, Pinghe and Datian by the LIEC during the site visits on July 2021.</p> <p>Online environmental safeguards training was provided by the LIEC in June 2022 to the contractors, PIUs and CSCs.</p> <p>Online safeguards training was organized by the PRCM of ADB.</p> <p>Online environmental discussion was organized by the PIC in December 2022 to the PIUs on environmental monitoring for operation stage.</p>	
<b>Construction</b>				
2.1 Air Quality	Local air pollution from construction activities	<ul style="list-style-type: none"> <li>Material stockpiles and concrete mixing equipment will be equipped with dust shrouds.</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs. .	Being complied
		<ul style="list-style-type: none"> <li>Earthworks to prepare site should be undertaken just before commencement of construction to avoid long term stockpiling.</li> </ul>	Implemented according to CSC report	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
		<ul style="list-style-type: none"> <li>Vehicles transporting potentially dust-producing materials will have proper fitting sides and tail boards and covered with protective canvasses;</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>On-site movement of cement bags should not overload people or vehicles to minimize bag rupture and spillage;</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>Unauthorized burning of waste plant material during land preparation shall be subject to penalties for the Contractor, and withholding of payment.</li> </ul>	No waste burning was found during reporting period.	Being complied
	Construction noise	For villages within the noise impact distance from construction operations: <ul style="list-style-type: none"> <li>Erect temporary noise barriers between work site and residents where less than 35m apart.</li> </ul>	All of the current construction sites are more than 35 m away from residents area	Being complied
		<ul style="list-style-type: none"> <li>Daily construction schedules will be arranged to prohibit work in lunch break and at night.</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs. ..	Being complied
		<ul style="list-style-type: none"> <li>Villagers will be notified before construction activities which emit high noise levels are scheduled.</li> </ul>	Implemented according to CSC reports and verified by the LIEC via check the site photos provided by PIUs and CSCs. .	Being complied
		<ul style="list-style-type: none"> <li>The construction schedule will be arranged to avoid multiple large-scale and noise emitting machinery operating simultaneously.</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>To avoid noise impacts on sensitive points along the main road from transport vehicles the construction unit will reduce the number of vehicles and traffic flow, set speed limits and prohibiting the use of the horn in villages.</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
	2.2 Soil stability	<ul style="list-style-type: none"> <li>Implement erosion controls set out in Soil and Water Conservation Law of PRC.</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>Terraces and soil tillage will be conducted along contours and keeping vegetation between contour terraces to prevent soil erosion.</li> </ul>	Trees were kept during slope land rehabilitation to prevent soil erosion.	Being complied
		<ul style="list-style-type: none"> <li>For new terraces and crops, the time and degree of exposure to erosive forces must be minimized.</li> </ul>	New terraces are constructed during dry season to prevent soil erosion	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
		<ul style="list-style-type: none"> <li>Special scrutiny on erosion control will be directed to the following subprojects due to the large scale of earthworks planned: Youxi County Yangzhong Xinkaicheng Urban Construction Co., Ltd; Ninghua State-owned Ecological Forestry Co. Ltd; Longyu Ecological Industry Development Co., Ltd</li> </ul>	Weekly inspection were conducted by Yongding CPMO, and daily inspection has been conducted by the CSC of Yongding subproject. Construction of Yongding subproject was finished in 2020.	Complied
2.3 Water quality	Pollution of surface water and groundwater	<ul style="list-style-type: none"> <li>Oil traps provided for service areas and parking areas, and oil-water separators are installed before the sedimentation tank for oil-containing wastewater;</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>All construction machinery repaired and washed at special repairing shops. No on-site machine repair and washing shall be allowed;</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>Storage facilities for fuels, oil, and other hazardous materials within secured areas on impermeable surfaces, and provided with bunds and cleanup kits;</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
		<ul style="list-style-type: none"> <li>The contractors' fuel suppliers to be properly licensed, follow proper protocol for transferring fuel, and are in compliance with Transportation, Loading and Unloading of Dangerous or Harmful Goods (JT 3145-88)</li> </ul>	Implemented according to CSC report and verified by the LIEC based on information and site photos provided by PIUs and CSCs.	Being complied
	Embankments	To avoid impact to downstream reaches on flows and turbidity, impact mitigation for embankment construction along streams in valley floor cropping areas will: <ul style="list-style-type: none"> <li>schedule construction work for October to February,</li> </ul>	No riverside works during this reporting period.	N/A
		<ul style="list-style-type: none"> <li>setback 20 m from the stream banks</li> </ul>	No riverside works during this reporting period.	N/A
		<ul style="list-style-type: none"> <li>retain all trees currently existing along the banks</li> </ul>	No riverside works during this reporting period.	N/A
		<ul style="list-style-type: none"> <li>retain "soft" earthen and vegetated foreshores plant the embankments with grass and shrubs.</li> </ul>	No riverside works during this reporting period.	N/A
2.4 Biodiversity	Habitat protection	To protect the regrowth natural forests and shrublands not within the footprint of the subproject developments but on their borders from careless and unplanned construction activities:	No damage to natural forest was found.	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
		<ul style="list-style-type: none"> <li>Minimize the areal extent of construction activities being undertaken at any time.</li> </ul>		
		<ul style="list-style-type: none"> <li>Ensure strictly assigned to work areas and access corridors as part of site planning and without occupying land randomly.</li> </ul>	Implemented.	Being complied
		<ul style="list-style-type: none"> <li>Construction machinery and construction materials will not be placed in naturally vegetated areas.</li> </ul>	Implemented. Site visits conducted by the LIEC in June 2022 found no construction machinery was placed in naturally vegetated areas. No site inspection were conducted during this reporting period and next site inspection is scheduled in May 2023.	Being complied
		<ul style="list-style-type: none"> <li>Ensure stockpiles do not overflow onto naturally vegetated areas.</li> </ul>	Implemented. Site visits found no stockpile overflow onto naturally vegetated areas	Being complied
		<ul style="list-style-type: none"> <li>After the completion of the project, cleaning and greening work shall be carried out to restore any damage.</li> </ul>	Not yet due	To be complied with
	Habitat enhancement	Shelterbelt forests of native species indigenous to the region will be developed to protect plantations on sloping land from winds and drying out.	Native species were selected.	Being complied
2.5 Physical cultural resources	Protection of heritage site	The Yongding Longyu subproject PIU will ensure that: <ul style="list-style-type: none"> <li>No vehicles hauling materials or equipment to and from the site will be allowed to pass through the World Heritage site core and buffer zone.</li> </ul>	The PIU of Yongding subproject has developed transport route that avoid pass through the core and buffer zone of the World Heritage site. The transportation plan has been forwarded to the contractors.	Complied
		<ul style="list-style-type: none"> <li>Transport routes, confirming this prohibition will be included in the Yongding subproject Site Construction Plan</li> </ul>	Transport route has been developed and pass-through core and buffer zone of World heritage site is prohibited.	Complied
		<ul style="list-style-type: none"> <li>Damage to any trees or shrubs on the ridgetop, which provides a backdrop to the World Heritage site will be strictly prohibited.</li> </ul>	Implemented, no earth work on the ridge top.	Being complied
	Protection of chance finds	<ul style="list-style-type: none"> <li>Chance find procedures in line with PRC government procedures will be established for undiscovered underground cultural or historic sites that might be identified during project implementation.</li> </ul>	Chance find procedures have been established. No undiscovered underground cultural or historic sites were found during this reporting period.	Being complied
2.6 Construction waste	Solid waste generated by construction activities and	<ul style="list-style-type: none"> <li>Provide waste collection and storage containers at locations away from surface water or sensitive receivers.</li> </ul>	Waste collection and storage containers are provided	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
	from workers' camps	<ul style="list-style-type: none"> <li>• Arrange with municipal waste collection services for regular collection of waste.</li> </ul>	Implemented. Waste from construction sites are regularly collected	Being complied
		<ul style="list-style-type: none"> <li>• Properly remove and dispose residual materials, and wastes. Paving or vegetating shall be done as soon as the materials are removed to stabilize the soil.</li> </ul>	Implemented.	Being complied
2.7 Health and safety	Community safety	<ul style="list-style-type: none"> <li>• Plan construction activities so as to minimize disturbances to residents, utilities and services.</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Implement safety measures around the construction sites to protect the public, including warning signs to alert the public to potential safety hazards, and barriers to prevent public access to construction sites.</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Negotiate haulage truck and machinery movements with village committees to ensure that village activities (market days etc.) and residential roads are minimally impacted by construction traffic.</li> </ul>	Implemented	Being complied
	Construction worker safety	<ul style="list-style-type: none"> <li>• Take all reasonable steps to protect any person on the site from health and safety risks;</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Make the construction site a safe and healthy workplace;</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Make machineries and equipment areas safe;</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Provide adequate training or instruction for occupational health and safety;</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Provide all workers with personal protection equipment;</li> </ul>	Implemented.	Being complied
		<ul style="list-style-type: none"> <li>• Implement adequate supervision of safe work systems;</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• Provide means of access to and egress from the site without risk to health and safety.</li> </ul>	Implemented	Being complied
		<ul style="list-style-type: none"> <li>• The contractors' performance and activities for occupational health and safety shall be incorporated in their monthly progress reports;</li> </ul>	Implemented.	Being complied
		<ul style="list-style-type: none"> <li>• All activities will comply with the Labor Law of the PRC, the Labor Contract Law of the PRC, and the Special Rules on the Labor Protection of Female Employees.</li> </ul>	Implemented	Being complied



Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
<b>Operation</b>				
3.1 Water	Impact on surface water quality from agricultural chemicals	Minimize use of chemical fertilizer through soil testing and crop management. Maximize use of organic fertilizers and straw mulches.	As of December 2022, balanced fertilization application for 71,828 mu; organic fertilizer application for 88,016 mu.	Being complied
		<ul style="list-style-type: none"> <li>Reduce chemical pesticide use by: selection of seedlings with disease and insect resistance, introduction of nursery stock quarantine, cultivation measures to improve plant resistance to disease and insect pests including removal of diseased plants, pest capture on a population scale using light traps and sticky traps at high density at crops' insect-prone periods.</li> </ul>	As of December 2022, integrated pest management practice applied to 46,628 mu.	Being complied
3.2 Soil stability	Erosion and siltation	<ul style="list-style-type: none"> <li>On the steeper slopes, slope-reversed terraces (higher elevation at the outside of the terrace than on the inside) will be equipped with bamboo-joint ditches on the lower edge inside the terrace to harvest runoff and collect eroded soil materials.</li> </ul>	Incorporated in the engineering design of each subproject.	Being complied
		<ul style="list-style-type: none"> <li>At the lower elevation part of the tea gardens, interception dam and rainwater harvest ponds will be maintained to store this rainwater for irrigation and to store sediments eroded from the tea gardens.</li> <li>On the more gentle slopes erosion will be prevented by planting on the contour with protective ridges.</li> </ul>	Incorporated in the engineering design of each subproject.	Being complied
		<ul style="list-style-type: none"> <li>As with the terraces, grassed waterways are used to channel runoff water into collector structures (ponds or concrete tanks).</li> </ul>	Incorporated in the engineering design of each subproject.	Being complied
		<ul style="list-style-type: none"> <li>During crop management, PIUs will implement erosion controls set out in <i>Soil and Water Conservation Law of PRC</i>.</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
3.3 Waste	Unplanned or unsound disposal of agricultural wastes	<ul style="list-style-type: none"> <li>All biomass waste from cultivation, pruning and weeding will be reused on site either for composting or mulch. No waste will be burnt.</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
		<ul style="list-style-type: none"> <li>Residue of agricultural plastic film left in the soil will be minimized by (i) film mulching practices which optimize the timing of mulching</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
		and timely removal of film to shorten the mulching period; (iii) use of biodegradable polymer agricultural plastic film; (iv) where film is not degradable, promotion of agricultural plastic film recovery and recycling.		
	Fertilizer and pesticide packaging	<ul style="list-style-type: none"> <li>• Packaging for fertilizers will be recycled by farmer households, or subproject enterprises</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
		<ul style="list-style-type: none"> <li>• For pesticide packaging, the following measures will be implemented: <ul style="list-style-type: none"> <li>- Training will be conducted for farmers involved in the subprojects, on chemical packaging handling and recycling;</li> <li>- For pesticide packaging and containers, the PIUs will record all the utilization of pesticide, and require staff and farmers to return the empty packages to the PIU.</li> <li>- The PIU will ensure segregation of the pesticide waste at the subproject site from all other waste and will ensure that it is managed/disposed of by the county authorities with other toxic and hazardous waste that they collect.</li> </ul> </li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
3.4 Health and safety	Health and safety of operating staff	<ul style="list-style-type: none"> <li>• Operating staff to be protected from workplace hazards:</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
		<ul style="list-style-type: none"> <li>• In the operations phase of the project, staff engaged in the running of the facility including agricultural activities and irrigation systems will be issued with personal protective gear appropriate to the task.</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
		<ul style="list-style-type: none"> <li>• All electrical connections in the subprojects will be completed and periodically checked by qualified electricians.</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
		<ul style="list-style-type: none"> <li>• The openings of all water storage tanks at ground level will be fenced and gated to prevent accidents.</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied
		<ul style="list-style-type: none"> <li>• The PIUs and contractors will apply strict health and safety protocols for staff in the handling,</li> </ul>	Implemented by the farmers and supervised by the local agriculture and rural bureau.	Being complied

Item	Impact/Issue	Mitigation measure prescribed in EMP	Implementation status, issues identified and corrective actions	In compliance?
		application and clean-up of agricultural chemicals. These protocols will be in full compliance with the PRC's Regulations on Safe Management of Hazardous Chemicals (Decree 591)		

ADB = Asian Development Bank; EIA = Environmental Impact Assessment; EPB = Environment Protection Bureau; PIU = Participating Implementing Unit; DI = Design Institute; O and M = operation and maintenance; CPMO = county project management office; PPMO = provincial project management office; PRC = People's Republic of China; WRB = water resources bureau.

46. **Conclusions and next steps.** Only Datian, Pinghe, Shouning and Pucheng have ongoing construction activities in this reporting period. Due to travel restrictions of COVID-19, the LIEC was unable to conduct site inspections during this reporting period. The review of compliance with the EMP is based on the environmental monitoring provided by the CSCs and supplementary site photos provided by the PIU environmental personals and CSCs. The LIEC will conduct next site inspection in May 2023.

### C. Implementation of the project monitoring program

47. The following environment safeguard monitoring was conducted in the reporting period: internal monitoring, external monitoring, and compliance monitoring. Summary data of external monitoring are presented in Table 4. Raw data are in Appendix 2. A summary of the monitoring activities is presented here.

48. **Internal monitoring.** (i) Regular site inspections have been performed by CSCs on a weekly basis. The internal monitoring results have been prepared by the CSCs and submitted to PIU for review on a monthly basis. (ii) Random site inspections performed by PIUs, PPMO, MPMOs and CPMOs.

49. **External monitoring.** It has been planned by the PPMO and PIUs that each PIU will contract one external environmental monitoring company (EMC) one month before civil work construction commencement. Till the end of 31 December 2022, all PIUs with civil works (10 PIUs) have engaged EMCs.

**Table 5: Recruitment status of EMCs**

No.	Subproject	Recruitment Date	EMC name
1	Datian	May 2019	Fujian Sanming Houde Test Technology Co., Ltd
2	Wuyishan	Feb 2019	Fujian Zhongke Test Technology Co., Ltd
3	Yongding	Oct 2019	Fujian Zhongkai Test Technology Co., Ltd
4	Jiaocheng	Oct 2017	Fujian Zhongke Test Technology Co., Ltd
5	Fu'an	Oct 2019	Fujian Zhongke Test Technology Co., Ltd
6	Pinghe	Oct 2019	Fujian Keyi Test Technology Co., Ltd
7	Ninghua	May 2019	Fujian Sanming Houde Test Technology Co., Ltd
8	Xinluo	Jan 2020	Fujian Huafei Test Technology Co., Ltd
9	Shouning	July 2022	Fujian Huaqi Test Technology Co., Ltd (for Shouning)
10	Pucheng	July 2022	Fujian Minjinlan Test Technology Co., Ltd (for Pucheng)

50. During this reporting period, subprojects of Datian, Pinghe, Shouning and Pucheng have on-going construction activities and the external monitoring activities are summarized in Table 6 and detail monitoring results are presented in Appendix 2. Monitoring results showed that air quality and noise levels at nearby villages met with the Ambient Air Quality Standard (GB3095-

2012) and Ambient Acoustic Environment Standard (GB3096-2008). Water quality of all creeks in Shouning and Pinghe showed exceedance of Grade III of the the surface water quality standard (GB3838-2002) but within the Grade V requirements. Based on interview with the CSCs and PIUs of Pinghe and Shouning, the contractors did not provide accommodation on site and did not discharge domestic sewage to the creeks. This will be further confirmed through the site inspection by LIEC scheduled in May 2023.

**Table 6. Summary of External Monitoring Activities and Results during this reporting period**

County	Phase	Variable	Location	Indicator	Frequency	Monitoring compliant with EMP program? Y/N	Results meet the required standards? Y/N	Corrective actions
Datian	Construction	Water	1 creek Taoyuan township	pH, SS, COD, Petroleum	Once	Yes	Yes	No
		Air	Taoyuan township	TSP, PM10	Once	Yes	Yes	No
		Noise		LAeq	Once	Yes	Yes	No
Pinghe	Construction	Water	Huashan creek	pH, SS, COD, Petroleum	Once	Yes	Yes	No
		Air	Xilin village Lianguang village	TSP, PM10	Once	Yes	Yes	No
		Noise	Xinqiao village Chankeng village Dongkeng village	Laeq	Once	Yes	Yes	No
Shouning	Construction	Water	Shoutai creek Xipu creek Xiuxi creek (Xietan Xiamaling section) Xiaofen creek (Fengyang Tianxiang village section) Xiuxi creek (Wuqu Qiaotou village section)	pH, SS, COD, Petroleum	Four times	Yes	Yes	No
		Air	Xiadang township Qinyang township	TSP, PM10	Four times	Yes	Yes	No
		Noise	Pingxi town Xixi town Shigu village Shankeng village Chilingyang village	LAeq	Four times	Yes	Yes	No
Pucheng	Construction	Water	/		None	Yes	Yes	No water body near the construction site

County	Phase	Variable	Location	Indicator	Frequency	Monitoring compliant with EMP program? Y/N	Results meet the required standards? Y/N	Corrective actions
		Air	Guancuo township	TSP, PM10	Once	No	No	Conduct monitoring in accordance with the frequency defined in the EMP. (4 times per year)
		Noise	Fuling town	LAeq	Once			
Operation	Not due yet.							

BOD = biological oxygen demand; COD = chemical oxygen demand; TN = total nitrogen, SS = suspended solids. TP = total phosphorous, TSP = total suspended particles; NH<sub>3</sub>-N = ammonium nitrate.

51. **Compliance monitoring.** For this reporting period, site compliance inspection was planned however due to COVID-19 related restrictions, site visits were postponed. The last site compliance inspection conducted by the LIEC to Pinghe, Datian, Fu'an, Shouning and Pucheng was on 27 June 2022 to 1 July 2022. For this reporting period, the LIEC had relied with information provided by the CSC and reviewed the results. Where information gaps were identified, the LIEC had reached out the PIUs for supplementary information and provision guidance to the CSCs and contractors. For this reporting period, mitigation measures defined in the EMP were reported to be implemented. This will be verified in the next LIEC led site visit in May 2023.

52. **Conclusions and next steps.** During this reporting period, (i) Internal monitoring was conducted regularly; (ii) external monitoring activities were carried out as scheduled and the monitoring results showed that the air quality and acoustic environment at all construction sites and nearby villages were within the relevant standards. The water quality of creeks near the construction sites met with the surface water quality standard. **Next steps:** i) with completion of construction, external monitoring for operation needs to be conducted for the subprojects in Yongding and Wuyishan. 2) The LIEC will conduct on-site compliance inspections to the subprojects by May 2023.

#### D. Public consultations and grievance redress mechanism

53. Public consultation conducted includes EIA public opinion survey, socioeconomic and AP surveys, public consultation meeting, questionnaire survey and site visits organized by the PIUs, Design Institutes and EIA institutes during the project preparation period.

54. The EMP contains a comprehensive public consultation program for the construction and operation phases, as shown in the table below. The public consultation program includes public participation in: (i) monitoring impacts and mitigation measures during construction and operation, (ii) evaluating environmental benefits and social impacts, and (iii) interviewing the public after the project is completed. The PMO and PIU are responsible for public participation during project implementation. They are supported by the loan implementation environmental consultants.

55. During construction, information disclosure is achieved primarily through the bulletin boards posted at each construction site. The bulletin boards contain a description about the project, layout map, construction safety, labour standards, environmental and health standards, name of the contractor(s) and names and contact information of the on-site managers and

company executives. Public complaints can also be lodged through the 24-hour hotlines of the municipal and county EEBs in the three project cities (“12369” – common number country-wide). The municipal and county EEB also have online complaints gateways in their webpages. Despite the construction bulletin boards, the PIUs also posted the project information and GRM entry points at the information board of nearby villages.

56. During reporting period, the contractors of Datian, Shouning, Pucheng and Pinghe have kept close communication with people from local villages in the daily works, include consulting with the villagers on the construction time arrangement and traffic disruption during construction of tractor roads. The aim of these interviews was to seek their comments and feedback regarding the effectiveness of mitigation measures being implemented. The interviews provided residents within and near the project sites the opportunity to learn more about the project, including the schedule of works and activities in the coming months. The project GRM was also presented to stakeholders, including key contact details.

57. **Conclusions and Next Steps.** So far, the village committee, local governments, PIUs and CPMOs have not received any petitions and/or complaints. **Next Steps:** All PIUs and contractors continue to maintain the operation of GRM. The LIEC will conduct random interviews with the residents to confirm if there are any concerns/complaints from the community.

## **E. Training and capacity building**

58. **Training.** Total of seven environmental officers/persons from PPMO, and PIUs of Shouning, Datian, Pinghe and Pucheng attended the on-line ADB safeguards training program organized by ADB PRC Resident Mission, including environmental session on 29 August 2022. The topics of the environmental training session covered environmental due diligence, environmental monitoring, EMP implementation and project completion. After the training, The PPMO and PIUs have better understanding of the environmental requirements during loan implementation. An online training on environmental management requirements for operation phase was provided to the PIUs and PMOs by NAREE on 19 December 2022 with 19 participants (5 female and 14 male) from PMO and PIUs. The training explained monitoring and reporting requirements for operation phase, practices on pesticide and fertilizer management and the participants gained better awareness of EMP implementation during operation (Appendix 6).

59. During this reporting period, the project has successively carried out technical training and guidance for agricultural cooperatives and farmers in the project area. Training courses on cultivation skills, startup, seedling care, green planting technology, farmer entrepreneurship etc. was offered to 2,379 people in total, including 1,094 women (45.9%) and 78 people (3.2%) from the low-income population (Appendix 6).

60. **Conclusion and next steps.** With the progress of subprojects, new contractors and CSCs will be contracted, training to the contractors and CSCs on implementation of environment measures and inspection will be held in the following reporting period.

## **V. Costs of EMP implementation during the reporting period**

61. An estimation of the total costs spent to implement the EMP is difficult, because (i) the costs are spread across the PMO, contractors, CSCs, LIEC, and external monitoring agencies; (ii) the costs for environmental management are usually included within the lump sum contract amounts between the PMO and contractors or other agencies. However, an estimate of total costs spent to date includes was made (Table 6).

**Table 5. Cost for EMP Implementation (Unit: CNY X10<sup>3</sup>)**

Item	2017-2018	1 <sup>st</sup> half 2019	2 <sup>nd</sup> half 2019	1 <sup>st</sup> half 2020	2 <sup>nd</sup> half 2020	1 <sup>st</sup> half 2021	2 <sup>nd</sup> half 2021	1 <sup>st</sup> half 2022	2 <sup>nd</sup> half 2022	Cumulative Cost	EMP
GRM establishment	150	150	150	50	50	50	50	50	60 60	760	750
Construction site planning	100	10	150	50	100	40	40	60	800	610	208
Erosion control	600	33	4,227	15,000	626	1329	1200	700	140	24515	46,869
Protection of water quality	150	16	120	75	83	23	20	40	0	667	1,510
Forestry	-	1,979	1,714	3,911	4156	2863	2100	-	140	16723	71,250
Health and Safety	190	90	652	1,500	2460	1255	90	70	70	6447	7,450
Environmental monitoring	87	53	69	80	283	283	43	20	0	988	1,413
Training	60	10	50	10	0	10	0	0	0	140	120
<b>Total</b>	<b>1,337</b>	<b>2,341</b>	<b>7,132</b>	<b>20,676</b>	<b>7,758</b>	<b>5,853</b>	<b>3543</b>	<b>940</b>	<b>1270</b>	<b>50,850</b>	<b>129,570</b>

62. Based on these estimates, the total amount spent to date for implementation of the EMP is approximately CNY 50.85 million. The annual cost to date is smaller than the EMP estimated annual cost. This is mostly due to cancellation of several subprojects.

## **VI. Compliance with loan and project assurances**

63. The loan agreement and project agreement between the government and ADB includes 25 assurances (or “covenants”) for environmental safeguards and/or related to environmental issues (Appendix 1). These relate to the timely and effective implementation of the EMP, as well as project-specific assurances tailored to the current project. Compliance with these assurances is a condition of the loan and project agreements. For the current reporting period: (i) 15 of the assurances are being complied with; (ii) 10 are not yet applicable due to the early stage of project implementation.

**VII. Issues for Follow-Up Documented in the Previous Environment Monitoring Report and any Missions undertaken During the Current Reporting Period**

64. ADB conducted a virtual review mission in November 2022. During the mission, ADB emphasized the importance of meaningful consultation and information disclosure, as well as establishment of GRM prior to construction activities, during construction and handover of project facilities.

**Table 7: Corrective Actions to Address Environment Safeguard Issues Identified in the Previous Environment Monitoring Report**

Issue/Subject	Action	By When	By Whom	Actions taken as of 31 Dec 2022
External monitoring frequency	Recruitment of external monitoring agency and conduct monitoring coinciding construction activities per EMP schedule and conducted within the respective reporting periods.	First monitoring by July 2022 and then follow the monitoring frequency defined in the EMP.	PIUs of Pucheng and Shouning	Pucheng: one monitoring conducted in July 2022; Shouning: monitoring conducted in July, August and October 2022.
Site inspection	Carry out field inspection to check the performance of EMP implementation	November 2022	LIEC	Postponed due to COVID-19 related restrictions. Scheduled for May 2023
Operation monitoring	Organize environmental monitoring for the project facilities that have been in operation more than 1 year.	December 2022	EMCs, LIEC and PIUs	Postponed due to COVID-19 related restrictions. Scheduled for May 2023
EMP implementation training	Provision of EMP implementation training to the new contractors and CSCs;	November 2022	LIEC	Training was provided in December 2022.
	Provision of training on EMP implementation requirements during operation phase for PIUs, EMC, and CPMOs.	September 2022	LIEC	



## VIII. Reporting

65. The project reporting requirements for environmental safeguards are summarized in Table 7 and comprise: i) progress reports from contractors and CSCs to the PMO; (ii) progress reports on external monitoring from an environmental monitoring agency to the PMO; (iii) environmental monitoring reports (EMRs) from the PMO to ADB.

**Table 8: Project reporting requirements for environmental safeguards**

Reports		From	To	Frequency	Progress in this reporting period
<b>Construction Phase</b>					
Project progress	Project progress report	Contractors and CSCs	PIUs	Monthly	•Complied with. All CSCs submitted monthly reports to PIUs
External environmental monitoring	Environmental monitoring report	Qualified environmental monitoring stations	PIUs CPMOs Local EPBs	Quarterly (for air and noise) Semi-annual (for water)	•Datian: 1 for Q4 2022; •Pinghe: 2 for Q3 and Q4 2022; •Shouning: 3 for Q3 and Q4 2022; •Pucheng: 1 for Q3 2022.
Compliance monitoring	Environment progress and monitoring reports	PPMO, LIEC	ADB	Semi-annual	8 <sup>th</sup>
Acceptance report	Environmental acceptance report	Licensed acceptance institute	Local EPB, EPD	Once; within 3 months of completion of physical works	Not applicable for the Project according to the Interim Measures for Environmental Protection Acceptance of Completion of Construction Projects (2017).
<b>Operational Phase</b>					
Compliance monitoring	Compliance with EMP measures report (first year of operation)	LIEC	ADB	Quarterly	Not conducted due to COVID-19 travelling restrictions.

Reports		From	To	Frequency	Progress in this reporting period
External environmental monitoring	Environmental monitoring report (first year of operation)*	Qualified environmental monitoring stations	Local EPBs, CPMOs	Quarterly	<p>The monitoring schedule for all subproject is as below:</p> <ol style="list-style-type: none"> <li>1 Wuyishan: Conduct water quality monitoring in 2023;</li> <li>2 Datian: not in operation yet.</li> <li>3 Ninghua: Operation monitoring completed in 2021;</li> <li>4 Yongding: Only completed small portion of works comparing with the appraisal stage. The monitoring plan is not applicable for Yongding.</li> <li>5 Xinluo: Only completed small portion of works comparing with the appraisal stage. The monitoring plan is not applicable for Xinluo.</li> <li>6 Pinghe: Not in operation yet.</li> <li>7 Fu'an: conduct operation monitoring in 2024;</li> <li>8 Jiaocheng: Conduct operation monitoring in 2023;</li> <li>9 Pucheng: Not in operation yet;</li> <li>10 Shouning: Not in operation yet;</li> <li>11 Guangze: No project activity.</li> </ol>
Progress report	Environmental progress report	PPMO	ADB	Semi-annual	Not due.

ADB = Asian Development Bank; EPD = Environmental Protection Department; EPB = Environment Protection Bureau; LIEC = Loan Implementation Environment consultant; CPMO = County Project Management Office; PIU = Project Implementation Unit; PPMO = Provincial Project Management Office

66. **Conclusions and next steps.** Monthly report from CSCs to PIUs submission complied with the EMP. For all subprojects under construction, external monitoring was conducted. However, the Datian and Pucheng subprojects were not monitored at the frequency specified in the monitoring plan. Only one external monitoring was conducted for Datian and Pucheng during the reporting period. Subprojects of Wuyishan and Jiaocheng are in operation for one year and will conduct operation monitoring in 2023.

## IX. LESSONS LEARNED

67. Although all subproject PIUs engaged external environmental monitoring agencies, some PIUs and external monitoring agencies did not fully understand the purpose and requirements of monitoring and did not fully follow the frequency of monitoring activities specified in the monitoring plan. LIEC will closely track and monitor the implementation of the program and provide timely advice and guidance. On-site training will be provided to the PIUs, CSCs, contractors and EMCs during the site inspection scheduled in May 2023.

## X. NEXT STEPS

68. Based on the findings of this EMR, corrective actions and next steps are required for several issues (Table 9). The actions largely relate to external monitoring company (EMC) engagement and GRM establishment. Actions are planned for July to December 2022 and will be reported on in the next EMR.

**Table 9: Environmental Issues and Corrective Actions**

Issue/Subject	Action	By When	By Whom
External monitoring frequency	Conduct external environmental monitoring at the frequency specified in Table A1.3b: External Environmental Monitoring Program in the EMP: 4 times/per year for noise and air quality during construction.  Subprojects of Wuyishan and Jiaocheng are in operation for one year and will conduct operation monitoring in 2023: 2 times/year for the water quality of rivers nearby.	Q1 and Q2 of 2023	PIUs of Datian and Pucheng
Site inspection	Carry out field inspection to check the performance of EMP implementation	May 2023	LIEC
Operation monitoring	Subprojects of Wuyishan and Jiaocheng are in operation for one year and will conduct operation monitoring in 2023.	End of 2023	EMCs, LIEC and PIUs
EMP implementation training	Provision of EMP implementation training to the new contractors and CSCs (key points of daily site inspection, monitoring locations and monitoring frequency) etc. ;	May 2023	LIEC

## APPENDIX 1. COMPLIANCE WITH ENVIRONMENTAL ASSURANCES

69. This appendix lists the environmental safeguard assurances for the project and the status of compliance with these assurances during the reporting period.

Covenant	Reference	Status/Remarks
<b>LOAN AGREEMENT</b>		
<p>Procurement of Goods, Works and Consulting Services</p> <p>Conditions for Contract Award</p> <p>The Borrower shall, through FPG, cause the Project Implementing Agencies not to award any Works contracts that involve environmental impacts until: (a) FPG has granted the final approval of the IEE; and (b) FPG or the relevant Project Implementing Agency has incorporated the relevant provisions from the EMP into the Works contract.</p>	LA, Schedule 4, Para. 7	<p>Being complied with.</p> <p>Environmental protection provisions from the EMP have been incorporated into all civil work contracts</p>
<b>Implementation Arrangements</b>		
<p>The Borrower shall, through FPG, ensure that before disbursement to such participating company, each project implementing agreement between a Project County and a participating company, acceptable to ADB, shall be executed and, inter alia, include the respective participating company's obligations set forth in the Project Agreement and the PAM and shall require such participating company to comply with the IEE, EMP, RP, if any applies to such participating company, GAP and SDAP. The Borrower shall, through FPG, cause the Project Counties to enforce the participating company's obligations under its respective project implementing agreement to ensure that the Project is implemented in accordance with the Loan Agreement, the Project Agreement and the PAM.</p>	LA, Schedule 5, Para. 2  PA, Schedule, Para. 7	Being complied with.
<p>The Borrower shall ensure that if, at any time, FPG proposes to replace or add a new enterprise as a participating company, FPG shall seek ADB's prior consent to such change and shall ensure that (i) any new proposed participating company meets the selection criteria applied for the selection of participating companies during the project preparation as set out in the Project Agreement and the PAM, (ii) all proposed subproject(s) go through ADB due diligence on technical, financial, and safeguard matters similar to the process undertaken under the project preparatory technical assistance, and (iii) each replacement or added participating company complies with all requirements applicable to participating companies set out in the Project Agreement and the PAM.</p>	LA, Schedule 5, Para. 3	<p>Being complied with</p> <p>Two new enterprises in Shouning County and Pucheng county are proposed to be newly added. The two companies met the selection criteria set out in the PA and the PAM. The addendum IEE, including EMP for the proposed change at MTR is being prepared.</p>
<b>PROJECT AGREEMENT</b>		
<p>Project County Selection Criteria</p> <p>FPG shall, and shall cause the Project Implementing Agencies to ensure that each selected Project county meets the following poverty criteria, as further detailed in the PAM: each county must be a key provincial-level poverty alleviation county and/or less developed county eligible for the central government's support for the</p>	PA, Schedule, Para. 8	<p>Being complied with</p> <p>Two new counties (Shouning County and Pucheng County) are selected: Both counties met with the selection criteria.</p>

Covenant	Reference	Status/Remarks
middle and western provinces in the territory of the Borrower.		
In selecting each Project country, priority shall be given to: (a) key soil erosion-prone counties with demonstrable erosion problems; and/or (b) counties in modern agriculture demonstration zones complying with ADB's project design which follows the principles of (i) sustainable development of agricultural land for economic purposes, (ii) emphasis on environment, soil and water resource protection, and (iii) ensuring there is opportunity to participate in equitable benefit sharing from the project which promotes cooperation between farmer households, cooperatives and project enterprises.	PA, Schedule, Para. 9	Being complied with  Shouning county is erosion-prone county and Pucheng county is in modern agriculture demonstration zones. Selection of project county met with the selection criteria.
<p>Subproject Selection Criteria</p> <p>FPG shall, and shall cause the Project Implementing Agencies to ensure that each proposed subproject is selected based on the following criteria relating to site, activities and community's acceptance, as further detailed in the PAM:</p> <p>each subproject must not be located in ecologically sensitive areas, including protected areas (all types of national and provincial reserves, reservoirs, etc.), wetlands protected areas, water resources protection areas, documented sites for rare or threatened flora and fauna (including nationally protected species), and rare, threatened, or restricted-range habitats;</p> <p>(b) subproject activities on land with a slope of &gt;25° must (i) not be used for crop production (even though the soil and water conservation law indicates that planting perennials in combination with adequate erosion control measures is allowed); (ii) only sites that have been used before shall be considered for rehabilitation with design of those sloping sites compliant to all relevant national and/or provincial regulations for soil and water protection, and construction to minimize soil erosion; and (iii) the Project shall not support subproject activities to convert existing natural forest to production land;</p> <p>(c ) subproject activities shall include farmland preparation and its related infrastructure, and related green and sustainable production activities but shall exclude investment or activities for (i) processing, (ii) construction of new reservoirs with capacity over 100,000 m3 and/or dam wall height greater than 15m, or (iii) Works for training and/or testing centers. Road construction activities will be classified by use, size and road surface;</p> <p>(d) each subproject shall be favorable to villagers in sharing potential benefits, including supporting close cooperation among SOEs and PPEs and cooperatives/villagers, with an emphasis on land areas under various cooperative management arrangements between SOEs and PPEs and village cooperatives/villagers;</p> <p>I for any subproject involving "associated facilities" (as defined by ADB's SPS), those facilities shall have all</p>	PA, Schedule, Para. 10	Being complied with  The subproject selection criteria have been used during new subproject selection. Subprojects that failed to meet the criteria were dropped.

Covenant	Reference	Status/Remarks
<p>relevant domestic environmental and/or social approvals already in place prior to commencement of the relevant subproject. Associated facilities are facilities that are not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project, e.g. processing facilities; and (f) each subproject must meet the financial and economic viability assessment requirements, including positive net present value or internal rate of return higher than the cost of capital.</p>		
<p>Subproject Technical Requirements</p> <p>FPG shall, and shall cause the Project Implementing Agencies to ensure that each selected subproject meets the following technical requirements for reduced soil erosion and sustainable farming systems to ensure sound subproject design and implementation, as further detailed in the PAM:</p> <p>all Project activities for the modification of land use, including preparation for either cropland or forest plantation, comply with all relevant national and/or provincial regulations for soil and water protection, and construction to minimize soil erosion. Land clearing must be conducted according to the Borrower's existing technical specifications of soil and water conservation for slope land. Building terraces and soil tillage have to be carried out along contours and keeping vegetation between contour terraces to prevent soil erosion;</p> <p>(b) in the choice of new crops or new farming systems, the protection of the soil must be ensured. For any new system or crop, the time and degree of exposure to erosive forces must be taken into consideration. This is critical for crops that develop slowly or form little canopy (such as onions) or farming/cultivation systems where soil has to be tilled intensively for seedbed preparation; recommendations of fertilizer application (rates) based on local soil and crop conditions must be followed to avoid non-point source pollution;</p> <p>subprojects involving transfer of contracted land must not include either land-lease arrangements against current laws and regulations concerning land or land-lease arrangements signed by village officials without knowledge and consent of village members. For transfer of un-contracted land, village representatives meeting records and signatures are required; and</p> <p>1 participating PPEs and farmer cooperatives must be committed to adopting sound practices for soil and water management and conservation within their project designs.</p>	<p>PA, Schedule, Para. 11</p>	<p>Being complied with.</p> <p>The subproject technical requirements have been forwarded to the design institutes that responsible for FSR preparation for new subprojects in Shouning County and Pucheng County. The subproject design will follow the technical requirements.</p>
<p>New Subprojects</p> <p>During Project implementation, if any new subprojects are added, FPG shall, and shall cause the Project Implementing Agencies to ensure that the same</p>	<p>PA, Schedule, Para. 12</p>	<p>Being complied with</p>

<b>Covenant</b>	<b>Reference</b>	<b>Status/Remarks</b>
selection criteria and technical requirements applicable to each subproject preparation shall be applied.		
Requirement of PPEs FPG shall, and shall cause the Project Implementing Agencies to ensure that each selected PPE is willing to invest in farmland reclamation, ecological construction with demonstration and technical piloting;	PA, Schedule, Para. 13	Being complied with.
<b>Environment</b>		
FPG shall, and shall cause the Project Implementing Agencies to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report, or (ii) which are subsequently agreed between ADB and the FPG.	PA, Schedule, Para. 18	Being complied with.
Erosion Control. FPG shall, and shall cause the Project Implementing Agencies to ensure that the PIUs shall ensure that the design, construction and operation of subprojects will comply with technical specifications of soil and water conservation for sloping land set forth in Soil and Water Conservation Law of the Borrower (25 December 2010, as may be amended from time to time).	PA, Schedule, Para. 19	Being complied with.
Protection of Natural Vegetation. FPG shall, and shall cause the Project Implementing Agencies to ensure that (a) the PIUs shall not expand site operations beyond the boundaries agreed for the subprojects and will confirm that there will be no conversion of natural forest or natural shrublands to tea or tea-oil gardens; and (b) all subprojects involving stream embankments (including Wuyishan, Datian, Yongding and Xinluo subproject) will retain existing trees (if any) along both riverbanks.	PA, Schedule, Para. 20	Being complied with.
Pesticides. FPG shall, and shall cause the Project Implementing Agencies to ensure that no pesticides that are listed as “Extremely Hazardous” or “Highly Hazardous” by the World Health Organization are used in the Project, including the prohibition of three pesticides (omethoate, trizophos and dichlorvos) listed in the Fujian Department of Agriculture’s list of recommended pesticide applications.	PA, Schedule, Para. 21	Being complied with
Weed Control. FPG shall, and shall cause the Project Implementing Agencies to ensure that (a) if the use of fast-growing non-native species (e.g., grasses) is required for stabilizing bare construction surfaces, only sterilized seedlings (i.e., which cannot propagate) will be used; and (b) to reduce the risk of spreading weeds, pest animals, and/or soil-based organisms, the Project shall prohibit the use of any plant species classified in the PRC as weeds, as defined by the China National Invasive Plant Database ( <a href="http://www.agripests.cn">http://www.agripests.cn</a> ; 229 species) and by the Ministry of Environment Protection and Chinese Academy of Sciences (19 species).	PA, Schedule, Para. 22	Being complied with

<b>Covenant</b>	<b>Reference</b>	<b>Status/Remarks</b>
World Heritage Areas. FPG shall cause the Yongding subproject implementation agency and its PIU to ensure that no activities including truck haulage or machinery movements will pass through the Tulou World Heritage Site core and buffer protection zones, and that no trees on the skyline which forms a backdrop to the Tulou site will be damaged.	PA, Schedule, Para. 23	Being complied with
Water Source Protection Areas. FPG shall cause the Datian subproject implementation agency and its PIU to ensure that in the drinking water protection zone portion of the Datian subproject area, all tree planting and/or rehabilitation of construction sites using vegetation will only use native plant species to Datian County.	PA, Schedule, Para. 24	Being complied with
Human and Financial Resources to Implement Safeguards and Other Social Requirements		
FPG shall, and shall cause the Project Implementing Agencies to make available necessary budgetary and human resources to fully monitor and implement the EMP, RF, RP, GAP and SDAP for the Project.	PA, Schedule, Para. 28	Being complied with.
Safeguards-related Provisions in Bidding Documents and Works Contracts		
<p>FPG shall, and shall cause the Project Implementing Agencies to, ensure that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>comply with the measures relevant to the contractor set forth in the EMP, RF and the RP (to the extent they concern impacts on the respective affected people under ADB's Environmental Safeguards, the Involuntary Resettlement Safeguards and the Indigenous Peoples Safeguards during construction), and any corrective or preventative actions set forth in (i) a safeguards monitoring report, or (ii) subsequently agreed between ADB and the FPG;</p> <p>make available a budget for all such environmental and social measures;</p> <p>(c ) provide the FPG and Project Implementing Agencies with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the project that were not considered in the IEE, the RF and the RPs;</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition as soon as possible and no later than the completion of construction.</p>	PA, Schedule, Para. 29	<p>Complied with.</p> <p>ADB-approved bidding documents for first NCB civil works package contain such provisions. Bidding documents for succeeding packages to be patterned after the ADB-approved first bidding documents.</p>
Safeguards Monitoring and Reporting		
<p>FPG shall, and shall cause the Project Implementing Agencies to do the following:</p> <p>submit safeguards monitoring reports to ADB (i) in respect of implementation of and compliance with ADB's Environmental Safeguards and the EMP, semi-annually during construction and the implementation of</p>	PA, Schedule, Para. 30	<p>Being complied with.</p> <p>This is the sixth environmental monitoring report covering the periods from July to December 2021.</p>



Covenant	Reference	Status/Remarks
<p>the project and the EMP, and thereafter semi-annually during operation until the issuance of ADB's project completion report unless a longer period is agreed in the EMP; (ii) in respect of implementation of and compliance with ADB's Involuntary Resettlement Safeguards and of the RF and the RP, semi-annually during the implementation of the Project, the RF and the RP until the issuance of ADB's project completion report unless a longer period is agreed in the RF and the RP; and disclose relevant information from such reports to the respective affected people under ADB's Environmental Safeguards and the Involuntary Resettlement Safeguards promptly upon submission; and (iii) in respect of the land use rights transfer contracts, semi-annually during implementation up until Project completion;</p> <p>if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the project that were not considered in the IEE, EMP, RF and RP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan;</p> <p>(c ) no later than the commencement of land acquisition and resettlement activities, engage an independent agency under a selection process and terms of reference acceptable to ADB, to monitor and evaluate the resettlement process, and facilitate the carrying out of any verification activities by such external experts, and forward semi-annual external resettlement monitoring and evaluation reports to ADB during resettlement implementation and annually for two years after the completion of resettlement implementations; and</p> <p>(d) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, RF or RP promptly after becoming aware of the breach.</p>		
Prohibited List of Investments		
FPG shall, and shall cause the Project Implementing Agencies to ensure that no proceeds of the ADB loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	PA, Schedule, Para. 31	Being complied with.
Labor and Health		
FPG shall, and shall cause the Project Implementing Agencies to ensure that the core labor standards and Borrower's applicable laws and regulations are complied with during project implementation. FPG shall, and shall cause the Project Implementing Agencies (including PIUs) to include specific provision in the bidding documents and contracts financed by ADB under the Project requiring that the contractors, among other things: (a) comply with Borrower's applicable labor law and regulations and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced labor; I do not restrict workers from developing a	PA, Schedule, Para. 32	Being complied with. Approved bidding documents for first NCB civil works package include such provisions.

<b>Covenant</b>	<b>Reference</b>	<b>Status/Remarks</b>
legally permissible means of expressing their grievances and protecting their rights regarding working conditions and terms of employment; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of communicable diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the project area, particularly women.		
<b>Grievance Redress Mechanism</b>		
FPG shall ensure that a joint safeguards grievance redress mechanism acceptable to ADB is established in accordance with the provisions of the IEE, the EMP and the RP, at the PPMO, within the timeframes specified in the relevant IEE, EMP and RP, to consider safeguards complaints.	PA, Schedule, Para. 34	Being complied with.  PPMO environmental officer is responsible for finalizing, establishing, and coordinating the GRM. The GRM has been established in December 2017 and is being implemented.
The grievance redress mechanism referred to in paragraph 34 shall function to (a) review and document eligible complaints of Project stakeholders; (b) proactively address grievances; (c) provide the complainants with notice of the chosen mechanism and/or action; and (d) prepare and make available to ADB upon request periodic reports to summarize (i) the number of complaints received and resolved; (ii) chosen actions; and (iii) final outcomes of the grievances and make these reports available to ADB upon request.	PA, Schedule, Para. 35	Being complied with.  GRM was established during PPTA. GRM focal points have been publicized at each construction site and nearby village. No complaint received till now.
<b>Public Awareness and Stakeholder Communication Strategy</b>		
FPG shall, and shall cause the Project Implementing Agencies to undertake public awareness campaigns through information disclosure, education and consultation on the project and its benefits, including but not limited to information related to the EMP, RF, RP, SDAP and GAP.	PA, Schedule, Para. 39	Being complied with.
FPG shall, and shall cause the Project Implementing Agencies to ensure the stakeholder communication plan as provided in the PAM is implemented to ensure regular information disclosure and implementation progress and to establish an information sharing mechanism for the relevant Project stakeholders.	PA, Schedule, para. 40	Being complied with.

## APPENDIX 2. MONITORING DATA

### A. Monitoring Method

Monitoring method and detection limit for each parameter is shown in Table A2-1.

**Table A2-1 Environmental quality detection methods**

Parameters	Analysis Method	Standard	Detection limit
<b>Surface water. Technical Specifications Requirements for Monitoring of Surface (HJ/T 91-2002)</b>			
pH	Glass electrode method	GB 6920-86	/
SS	Gravimetric method	GB 11901-89	/
COD	dichromate method	HJ 828-2017	4 mg/L
BOD <sub>5</sub>	dilution and seeding method	HJ 505-2009	0.5 mg/L
NH <sub>3</sub> -N	Nessler's reagent spectrometry	HJ 535-2009	0.025 mg/L
TP	Ammonium Molybdate Spectrophotometry	GB 11893-89	0.01 mg/L
Petroleum	Infrared Spectrophotometry	HJ 637-2018	0.01 mg/L
<b>Air. Technical specifications for ambient air quality monitoring (HJ194-2017)</b>			
PM <sub>10</sub>	Gravimetric method	HJ 618-2011	0.010 mg/m3
TSP	Gravimetric method	GB/T 15432-1995	0.001 mg/m3
<b>Noise: Environmental quality standard for noise</b>			
Noise	Noise meter	GB 3096-2008	/

### B. Datian Subproject

#### 1. External Monitoring Agency

The environmental monitoring for Datian subproject was conducted by Fujian Sanming Houde Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

#### 2. Monitoring Location

The distribution of the monitoring locations for water, air, noise is shown in Table A2-2.

**Table A2-2 Monitoring locations of Datian Subproject**

Item	Location	Longitude	Latitude
Surface water	#1 Jizhong village	117° 57'16.15"	25° 32'21.66"
	#2 Jingkou village	117° 54'41.22"	25° 42'44.70"
	#3 Taoyuan village	117° 35'05.63"	25° 47'32.74"
	#4 Shanchuan village	117° 49'26.66"	25° 50'35.15"
	#5 Keshan village	117.90957338°	25.56919211°
	#6 Huping village	117.831148°	25.830859°
Air and Noise	#1 Jizhong village	117° 57'04.90"	25° 32'08.88"
	#2 Jingkou village	117° 54'41.24"	25° 42'43.08"
	#3 Taoyuan village	117° 35'05.10"	25° 47'32.88"
	#4 Shanchuan village	117° 49'18.30"	25° 50'40.49"
	#5 Chuanshi village	117.821741°	25.844531°
	#6 Keshan Village	117.91135746°	25.71189958°
	#7 Huping village	117.828450°	25.830461°
	#8 Jinshan village	117° 49'2.59"	25° 48'51.58"
	#9 Taoyuan township	117° 35'4.54"	25° 47'33.08"

### 3. Monitoring Frequency

**Baseline monitoring.** Baseline air quality, noise level and water quality was monitored for the Datian Subproject on 16-18 June 2019.

**Monitoring conducted during previous reporting periods.** Air quality and noise level was monitored on 15-17 May 2020 at Jizhong village, Taoyuan village and Chuanshi village. Water quality monitoring was not conducted. Air quality and noise level was monitored on at i) Jizhong village, Taoyuan village and Chuanshi village on 14 September 2020; ii) Jizhong village, Jingkou village and Keshan village on 16 November 2020; iii) Taoyuan village on 19 March 2021; and iv) Huping village on 25 June 2021. Water quality monitoring was conducted for i) Jingkou creek and Jizhong creek on 16 November 2020; ii) Taoyuan creek on 19 March 2021; and iii) Huping creek on 25 June 2021. Surface water quality monitoring for Jinkou creek was conducted in September 2021. Noise and air quality were monitored in September and December 2021 respectively. Surface water and air quality were monitored in Keshan Village in March 29, 2022; air and acoustic environment quality were monitored in Pinshan Village in June 14 2022.

**Monitoring conducted during this reporting period.** Air, noise and surface water quality were monitored in Taoyuan township in Dec 15 2022.

**Operation phase monitoring.** Not yet due.

### 4. Monitoring results

#### a. Water quality

Water quality monitoring results is presented in Table A2-3. The results show that water quality in the monitored creeks can meet grade III of Environment Quality Standard for Surface Water (GB3838-2008).

Table A2-3 Water Quality monitoring results of Datian subproject (Unit: mg/L)					
Date	Locations	Ph	COD	SS	Petroleum
<b>Pre-construction baseline monitoring</b>					
June 17, 2019	#1 Jizhong creek	6.9	8.89	21	<0.01
	#2 Jingkou creek	7.5	12	15	<0.01
	#3 Taoyuan creek	7.63	9.83	46	<0.01
	#4 Shanchuan creek	6.65	8.52	22	0.01
<b>Monitoring during construction</b>					
November 16, 2020	#1 Jizhong creek	7.72	18	12	<0.01
	#2 Jingkou creek	7.96	10	15	<0.01
	#3 Taoyuan creek	No construction activity near the creek.			
	#4 Shanchuan creek	No construction activity near the creek.			
	#5Keshan creek	7.89	8	10	<0.01
March 19, 2021	#3Taoyuan	8.19	12	13	<0.01
25 June, 2021	#6Huping	7.3	12	16	<0.01
September 29, 2021	#1 Jingkou creek	7.3	13	18	<0.01
March 29, 2022	Keshan village	7.6	10	15	4.21
15 December 2022 (this reporting period)	Taoyuan township	7.1	9	13	<0.01
<b>Not conducted during reporting period</b>					
<b>Environment Quality Standard for Surface Water (GB3838-2002) Grade III</b>		6-9	<=20	30	<=0.05

**b. Air quality**

Air quality monitoring results are presented in Table A2-4. The results show that air quality in all sites can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-4 Air Quality monitoring results of Datian subproject (Daily average: unit:  $\mu\text{g/L}$ )**

Date	Location	TSP	PM10
<b>Pre-construction baseline monitoring</b>			
16-17 June 2019	#1 Jizhong	24	15
	#2 Jingkou	26	15
	#3 Taoyuan	19	11
	#4 Shanchuan	22	14
<b>Monitoring during construction</b>			
6-8 November 2019	#1 Jizhong	41	28
	#2 Jingkou	No construction near the site during reporting period	
	#3 Taoyuan	No construction near the site during reporting period	
	#4 Shanchuan	48	34
15-17 May 2020	#1 Jizhong	59	34
	#2 Jingkou	No construction near the site during reporting period	
	#3 Taoyuan	54	29
	#4 Shanchuan	56	32
14 September 2020	#1 Jizhong	55	33
	#3 Taoyuan	52	30
	#5 Chuanshi	58	36
16 November, 2020	#1 Jizhong	75	37
	#2 Jingkou	88	42
	#6 Keshan	82	40
19 March 2021	#3 Taoyuan	65	42
25 June 2021	#7 Huping	66	39
29 September 2021 (this reporting period)	#2 Jingkou	77	42
22 December 2021	#8 Jinshan village	65	37
March 29 2022	Keshan village	72	39
June 14 2022	Pinshan village	47	35
15 December 2022 (this reporting period)	Taoyuan township	59	32
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

**c. Noise**

Noise monitoring results are presented in Table A2-5. The results show that noise level at boundaries of all construction sites meet with Emission Standard of Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008). Moreover, the noise levels at construction sites are similar to baseline noise levels.

**Table A2-5 Noise monitoring results of Datian subproject (Unit: dB)**

Date	Location	Day	Night
<b>Pre-construction baseline monitoring</b>			
16-17 June 2019	#1 Jizhong	54	40.3
	#2 Jingkou	54.6	39.4

Date	Location	Day	Night
	#3 Taoyuan	51.3	44.7
	#4 Shanchuan	52.3	36.8
<b>Monitoring during construction</b>			
14 September 2019	#1 Jizhong	50.2	44.5
	#2 Jingkou	No construction near the site during reporting period	
	#3 Taoyuan	No construction near the site during reporting period	
	#4 Shanchuan	50.0	43.9
15-17 May 2020	#1 Jizhong	43.5	42.5
	#2 Jingkou	No construction near the site during reporting period	
	#3 Taoyuan	45.3	44.2
	#4 Shanchuan	44.6	43.8
14 September 2020	#1 Jizhong	44.5	42.8
	#3 Taoyuan	45.7	43.1
	#Chuanshi	45.1	43.6
16 November, 2020	#1 Jizhong	49.8	45.7
	#2 Jingkou	50.8	46.6
	#6 Keshan	47.9	41.9
19 March, 2021	#3 Taoyuan	51.6	48.8
25 June, 2021	#7 Huping	52	45.7
29 September 2021	#2 Jingkou	53.8	48.2
22 December 2021	# Jinshan	46.2	44.7
June 14 2022	Pinshan village	49.6	47.4
15 December 2022 (this reporting period)	Taoyuan township	52.5	48.6
<b>Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008)</b>		60	50

## C. Wuyishan Subproject

### 1. External Monitoring Agency

The environmental monitoring for Wuyishan subproject was conducted by Fujian Zhongke Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

### 2. Monitoring Location

The distribution of the monitoring locations for water, air, noise is shown in Table A2-6 and Figure A2-1.

**Table A2-6 Monitoring Locations of Wuyishan Subproject**

Item	Location	Longitude	Latitude
Surface water	#1 upstream of Wufu Creek	118°12'43.93"E	27°36'43.23"N
	#2 Down stream of Wuxi Creek	118°12'27.42"E	27°36'33.60"N
	#3 Wongdun Creek	118°12'02.95"E	27°37'31.70"N
	#4 Guting Creek	118°13'13.50"E	27°37'55.12"N
Air and noise	#1 Wongdun village	Not indicated in the monitoring report.	Not indicated in the monitoring report.
	#2 Xingxian village		
	#3 Wuyi village		
	#4 Wufu village		
	#5 Tianwei village		
	#6 Diancun village		

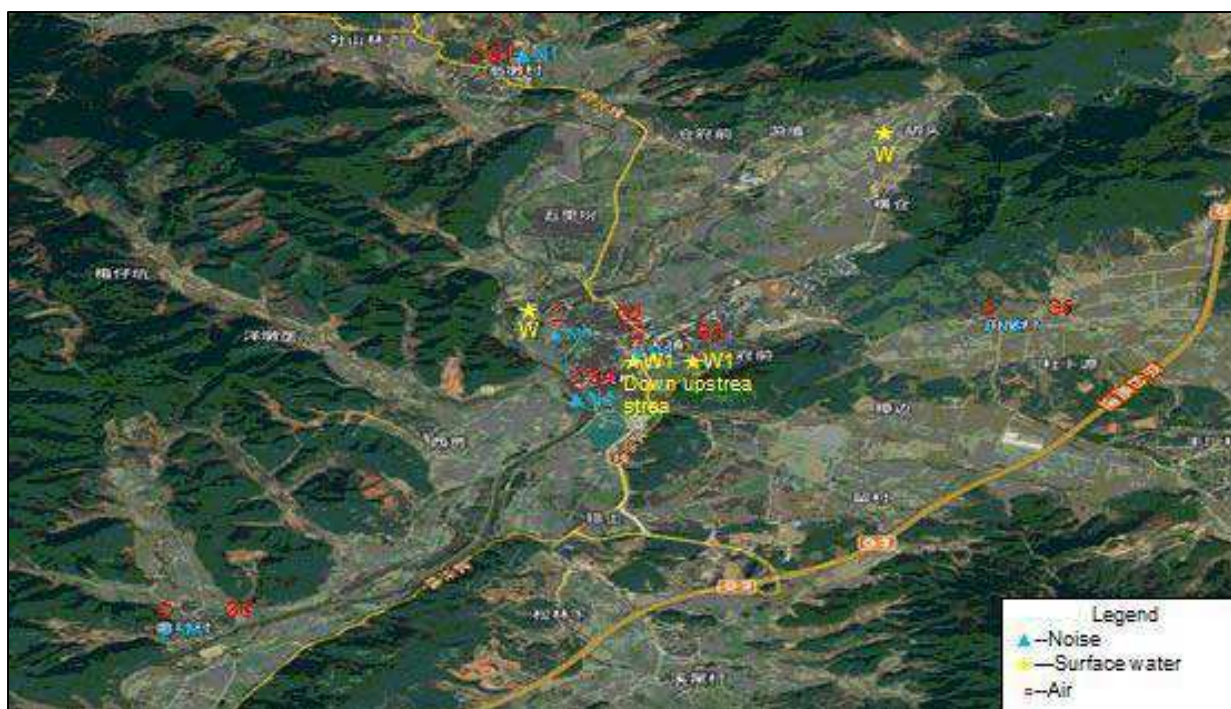


Figure A2-1 Map of Monitoring Sites of Wuyishan subproject

### 3. Monitoring Frequency

**Baseline.** Air quality, water quality and noise level baseline monitoring for Wuyishan subproject was conducted on 13- 14 March 2019.

**Monitoring conducted during previous reporting periods.** Air and noise were monitored quarterly on 10-11 January 2020 and 13-14 April 2020, water quality was monitored semi-annually on 13 April 2020, 4 times each day.

**Monitoring conducted during this reporting period.** None as construction completed.

**Operation phase monitoring.** Air, surface water and acoustic environment were monitored in November 2021.

### 4. Monitoring Results

#### a. Water Quality

Water quality monitoring results are presented in Table A2-7. The results show that water quality during construction can meet Grade III of Environment Quality Standard for Surface Water (GB3838—2002).

Table A2-7 Water Quality Monitoring Results of Wuyishan subproject (unit: mg/m<sup>3</sup> except pH)

Date	Location	Results						
		pH	COD	SS	Petro-leum	NH <sub>3</sub> -N	BOD	TP
Pre-construction baseline monitoring								
	#1 Upstream of Wufu creek	7.01-7.04	12-14	11-14	<0.01			

Date	Location	Results						
		pH	COD	SS	Petro-leum	NH <sub>3</sub> -N	BOD	TP
13-14 Mar. 2019	#2 Down stream of Wufu creek	7.19-7.27	17-20	17-20	<0.01			
	#3 Wongdun creek	7.07-7.11	14-16	12-14	<0.01			
	#4 Guting creek	7.01-7.09	11-14	12-13	<0.01			
<b>Monitoring during construction</b>								
19 Nov. 2019	#1 Upstream of Wufu creek	7.15	13	14	<0.01			
	#2 Down stream of Wufu creek	7.28	16	17	<0.01			
13 April 2020	#1 Upstream of Wufu creek	7.01-7.06	12-14	11-13	<0.01	0.067-0.075	1.8-2.2	0.01
	#2 Down stream of Wufu creek	7.19-7.24	17-20	17-19	<0.01	0.128-0.139	2.1-2.7	0.02-0.03
	#3 Wongdun creek	7.09-7.11	14-16	11-14	<0.01	0.064-0.077	2.2-2.7	0.01
	#4 Guting creek	7.02-7.06	11-14	12-13	<0.01	0.098-0.116	1.8-2.7	0.01
<b>Monitoring during operation</b>								
22 Nov 2021	#1 Upstream of Wufu creek	7.16	13	14	<0.01			
	#2 Down stream of Wufu creek	7.27	16	16	<0.01			
<b>Environment Quality Standard for Surface Water (GB3838-2002) Grade III</b>		6-9	<=20	<=30	<=0.05	<=1.0	<=4.0	<=0.2

## b. Air Quality

Air quality monitoring results are presented in Table A2-8. The results show that air quality during construction can meet Class II Ambient Air Quality Standard (GB3095-2012). The concentration of TSP and PM<sub>10</sub> during construction is similar to that of the baseline.

**Table A2-8 Air Quality Monitoring Results of Wuyishan subproject (Daily average, unit: µg/m<sup>3</sup>)**

Date	Location	TSP	PM <sub>10</sub>
<b>Pre-construction baseline monitoring</b>			
13-14 March 2019	#1 Wongdun village	74-79	40-43
	#2 Xingxian village	73-77	38-43
	#3 Wuyi village	78-81	41
	#4 Wufu village	75-84	37-42
	#5 Tianwei village	83-88	49-51
	#6 Diancun village	76-82	58-64
<b>Monitoring during construction</b>			
19-20 November 2019	#1 Wongdun village	74-80	42-44
	#2 Xingxian village	82-85	50-51
	#3 Wuyi village	77-84	43-48
	#4 Wufu village	73-87	38-39
	#5 Tianwei village	81-88	40-42
	#6 Diancun village	79	57-59



Date	Location	TSP	PM <sub>10</sub>
10-11 January 2020	#1 Wongdun village	72-76	41-42
	#2 Xingxian village	76-77	34-44
	#3 Wuyi village	76-79	41
	#4 Wufu village	75-81	36-42
	#5 Tianwei village	85	44-47
	#6 Diancun village	76-84	56-61
13-14 April 2020	#1 Wongdun village	74-78	41-42
	#2 Xingxian village	73-76	38-43
	#3 Wuyi village	78-81	41
	#4 Wufu village	75-84	36-42
	#5 Tianwei village	83-88	48-49
	#6 Diancun village	76-82	55-62
22-23 Nov 2021	#1 Wongdun village	73-78	40-43
	#2 Xingxian village	74-75	38-43
	#3 Wuyi village	78-80	41
	#4 Wufu village	75-83	37-42
	#5 Tianwei village	83-87	49-51
	#6 Diancun village	75-81	58-64
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

### c. Noise

Noise monitoring results are presented in Table A2-9. The results show that noise level at all construction sites meet Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011). Moreover, the noise levels at construction sites are similar to baseline noise levels.

**Table A2-9 Noise monitoring results of Wuyishan subproject (unit: dB(A))**

Date	Location	Daytime	Night time
<b>Pre-construction baseline monitoring</b>			
13-14 March 2019	#1 Wongdun village	53.8	42.8
	#2 Xingxian village	51.8	43.3
	#3 Wuyi village	53.7	42.1
	#4 Wufu village	54.2	43.6
	#5 Tianwei village	53.9	44.1
	#6 Diancun village	51.3	42.3
<b>Monitoring during construction</b>			
19 November 2019	#1 Wongdun village	53.8	43.1
	#2 Xingxian village	52.4	42.9
	#3 Wuyi village	53.2	41.8
	#4 Wufu village	53.4	42.7
	#5 Tianwei village	53.1	43.8
	#6 Diancun village	52.0	42.2
10 January 2020	#1 Wongdun village	54.2	42.4
	#2 Xingxian village	51.5	42.1
	#3 Wuyi village	53.1	42.1
	#4 Wufu village	54.2	42.6
	#5 Tianwei village	51.9	45.1
	#6 Diancun village	51.7	42.9
13 April 2020	#1 Wongdun village	53.8	42.6
	#2 Xingxian village	50.4	42.8
	#3 Wuyi village	51.6	42.1
	#4 Wufu village	54.2	44.6
	#5 Tianwei village	51.9	45.1
	#6 Diancun village	52.3	43.5
22-23 Nov 2021	#1 Wongdun village	53.8	43.1

Date	Location	Daytime	Night time
	#2 Xingxian village	51.9	43.1
	#3 Wuyi village	53.4	42.1
	#4 Wufu village	54.2	43.4
	#5 Tianwei village	53.2	44.5
	#6 Diancun village	51.4	42.4
Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008)		60	50

## D. Yongding Subproject

### 1. External Monitoring Agency

The environmental monitoring for Yongding subproject was conducted by Fujian Zhongkai Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

### 2. Monitoring Location

The distribution of the monitoring locations for water, air, noise is shown in Table A2-10 and Figure A2-2.

**Table A2-10 List of Monitoring Locations of Yongding Subproject**

Item	Location
Surface water	#1 Oil tea base
	#2 Oil tea base
	#3 Vegetable base
Air and noise	#1 Oil tea base
	#2 Oil tea base
	#3 Vegetable base
	#4 Farmland
	#5 Wuyin village



**Figure A2-2 Monitoring location of Yongding subproject**

### 3. Monitoring Frequency

**Baseline monitoring.** No baseline monitoring was conducted due to delay of EMC engagement.

**Monitoring conducted during previous reporting periods.** Air quality, water quality and noise monitoring for Yongding subproject was conducted on 4-5 November 2019.

**Monitoring conducted during this reporting period.** None as no construction activities in this reporting period.

**Operation phase monitoring.** Not yet due.

### 4. Monitoring results

#### a. Water quality

Domestic wastewater quality monitoring was conducted at 3 construction bases. Monitoring results is presented in Table A2-11. The monitoring results show that water quality can meet the grade III of Environment Quality Standard of Surface Water.

**Table A2-11 Water Quality Monitoring Results of Yongding subproject (Unit: mg/m<sup>3</sup> except pH)**

Location	pH	COD <sub>cr</sub>	SS	Petroleum
<b>Monitoring during construction</b>				
1# Oil tea base	7.41	4	5	0.01L
2# Oil tea base	6.66	5	8	0.01L
3# Vegetable base	7.27	6	6	0.01L
Environment Quality Standard of Surface Water (GB3838—2002) Grade III	6-9	≤20	30	≤0.05

#### b. Air quality

Air quality monitoring results are presented in Table A2-12. Monitoring results show that air quality can meet Class II of Ambient Air Quality Standard (GB3095-2012).

**Table A2-12 Air Quality Monitoring Results of Yongding subproject (Daily average, unit: µg/m<sup>3</sup>)**

Date	Location	TSP	PM <sub>10</sub>
<b>Monitoring during construction</b>			
4-5 November 2019	#1 Oil tea base	117	40
	#2 Oil tea base	173	58
	#3 Vegetable base	115	45
	#4 Farmland	138	53
	#5 Wuyin village	97	37
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

#### c. Noise

Noise monitoring results are presented in Table A2-13.

**Table A2-13 Noise monitoring results of Yongding subproject (unit: dB(A))**

Date	Location	Daytime	Night time
<b>Monitoring during construction</b>			
4 November 2019	#1 Oil tea base	38.9	NA
	#2 Oil tea base	41.3	NA

Date	Location	Daytime	Night time
	#3 Vegetable base	53.08	NA
	#4 Farmland	43.0	NA
	#5 Wuyin village	43.6	NA
<b>Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008)</b>		60	50

The results show that noise level at all construction sites meet Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008).

## **E. Jiaocheng Subproject**

### **1. External Monitoring Agency**

The environmental monitoring for Jiaocheng subproject was conducted by Fujian Zhongke Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

### **2. Monitoring Location**

The distribution of the monitoring locations is shown in Figure A2-3.

### **3. Monitoring Frequency**

**Baseline.** There is no residential area near the Jiaocheng subproject site. Thus, no air and noise monitoring is needed. Baseline water quality was monitored for the subproject one month before construction on 20 November 2017.

**Monitoring during construction.** During construction period from end of 2017 to March 2019, water quality monitoring was conducted semi-annually.

**Monitoring during operation.** All civil work has been completed in March 2019 and the subproject entering operation stage since then. During this reporting period, on 18 September 2019, water quality monitoring was conducted during the first year of subproject operation at two sections of Huotong River, and on 7 January 2020, monitoring for the second year of subproject operation was completed.

**Monitoring conducted during this reporting period.** The subproject was completed, and no environmental monitoring is needed.



Figure A2-3 Monitoring location of Jiaocheng subproject

#### 4. Monitoring Results

Monitoring results are presented in Table A2-14. Monitoring results showed that the water quality at monitoring section of Huotong River can meet the Grade III of Environment Quality Standard of Surface Water (GB3838-2002). The water quality during construction and during operation has no big difference comparing with the baseline water quality. Implementation of the subproject has no impact on the water quality.

Table A2-14 Water Quality Monitoring Results of Jiaocheng subproject (unit: mg/m<sup>3</sup> except pH)

Monitoring date/time	Location/ River section	Monitoring results(mg/L, except pH			
		pH	COD	SS	Petroleum
Pre-construction baseline monitoring					
20 Nov 2017	Upstream of Huotong River	6.82	14	15	0.02
	Downstream of Huotong River	7.02	16	17	0.02
Water monitoring during construction					
21 June 2018	Upstream of Huotong River	6.80	15	16	0.02
	Downstream of Huotong River	7.00	16	16	0.02
23 Nov 2018	Upstream of Huotong River	6.76	15	16	0.02
	Downstream of Huotong River	6.98	18	18	0.03
Water monitoring during operation					
18 September 2019	Upstream of Huotong River	6.18	14	13	0.03
	Downstream of Huotong River	6.95	16	15	0.04



Monitoring date/time	Location/ River section	Monitoring results(mg/L, except pH			
		pH	COD	SS	Petroleum
7 Jan 2020	Upstream of Huotong River	6.92	17	16	0.03
	Downstream of Huotong River	6.85	15	14	0.02
Environment Quality Standard of Surface Water (GB3838—2002) Grade III		6-9	<=20	30	<=0.05

## F. Fu'an Subproject

### 1. External Monitoring Agency

The environmental monitoring for Jiaocheng subproject was conducted by Fujian Zhongke Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

### 2. Monitoring Location

The distribution of the monitoring locations is shown in Figure A2-4.

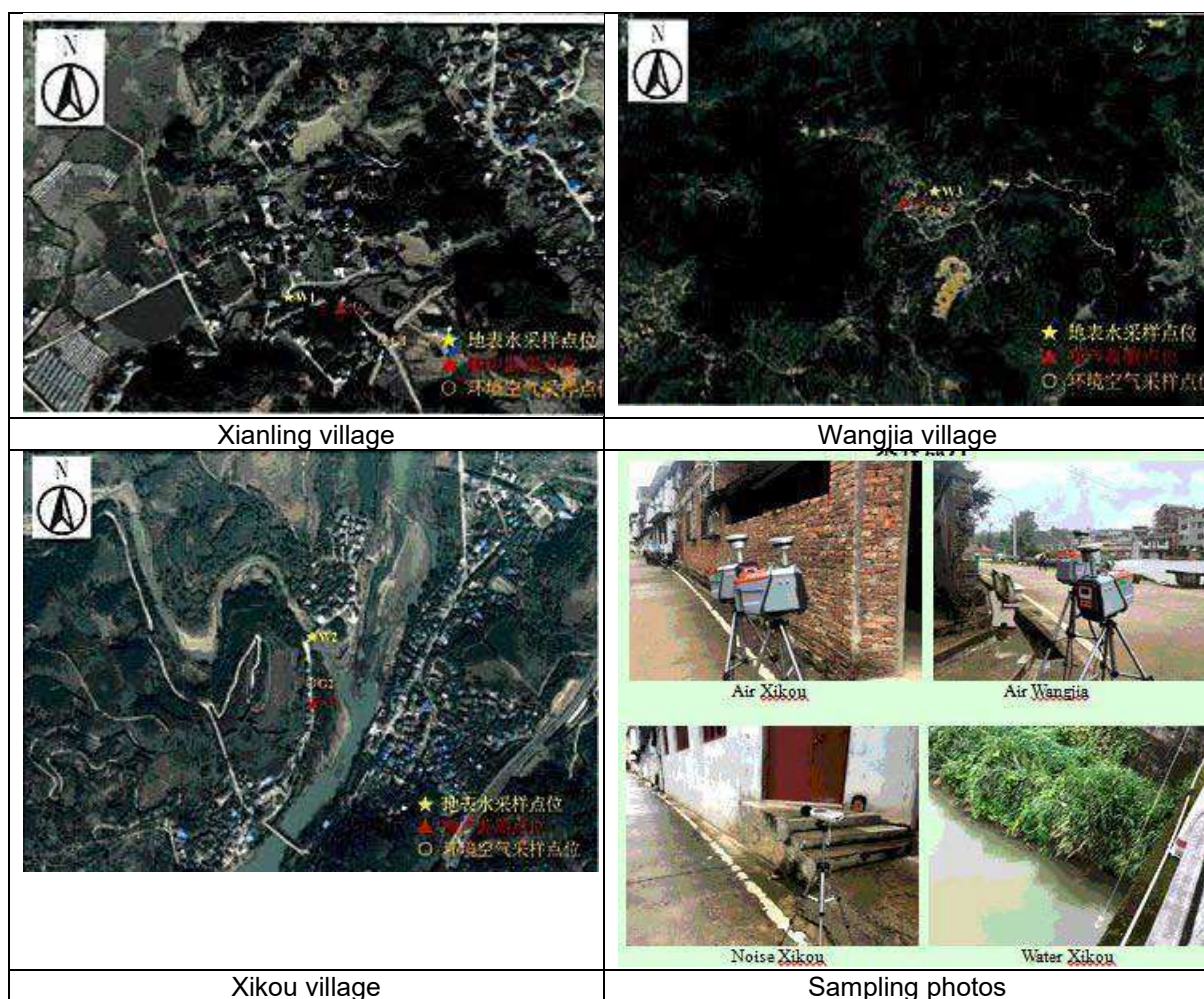


Figure A2-4 Monitoring locations of Fu'an subproject

### 3. Monitoring Frequency

**Baseline monitoring.** Baseline monitoring for air quality, noise level and water quality was monitored for the Fu'an Subproject on 25 November 2019.

**Monitoring conducted during previous reporting periods.** There is no construction during first quarter of this year due to COVID-19 impact. Air, noise and water were monitored on 20 June 2020. Air, acoustic environment and water quality were monitored at Xinling village, Xikou village and Wangjia village on 23 September 2020.

**Monitoring conducted during this reporting period.** None as no construction activities in this reporting period.

**Monitoring during operation.** Not yet due.

### 4. Monitoring Results

#### a. Water quality

Water quality monitoring results are presented in Table A2-15. The results show that water quality during construction can meet Grade III of Environment Quality Standard for Surface Water (GB3838-2002).

**Table A2-15 Water Quality monitoring results of Fu'an subproject (Unit: mg/L)**

Date	Locations	pH	COD	SS	Petroleum
<b>Pre-construction baseline monitoring</b>					
25 November 2019	#1 Xianling village	7.05	36	13	0.02
	#2 Xikou village	6.88	9	10	0.02
	#3 Wangjia village	7.12	13	16	0.03
<b>Monitoring during construction</b>					
20 June 2020	#1 Xianling village	7.09	18	14	0.02
	#2 Xikou village	7.16	9	8	0.02
	#3 Wangjia village	7.04	11	16	0.03
23 September 2020 (this reporting period)	#1 Xianling village	7.10	30	16	0.03
	#2 Xikou village	7.02	8	11	0.01
	#3 Wangjia village	7.20	10	19	0.04
<b>Environment Quality Standard for Surface Water (GB3838—2002) Grade III</b>		6-9	≤20	30	≤0.05

#### b. Air quality

Air quality monitoring results are presented in Table A2-16. The results show that air quality during construction can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-16 Air Quality Monitoring Results of Fu'an subproject (Daily average, unit: µg/m³)**

Date	Location	TSP	PM <sub>10</sub>
<b>Pre-construction baseline monitoring</b>			
25 November 2019	#1 Xianling village	79	47
	#2 Xikou village	82	61
	#3 Wangjia village	73	56
<b>Monitoring during construction</b>			
20 June 2020	#1 Xianling village	70	41
	#2 Xikou village	74	50
	#3 Wangjia village	65	46
	#1 Xianling village	68	47

Date	Location	TSP	PM <sub>10</sub>
23 September 2020 (this reporting period)	#2 Xikou village	75	53
	#3 Wangjia village	61	42
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

### c. Noise

Noise monitoring results are presented in Table A2-17. The results show that noise level at all sites meet Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008).

**Table A2-17 Noise monitoring results of Fu'an subproject (Unit: dB)**

Date	Location	Day	Night
<b>Pre-construction baseline monitoring</b>			
25 November 2019	#1 Xianling village	52.6	42.1
	#2 Xikou village	51.8	42.5
	#3 Wangjia village	53.1	41.3
<b>Monitoring during construction</b>			
20 June 2020	#1 Xianling village	52.9	43.4
	#2 Xikou village	51.7	44.1
	#3 Wangjia village	50.8	42.9
23 September 2020 (this reporting period)	#1 Xianling village	53.7	43.2
	#2 Xikou village	50.2	43.9
	#3 Wangjia village	51.8	42.5
<b>Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008)</b>		60	50

## G. Pinghe Subproject

### 1. External Monitoring Agency

The environmental monitoring for Pinghe subproject was conducted by Fujian Keyi Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

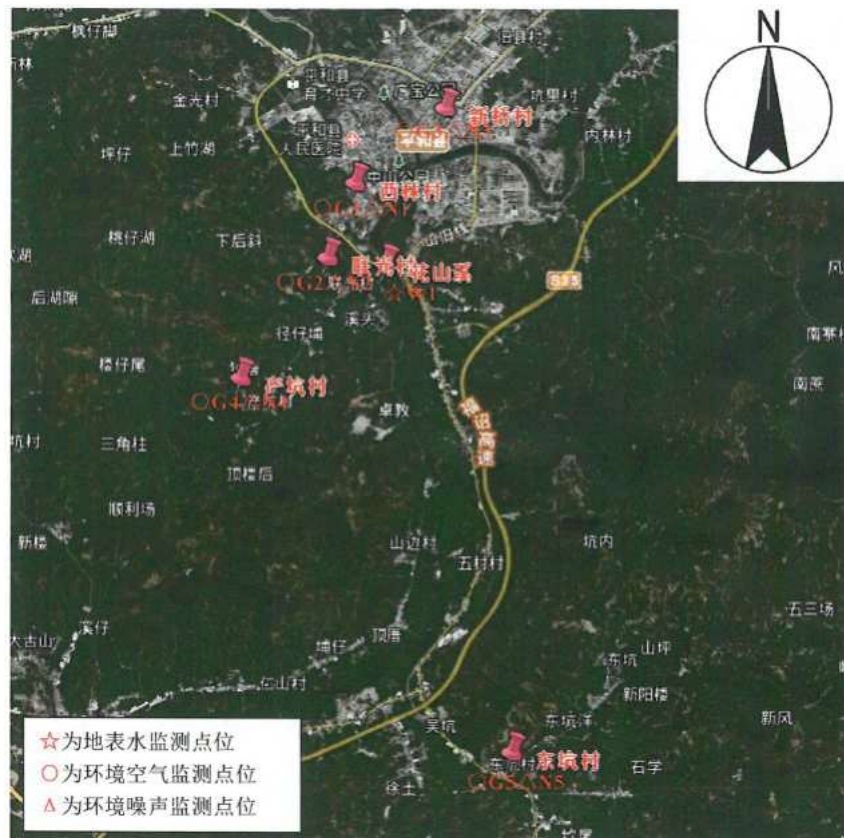
### 2. Monitoring Location

The distribution of the monitoring locations is shown in Table A2-18 and Figure A2-5.

**Table A2-18 List of Monitoring Locations of Pinghe Subproject**

Item	Location	Latitude	Longitude
Air and noise	Huashan creek	24.278714°N	117.308856°E
	#1 Xilin village	No coordinates provided in the monitoring report	
	#2 Lianguan village		
	#3 Xinqiao village		
	#4 Chankeng village		
	#5 Dongkeng village		





Note: Triangle represents noise; The five-pointed star represents surface water; The circle represents the air quality.

**Figure A2-5 Monitoring locations of Pinghe Subproject**

### 3. Monitoring Frequency

**Baseline monitoring.** Air quality, noise level and water quality was monitored for the Pinghe Subproject on 16 November 2019.

**Monitoring during previous reporting periods.** In the first quarter of 2020, due to the impact of COVID-19, there was no civil construction, so no environmental monitoring was carried out. In the second quarter of 2020, air quality (3 days), noise level (1day) and water quality (1day) were monitored on 21-23 June 2020. Air, noise level and water quality were monitored in 14-15 August 2021. Surface water quality, air quality and noise were monitored in 13-14 February 2022.

**Monitoring during this reporting period.** Surface water quality, air quality and noise were monitored in July and October 2022.

**Monitoring during operation.** Not yet due.

### 4. Monitoring Results

#### a. Water quality

Water quality monitoring results are presented in Table A2-19. The results show that baseline water quality before construction is high in petroleum. The pH value is lower than 6.0 which mean the water quality is acidic. Baseline water quality cannot meet Grade III of Environment Quality Standard for Surface Water (GB3838-2002).

During construction, water quality in February, July and October 2022 showed the COD was slightly higher than the Grade III but within the Grade IV (30 mg/L) of Environment Quality Standard for Surface Water (GB3838-2002). Based on interview with the CSC and PIU, the subproject did not discharge domestic sewage to the river. All workers are hired locally and resides in the village nearby. The major pollutants from construction wastewater are SS and petroleum that are unlikely to cause non-compliance of COD.

**Table A2-19 Water Quality monitoring results of Pinghe subproject (Unit: mg/L)**

Date	Locations	pH	COD	SS	Petroleum	Imn
<b>Pre-construction baseline monitoring</b>						
16 November 2019	#1 W1	5.7	2.2	13	0.31	/
	#2 W2	5.82	1.7	28	0.02	/
<b>Monitoring during construction</b>						
21 June 2020	#1 W1	5.94	NA	15	0.04	2.0
	#2 W2	6.02	NA	24	0.03	1.5
19 December 2020	#1 W1	6.62	18	13	0.03	/
	#2 W2	7.12	14	14	0.04	/
30 January 2021	#1 W1	6.94	18	13	0.04	/
	#2 W2	7.19	10	14	0.03	/
15 May 2021	#1 W1	6.93	18	12	0.04	/
	#2 W2	7.07	15	14	0.04	/
14 August 2021	#1 W1	6.89	20	18	0.02	/
	#2 W2	6.92	14	15	0.03	/
13 Feb 2022	Huashan creek	6.9	29	14	0.01	/
24 July 2022 (this reporting period)	Huashan creek	6.9	22	18	0.01	/
6 Oct 2022 (this reporting period)	Huashan creek	6.8	25	14	0.03	/
<b>Environment Quality Standard for Surface Water (GB3838—2002) Grade III</b>		6-9	<=20	30	<=0.05	/

#### b. Air quality

Air quality monitoring results are presented in Table A2-20. The results show that baseline air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-20 Air Quality Monitoring Results of Pinghe subproject (Daily average, unit: µg/m³)**

Date	Location	TSP	PM <sub>10</sub>
<b>Pre-construction baseline monitoring</b>			
16-17 November 2019	#1 Lianguang village	86	71-72
	#2 Dongdeng village	84-85	72-74
	#3 Guizhu village	84-87	73-74
	#4 Xinnan village	85	72-72
	#5 Sankeng village	84-86	71-73
	#6 Meishan village	84-86	71-73
<b>Monitoring during construction</b>			
21-23 June 2020	#1 Lianguang village	No construction	No construction
	#2 Dongdeng village	83-89	67-79
	#3 Guizhu village	85-91	72-78
	#4 Xinnan village	87-92	69-73
	#5 Sankeng village	No construction	No construction
	#6 Meishan village	No construction	No construction

Date	Location	TSP	PM <sub>10</sub>
17-18 October 2020	#2 Dongdeng village	77-78	33-34
	#3 Guizhu village	71-76	31-32
	#4 Xinnan village	72-76	29-33
19-20 December 2020	#2 Dongdeng village	78-79	34-35
	#3 Guizhu village	75-76	31-32
	#4 Xinnan village	75-77	32-33
	#5 Sankeng village	74-78	30-34
	#6 Meishan village	72-73	29-30
30-31 January 2021	#2 Dongdeng village	78-79	34-35
	#3 Guizhu village	75-76	31-33
	#4 Xinnan village	74-79	32-35
	#5 Sankeng village	75-79	30-35
	#6 Meishan village	73-74	29-34
15-16 May 2021	#2 Dongdeng village	77-78	33
	#3 Guizhu village	72-74	30
	#4 Xinnan village	73-78	30-33
	#5 Sankeng village	70-75	31-32
	#6 Meishan village	76-77	32-33
14-15 August 2021	#2 Dongdeng village	68-69	33
	#3 Guizhu village	70-71	35-36
	#4 Xinnan village	76-78	29-35
	#5 Sankeng village	68-75	30-35
	#6 Meishan village	73-75	35-36
Feb 13 2022	Xilin village	59	34
	Lianguang village	67	38
	Xingqiao village	63	31
	Chankeng village	66	32
	Dongkeng village	68	37
24 July 2022(this reporting period)	Xilin village	61	32
	Lianguang village	66	37
	Xingqiao village	68	39
	Chankeng village	63	34
	Dongkeng village	67	29
6 Oct 2022(this reporting period)	Xilin village	70	29
	Lianguang village	68	31
	Xingqiao village	75	34
	Chankeng village	80	41
	Dongkeng village	73	38
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

### c. Noise

Noise monitoring results are presented in Table A2-21.

**Table A2-21 Noise monitoring results of Pinghe subproject (Unit: dB)**

Date	Location	Day	Night
Pre-construction baseline monitoring			
16 November 2019	#1 Lianguang village	57	NA
	#2 Dongdeng village	57	
	#3 Guizhu village	57	
	#4 Xinnan village	58	
	#5 Sankeng village	58	
	#6 Meishan village	53	
Monitoring during construction			
21 June 2020	#1 Lianguang village	No construction	NA
	#2 Dongdeng village	56	
	#3 Guizhu village	56	

	#4 Xinnan village	57	
	#5 Sankeng village	No construction	
	#6 Meishan village	No construction	
17 October 2020	#2 Dongdeng village	58.3	
	#3 Guizhu village	56.8	
	#4 Xinnan village	59.4	
19 December 2020	#2 Dongdeng village	57.2	
	#3 Guizhu village	58.6	
	#4 Xinnan village	56.9	
	#5 Sankeng village	59.4	
	#6 Meishan village	55.9	
30 January 2021	#2 Dongdeng village	56.2	
	#3 Guizhu village	56.4	
	#4 Xinnan village	57.4	
	#5 Sankeng village	56.9	
	#6 Meishan village	55.8	
15 May 2021	#2 Dongdeng village	57.3	
	#3 Guizhu village	55.8	
	#4 Xinnan village	56.4	
	#5 Sankeng village	58.1	
	#6 Meishan village	57.9	
14 August 2021	#2 Dongdeng village	58.6	
	#3 Guizhu village	56.4	
	#4 Xinnan village	57.3	
	#5 Sankeng village	56.8	
	#6 Meishan village	58.5	
Feb 13 2022	Xilin village	55	/
	Lianguang village	55	/
	Xinqiao village	57	/
	Chankeng village	55	/
	Dongkeng village	54	/
24 July 2022(this reporting period)	Xilin village	56	/
	Lianguang village	57	/
	Xinqiao village	55	/
	Chankeng village	54	/
	Dongkeng village	56	/
6 Oct 2022(this reporting period)	Xilin village	59	/
	Lianguang village	53	/
	Xinqiao village	59	/
	Chankeng village	54	/
	Dongkeng village	56	/
<b>Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008)</b>		60	50

The results show that noise level at all sites meet Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011).

## H. Ninghua Subproject

### 1. External Monitoring Agency

The environmental monitoring for Ninghua subproject was conducted by Sanming Houde Test Technology Co., Ltd which is a certificated environment monitoring company. Certification of the EMC is attached in Appendix 3.

## 2. Monitoring Location

The distribution of the monitoring locations is shown in Table A2-22.

**Table A2-22 List of Monitoring Locations of Ninghua Subproject**

Item	Location	Latitude	Longitude
Water	East creek	26°20'11.39"N	116°43'30.32"E
	West creek	26°15'35.84"N	116°36'12.25"E
Air and noise	#1 Wuceng village	26°17'47.48"N	116°35'19.42"E
	#2 Lianshe village	26°20'09.85"N	116°43'39.07"E

## 3. Monitoring Frequency

**Baseline monitoring.** Air quality, noise level and water quality was monitored for the Ninghua Subproject on 24 July 2019.

**Monitoring during construction.** In the first quarter of 2020, due to the impact of COVID-19, there was no civil construction, so no environmental monitoring was carried out. In the second quarter of 2020, air quality (2 days), noise level and water quality were monitored on 19-20 May 2020.

**Monitoring conducted during this reporting period.** None as no construction activities in this reporting period.

**Operation phase monitoring.** Air, water and acoustic environment quality were monitored in July 28, 2021. No monitoring is needed in this reporting period.

## 4. Monitoring Results

### a. Water quality

Water quality monitoring results are presented in Table A2-23. The results show that baseline SS concentration is high in East creek and West creek. Baseline water quality cannot meet Grade III of Environment Quality Standard for Surface Water (GB3838-2002).

During construction, SS concentration in West creek is high which exceed the limit defined in Grade III of Environment Quality Standard for Surface Water (GB3838-2002).

**Table A2-23 Water Quality monitoring results of Ninghua subproject (Unit: mg/L)**

Date	Locations	pH	COD	SS	Petroleum
<b>Pre-construction baseline monitoring</b>					
24 July 2019	#1 East creek	7.19	7.94	38	0.04
	#2 West creek	7.02	8.58	33	0.04
<b>Monitoring during construction</b>					
19-20 May 2020	#1 East creek	7.04	17	24	0.03
	#2 West creek	7.14	20	40	0.03
<b>Monitoring during operation</b>					
28 July 2021	#1 East creek	7.4	15	11	<0.01
	#2 West creek	7.3	12	12	<0.01
Not construction initiated during reporting period					
<b>Environment Quality Standard for Surface Water (GB3838—2002) Grade III</b>		6-9	<=20	30	<=0.05

## b. Air quality

Baseline air quality was conducted at two environment sensitive locations near proposed construction sites. Air quality monitoring results are presented in Table A2-24. The results show that baseline air quality is very good and can meet Class II Ambient Air Quality Standard (GB3095-2012).

During reporting period, air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-24 Air Quality Monitoring Results of Ninghua subproject (Daily average, unit:  $\mu\text{g}/\text{m}^3$ )**

Date	Location	TSP	PM <sub>10</sub>
<b>Pre-construction baseline monitoring</b>			
24 July 2019	#1 Wuceng village	23	17
	#2 Lianshe village	28	22
<b>Monitoring during construction</b>			
19-20 May 2020	#1 Wuceng village	74-79	44-47
	#2 Lianshe village	77-86	38-52
<b>Monitoring during operation</b>			
28 July 2021	#1 Wuceng village	98	43
	#2 Lianshe village	93	41
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

## c. Noise

Noise monitoring results are presented in Table A2-25. The results show that noise level at all sites meet Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011).

**Table A2-25 Noise monitoring results of Ninghua subproject (Unit: dB)**

Date	Location	Day	Night
<b>Pre-construction baseline monitoring</b>			
24 July 2019	#1 Wuceng village	42	39
	#2 Lianshe village	52	50
<b>Monitoring during construction</b>			
19 May 2020	#1 Wuceng village	44	43
	#2 Lianshe village	50	47
<b>Monitoring during operation</b>			
28 July 2021	#1 Wuceng village	49.3	46.0
	#2 Lianshe village	43.8	42.5
<b>Class 2 of Ambient Acoustic Environment Standard (GB 3096-2008)</b>		60	50

## I. Xinluo Subproject

### 1. External Monitoring Agency

The environmental monitoring for Xinluo subproject was conducted by Fujian Huafei Test Technology Co., Ltd which is a certificated environment monitoring company.

### 2. Monitoring Location

The distribution of the monitoring locations is shown in Table A2-26 and Figure A2-6.

**Table A2-26 List of Monitoring Locations of Xinluo Subproject**



Item	Location
Water	Shizhong creek
Air	#1 Zhongxi village
	#2 Zhongxin village
Noise	N1 North boundary
	N2 East boundary
	N3 South boundary
	N4 West boundary

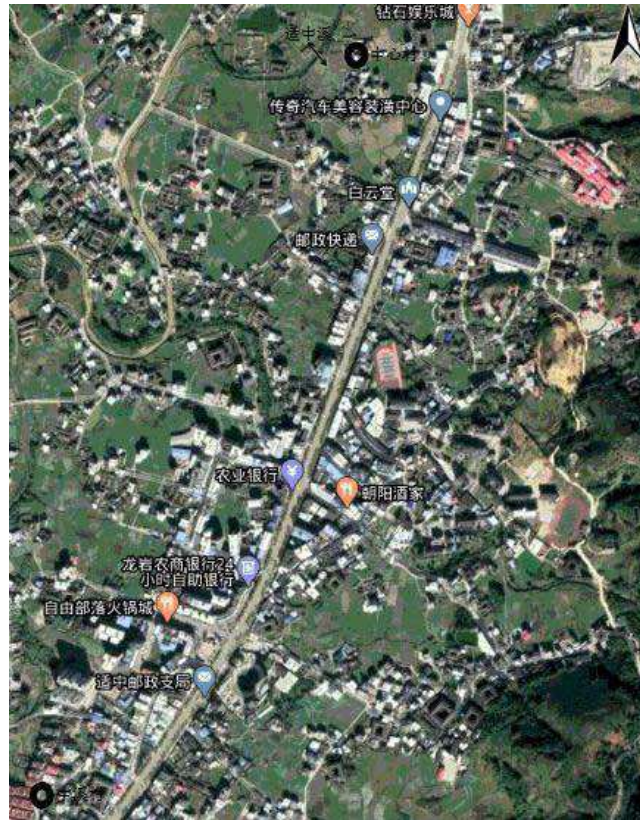


Figure A2-6 Monitoring locations of Xinluo Subproject

### 3. Monitoring Frequency

**Baseline monitoring.** Air quality, noise level and water quality was monitored for the Xinluo Subproject on 20 February 2020.

**Monitoring during previous reporting periods.** In the first quarter of 2020, due to the impact of COVID-19, there was no civil construction, so no environmental monitoring was carried out. In the second quarter of 2020, air quality, noise level and water quality were monitored on 23-27 May 2020. Water quality of Shizhong creek was monitored on 10 September 2020. Noise and air quality were monitored at Zhongxi village and Zhongxin village on September and November 2020 respectively.

**Monitoring conducted during this reporting period.** None as no construction activities in this reporting period.

**Operation phase monitoring.** Not yet due.

### 4. Monitoring Results

#### a. Water quality

Water quality monitoring results are presented in Table A2-27. The results show that baseline COD concentration in Shizhong creek is high that cannot meet Grade III of Environment Quality Standard for Surface Water (GB3838—2002).

During construction, COD concentration in Shizhong creek is high which exceeds the limit defined in Grade III of Environment Quality Standard for Surface Water (GB3838—2002). This is mainly because the baseline COD concentration is high. The monitoring results on September 2020 showed all monitored indicators complied with the requirements of Grade III of GB 3838-2002).

**Table A2-27 Water Quality monitoring results of Xinluo subproject (Unit: mg/L)**

Date	Locations	pH	COD	SS	Petroleum
<b>Pre-construction baseline monitoring</b>					
20 Feb 2020	Shizhong creek	6.67	30	20	0.01
<b>Monitoring during construction</b>					
24 May 2020	Shizhong creek	6.73	30	20	0.01
10 Sep 2020 (this reporting period)	Shizhong creek	7.05	4L	5	0.01
<b>Environment Quality Standard for Surface Water (GB3838-2002) Grade III</b>		6-9	≤20	30	≤0.05

#### b. Air quality

Air quality monitoring results are presented in Table A2-28. The results show that baseline air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

During reporting period, air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-28 Air Quality Monitoring Results of Xinluo subproject (Daily average, unit: µg/m3)**

Date	Location	TSP	PM <sub>10</sub>
<b>Pre-construction baseline monitoring</b>			
20 Feb 2020	#1 Zhongxi village	53	38



Date	Location	TSP	PM <sub>10</sub>
	#2 Zhongxin village	51	30
<b>Monitoring during construction</b>			
10-11 Sep 2020	#1 Zhongxi village	65-69	20-22
(this reporting period)	#2 Zhongxin village	32-38	41-47
29-30 Nov 2020	#1 Zhongxi village	40-45	21-24
(this reporting period)	#2 Zhongxin village	51-55	31-38
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

### c. Noise

Noise monitoring results are presented in Table A2-29. The results show that noise level at all sites meet Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011).

**Table A2-29 Noise monitoring results of Xinluo subproject (Unit: dB)**

Date	Location	Day	Night
<b>Pre-construction baseline monitoring</b>			
20 Feb 2020	#1 North boundary	68	
	#2 East boundary	67	
	#3 South boundary	66	
	#4 West boundary	66	
<b>Monitoring during construction</b>			
23 May 2020	#1 North boundary	67	
	#2 East boundary	68	
	#3 South boundary	67	
	#4 West boundary	65	
10 Sep 2020	#1 North boundary	64.7	
	#2 East boundary	65.6	
	#3 South boundary	62.8	
	#4 West boundary	66.2	
29 Nov 2020	#1 North boundary	61.7	
	#2 East boundary	60.1	
	#3 South boundary	59.8	
	#4 West boundary	60.3	
<b>Environment noise standard for boundary of construction site (GB 12523-2011)</b>		70	55

## J. Shouning Subproject

### 1. External Monitoring Agency

The environmental monitoring for Shouning subproject was conducted by Fujian Huaqi Test Technology Co., Ltd which is a certificated environment monitoring company.

### 2. Monitoring Location

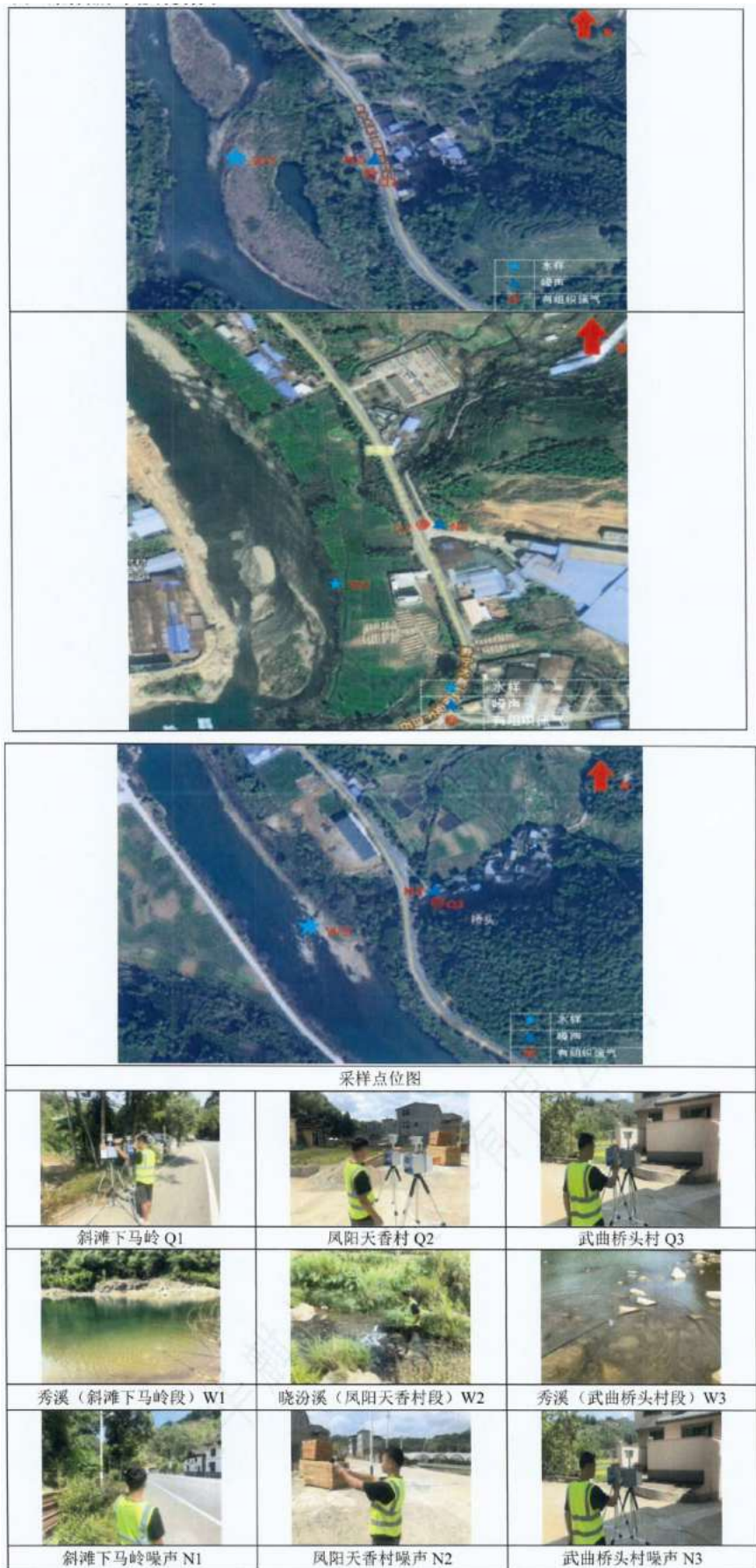
The distribution of the monitoring locations is shown in Table A2-30 and Figure A2-7.

**Table A2-30 List of Monitoring Locations of Shouning Subproject**

Item	Location
Water	Shoutai creek (Jiakeng village section)
	Xipu creek (Da'an township section)
	Xiuxi creek (Xietan Xiamaling section)

Item	Location
Air and noise	Xiaofen creek (Fengyang Tianxiang village section)
	Xiuxi creek (Wuqu Qiaotou village section)
	Jiakeng village
	Da'an township
	Xietang Xiamaling
	Fengyang Tianxiang village
	Wuqu Qiaotou village
	Xiadang township
	Qinyang township
	Pixi town
	Xixi town
	Shigu village of Nanyang town
	Shankeng village of Nanyang town
	Chilingyang village of Nanyang town





Note: N=noise; W=water; Q=air quality

**Figure A2-7 Monitoring locations of Shouning Subproject**

### 3. Monitoring Frequency

**Baseline monitoring.** Air quality, noise level and water quality was monitored for the Shouning Subproject in 2019.

**Monitoring during previous reporting periods.** This is the first monitoring for Shouning subproject.

**Monitoring conducted during this reporting period.** Air, noise and surface water were monitored in July, September and October 2022.

**Operation phase monitoring.** Not yet due.

### 4. Monitoring Results

#### a. Water quality

Water quality monitoring results are presented in Table A2-31. During construction, COD concentration in all creeks except for the Xipu creeks exceeds the limit defined in Grade III of Environment Quality Standard for Surface Water (GB3838-2002) but within the thresholds for Grade V water body (40 mg/L). The construction activities during this reporting period were road foundation and pavement construction. The workers are hired locally without construction camp near the site. The subproject did not discharge domestic sewage to the river. The major pollutants from construction wastewater are SS and petroleum and are unlikely to cause non-compliance of COD. Based on the interview with the PIU and CSC, this is mainly due to non-point pollution sources prevalent in the area.

**Table A2-31 Water Quality monitoring results of Shouning subproject (Unit: mg/L)**

Date	Locations	pH	COD	SS	Petroleum
<b>Monitoring during construction</b>					
27 July 2022	Shoutai creek	7.0	22.1	8	0.03
	Xipu creek	6.4	8.15	7	0.02
22 Sep 2022	Xiuxi creek (Xietan Xiamaling section)	7.5	22.5	16	0.03
	Xiaofen creek (Fengyang Tianxiang village section)	7.2	26.1	13	0.02
	Xiuxi creek (Wuqu Qiaotou village section)	7.5	27.4	19	0.03
26 Oct 2022	Xiadang township	7.3	40	15	0.03
	Qinyang township	7.2	23.2	14	0.02
	Pingxi town	7.4	32.6	17	0.03
28 Oct 2022	Xixi town	7.6	25.6	12	0.03
	Shigu village	7.5	27.4	17	0.03
	Shankeng village	7.1	30.2	16	0.02
	Chilingyang village	7.0	21.3	19	0.03
<b>Environment Quality Standard for Surface Water (GB3838-2002) Grade III</b>		6-9	≤20	30	≤0.05

**b. Air quality**

Air quality monitoring results are presented in Table A2-32. The results show that baseline air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

During reporting period, air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-32 Air Quality Monitoring Results of Shouning subproject (Daily average, unit:  $\mu\text{g}/\text{m}^3$ )**

Date	Location	TSP	PM <sub>10</sub>
<b>Monitoring during construction</b>			
30 July 2022	Jiakeng village	39	25
	Da'an township	37	28
31 July 2022	Jiakeng village	37	27
	Da'an township	38	27
22 Sep 2022	Xietang Xiamaling	27	13
	Fengyang Tianxiang village	27	12
	Wuqu Qiaotou village	26	15
23 Sep 2022	Xietang Xiamaling	29	12
	Fengyang Tianxiang village	27	14
	Wuqu Qiaotou village	28	13
30 Oct 2022	Jiakeng village	90	35
	Da'an township	88	26
31 Oct 2022	Jiakeng village	79	25
	Da'an township	83	37
1 Nov 2022	Xietang Xiamaling	103	28
	Fengyang Tianxiang village	110	23
	Wuqu Qiaotou village	103	47
2 Nov 2022	Xietang Xiamaling	106	33
	Fengyang Tianxiang village	95	42
	Wuqu Qiaotou village	83	26
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

**c. Noise**

Noise monitoring results are presented in Table A2-29. The results show that noise level at all sites meet Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011).

**Table A2-33 Noise monitoring results of Shouning subproject (Unit: dB)**

Date	Location	Day	Night
<b>Monitoring during construction</b>			
30 July 2022	Jiakeng village	52	/
	Da'an township	52	/
22 Sep 2022	Xietan Xiamaling	55	/
	Fengyang Tianxiang village	51	/
	Wuqu Qiaotou village	52	/
26 Oct 2022	Xiadang township	53	/
	Qinyang township	55	/
	Pingxi town	54	/
28 Oct 2022	Xixi town	53	/
	Shigu village	52	/
	Shankeng village	53	/
	Chilingyang village	54	/
30 Oct 2022	Jiakeng village	53	/
	Da'an township	52	/
1 Nov 2022	Xietan Xiamaling	54	/





### 3. Monitoring Frequency

**Baseline monitoring.** Air quality, noise level and water quality was monitored for the Pucheng Subproject in 2019.

**Monitoring during previous reporting periods.** This is the first monitoring for Pucheng subproject.

**Monitoring conducted during this reporting period.** Air and noise were monitored in July 2022.

**Operation phase monitoring.** Not yet due.

### 4. Monitoring Results

#### a. Air quality

Air quality monitoring results are presented in Table A2-35. The results show that baseline air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

During reporting period, air quality can meet Class II Ambient Air Quality Standard (GB3095-2012).

**Table A2-35 Air Quality Monitoring Results of Pucheng subproject (Daily average, unit:  $\mu\text{g}/\text{m}^3$ )**

Date	Location	TSP	PM <sub>10</sub>
<b>Monitoring during construction</b>			
26-27 July 2022	Guancuo township	102	62
	Fuling town	114	55
27-28 July 2022	Guancuo township	112	59
	Fuling town	108	57
<b>Class II Ambient Air Quality Standard (GB3095-2012)</b>		300	150

#### b. Noise

Noise monitoring results are presented in Table A2-36. The results show that noise level at all sites meet Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011).

**Table A2-36 Noise monitoring results of Pucheng subproject (Unit: dB)**

Date	Location	Day	Night
<b>Monitoring during construction</b>			
26 July 2022	Guancuo township	54.3	40.2
	Fuling town	54.6	41.1
27 July 2022	Guancuo township	54.2	40.2
	Fuling town	54.1	40.1
<b>Environment noise standard for boundary of construction site (GB 12523-2011)</b>		70	55

### APPENDIX 3. EMC CERTIFICATES

 <p><b>检验检测机构 资质认定证书</b> 副本</p> <p>证书编号: 181312050007</p> <p>名称: 福建三明厚德检测技术有限公司</p> <p>地址: 福建省三明市三元区长安路21号4幢四层1号</p> <p>经审查, 你机构已具备国家有关法律、行政法规规定的基本条件和能力, 现予批准, 可以向社会出具具有证明作用的数据和结果, 特发此证。资质认定包括检验检测机构计量认证。检验检测能力及授权签字人见证书附表。</p> <p>你机构对外出具检验检测报告或证书的法律责任由福建三明厚德检测技术有限公司承担。</p> <p>许可使用标志:  181312050007</p> <p>发证日期: 2018年1月11日 有效期至: 2024年1月10日 发证机关: 福建省质量技术监督局</p> <p>本证书由国家认证认可监督管理委员会监制, 在中华人民共和国境内有效。</p>	 <p><b>检验检测机构 资质认定证书</b></p> <p>证书编号: 17120240947</p> <p>名称: 福建中德环境技术有限公司</p> <p>地址: 福州市仓山区建新镇金山北路6号海星五层501-502</p> <p>经审查, 你机构已具备国家有关法律、行政法规规定的基本条件和能力, 现予批准, 可以向社会出具具有证明作用的数据和结果, 特发此证。资质认定包括检验检测机构计量认证。检验检测能力及授权签字人见证书附表。</p> <p>许可使用标志:  17120240947</p> <p>发证日期: 2017年3月16日 有效期至: 2023年3月14日 发证机关: 福建省质量技术监督局</p> <p>本证书由国家认证认可监督管理委员会监制, 在中华人民共和国境内有效。</p>
<p>Certification of Datian Subproject EMC - Fujian Sanming Houde Environmental Test Technology Co. Ltd</p>	<p>Certification of Yongding Subproject EMC - Fujian Zhongkai Environmental Test Technology Co. Ltd</p>

 <p><b>检验检测机构 资质认定证书</b></p> <p>证书编号: 181312052004</p> <p>名称: 厦门科仪检测技术有限公司</p> <p>地址: 厦门火炬高新区(翔安)产业区翔星路88号台湾科技企业育成中心603室</p> <p>经审查, 你机构已具备国家有关法律、行政法规规定的基本条件和能力, 现予批准, 可以向社会出具具有证明作用的数据和结果, 特发此证。资质认定包括检验检测机构计量认证。检验检测能力及授权签字人见证书附表。</p> <p>你机构对外出具检验检测报告或证书的法律责任由厦门科仪检测技术有限公司承担。</p> <p>许可使用标志:  181312052004</p> <p>发证日期: 2017年8月14日 有效期至: 2021年12月9日 发证机关: 福建省质量技术监督局</p> <p>本证书由国家认证认可监督管理委员会监制, 在中华人民共和国境内有效。</p>	 <p><b>检验检测机构 资质认定证书</b></p> <p>证书编号: 171312050270</p> <p>名称: 福建中德环境检测技术有限公司</p> <p>地址: 福建省福州市金山区建新镇建新北路147号4号楼503-505 厦门市仓山区建新镇建南路143号(分楼区)505-507</p> <p>经审查, 你机构已具备国家有关法律、行政法规规定的基本条件和能力, 现予批准, 可以向社会出具具有证明作用的数据和结果, 特发此证。资质认定包括检验检测机构计量认证。检验检测能力及授权签字人见证书附表。</p> <p>你机构对外出具检验检测报告或证书的法律责任由福建中德环境检测技术有限公司承担。</p> <p>许可使用标志:  171312050270</p> <p>发证日期: 2017年6月29日 有效期至: 2023年6月28日 发证机关: 福建省质量技术监督局</p> <p>本证书由国家认证认可监督管理委员会监制, 在中华人民共和国境内有效。</p>
<p>Certification of EMC for Pinghe subprojects – Xiamen KeyiTest Technology Co. Ltd</p>	<p>Certification of EMC for Jiaocheng, Wuyishan and Fu'an subprojects - Fujian Zhongke Environmental Test Technology Co. Ltd</p>



 <p>检验检测机构 资质认定证书</p> <p>证书编号: 191302060853</p> <p>名称: 福建华旗检测技术有限公司</p> <p>地址: 平潭县潭江镇海坛路2号二楼</p> <p>经审查, 你机构已具备国家有关法律、行政法规规定的基本条件, 符合《检验检测机构资质认定管理办法》的要求, 准予认定。本证书的有效性依赖于你机构持续符合认证标准的要求, 并接受本机构的监督。本证书的有效性依赖于你机构持续符合认证标准的要求, 并接受本机构的监督。</p> <p>发证日期: 2020年1月10日 有效期至: 2024年1月9日 发证机关: 福建省市场监督管理局</p> <p>MA 191302060853</p> <p>本证书由福建省市场监督管理局颁发, 中华人民共和国国家质量监督检验检疫总局</p>	 <p>检验检测机构 资质认定证书 副本</p> <p>证书编号: 201312110603</p> <p>名称: 福建民晋检测技术有限公司</p> <p>地址: 福建省福州市仓山区盖山一路1号202室</p> <p>经审查, 你机构已具备国家有关法律、行政法规规定的基本条件, 符合《检验检测机构资质认定管理办法》的要求, 准予认定。本证书的有效性依赖于你机构持续符合认证标准的要求, 并接受本机构的监督。本证书的有效性依赖于你机构持续符合认证标准的要求, 并接受本机构的监督。</p> <p>你机构对作出检验检测报告或证书的法律责任由你机构承担。</p> <p>许可使用标志: 发证日期: 2020年6月28日 有效期至: 2024年6月27日 发证机关: 福建省市场监督管理局</p> <p>MA 201312110603</p> <p>本证书由福建省市场监督管理局颁发, 中华人民共和国国家质量监督检验检疫总局</p>
<p>Fujian Huaqi Testing Technology Co., Ltd for Shouning subproject</p>	<p>Fujian Minjinlan Testing Technology Co., Ltd for Pucheng subproject</p>



## APPENDIX 4 SAMPLE OF CSC ENVIRONMENTAL MONITORING REPORT

(Translation version)


### 1. Basic information



Project name (contract package number)	Pucheng Sub-Project of 5,678 mu of high-quality rice base - Infrastructure renovation FJ-PC-CW-01
Report preparation date	Jan 2023
CSC Name	Fujian Runmin Engineering Consulting Co., LTD., Synheng Mutual Construction Project Management Co., LTD
Environmental personnel of CSC Contact	Wu Weilin 18706065823
Contractor Name	Fujian Water Resources and Hydropower Engineering Bureau Co., LTD
Environmental personnel of contractor Contact	Wu Zhanggui 13728965607
Prepared by	Wu Weilin
Mobilization date	July 1, 2022
Estimated date of completion	July 1, 2023

### 2. Works completed in this reporting period

60% of the works completed.

### 3. Environmental protection and safety management measures mainly adopted in this reporting period

Management of environment, health and safety	Description (with photos)
Air pollution prevention and control Construction site enclosure file, protection, sprinkler, fog gun machine, car washing platform, green net covering, transport vehicle cover, etc.	<p>During the construction period of the project, water and dust suppression, garbage storage and transportation, material stacking and covering, green net covering of exposed earth abandoned soil are adopted to prevent and control the pollution caused by construction dust.</p> 

Noise	<p>The main construction content of this project is field road engineering and water conservancy facilities engineering, the construction site has no noise pollution sources, no noise pollution.</p> 
Construction sewage	<p>The main construction content of this project for field road engineering and water conservancy facilities engineering without the generation of construction sewage.</p> 
Domestic sewage	<p>After the domestic sewage generated by the project department is treated by the tertiary septic tank and reaches the docking standard of the municipal pipe network, it is included into the sewage treatment plant of Zhongxin Town of Pucheng County for centralized treatment.</p>
Construction waste	<p>The construction site is equipped with a worker especially responsible for the management of garbage, the garbage category signs as far as possible to be clear and easy to identify, the project leader to carry out irregular inspection and supervision, strive to do a good job of the construction personnel's environmental awareness and the concept of rational use of resources, protect the environment of the site.</p>
Household garbage	<p>Domestic garbage is collected once a week according to the season. For example, in the high temperature season, in order to prevent flies or other mosquitoes, it is transported to the designated garbage dump every two days.</p>
Water protection measures	<p>Do a good job of soil and water loss prevention, slope excavation protection and soil loss prevention, slope excavation in accordance with the requirements of the design drawings, do a good job of the boundary measurement and control, it is strictly prohibited to go beyond the boundary excavation.</p> <p>Corresponding measures should be taken during excavation to prevent water and soil loss from scouring the river and causing siltation. After the excavation of the slope according to the design requirements of timely support, and do a good job around the drainage facilities, for slope stability and water and soil conservation.</p>



<p>Occupational health and safety of construction workers</p>	<p>Organize regular training and work with certificates, strictly implement the rules and regulations of production safety.</p> 
<p>Surrounding residents safety: warning signs, enclosures, etc</p>	<p>To ensure the safety of residents around the construction site, set up a warning line in the earthwork excavation section during the construction of the line, set up alarm signs, and hang warning lights at night. When the construction site is on the road, warning signs should be set up at a certain distance from the construction site or people should be sent to conduct traffic flow management according to traffic laws and regulations.</p> 
<p>Epidemic prevention and control</p>	<p>Sufficient epidemic prevention materials should be stored at the construction site. Medical masks, thermometers (forehead temperature gun), special garbage cans for mask waste, disinfectant water, hand sanitizer and medicines should be prepared according to the number of people. Site hygienists are responsible for monitoring body temperature, ventilation and disinfection, distributing and supervising the use of personal protective equipment, and publicity and education.</p> 

<p>Temporary traffic management</p>	<p>All the vehicles in the construction site service of the project Department should consciously abide by the "Road Traffic Management Regulations of the People's Republic of China" and the internal traffic management measures of the project Department, so that the vehicle condition is good, the vehicle appearance is clean, the three certificates are complete, consciously obey the command of the project department dispatcher, in strict accordance with the site traffic signs and the actual safety of the road.</p> 
<p>Information disclosure:  Construction site information five cards a picture, environmental appeal mechanism public board, a variety of environmental protection and production safety systems.</p>	
<p>Construction site entrance management</p>	<p>All construction personnel of the project Department shall voluntarily accept the management of the security and watchman, and abide by the access management regulations of the construction site and various areas. It is forbidden to enter the construction site after drinking alcohol, barefoot, wearing slippers, bare-breasted, half-dressed.</p> <p>All construction vehicles of the project department shall be equipped with enterprise identification and unified tags (such as vehicle access permits) that are convenient for construction site security and watchmen to identify immediately outside the vehicle in a prominent position outside the front, and consciously accept the management of construction site security and watchmen, and comply with the access management regulations of various areas. All construction vehicles of the project Department shall drive and park in accordance with the prescribed lines, and shall maintain good safety performance and clean condition.</p> <p>Unauthorized entry into the construction site by personnel unrelated to the project construction is prohibited. In special circumstances, they must be accompanied by the relevant management personnel of the project department and comply with the access management regulations of various areas.</p>

**4. Environment, health and safety training activities organized during the reporting period**

Training time	Number of people trained	Photos
Dec 30, 2022	18	

**3. Environmental and social complaints**

When Complaints are received	None
Content of complaint (e.g., traffic congestion, noise, dust)	None
Solutions	/
Whether residents are satisfied with the solution	/
Whether follow-up measures are needed	/

**6. Have you received any punishment from environmental protection authorities during this reporting period? If yes, please explain the reasons for the punishment and corrective measures.**

No.

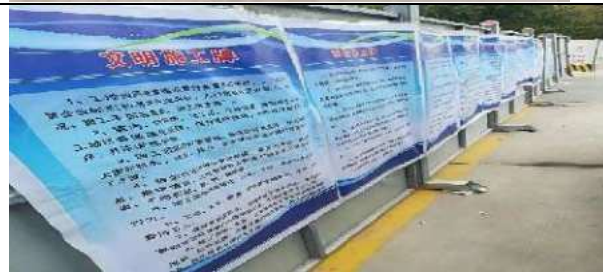


## APPENDIX 5 CONSTRUCTION SITE PHOTOS





EHS training, 20 persons participated



Pucheng (FJ-PC-CW-03)



EHS training, 17 persons participated.



Shouning (FJ-SN-CW-01)







Shouning (FJ-SN-CW-04)



Shouning (FJ-SN-CW-05)









Shouning (FJ-SN-CW-06)



## APPENDIX 6 TRAINING MATERIALS

### (1) Safeguards training

#### Training Agenda:

#### 福建省水土保持与乡村发展亚行贷款项目中心

#### 关于开展亚行贷款项目社会和环境安保系列线上培训的通知

各项目实施单位：

目前，亚行驻中国代表处正在组织一系列“安保政策和性别发展”线上项目培训，是一次难得的学习机会。亚行贷款福建农村资源可持续利用示范项目中期调整方案已经亚行批复，为促进后续项目顺利实施，应重视亚行关于社会和环境安保的相关要求，做好亚行关注的项目社会和环境安保工作，了解掌握正在实施以及完工项目的相关工作程序及要求，经研究，各项目实施单位必须专人负责参加培训并汇报项目，现将有关事项通知如下：

#### 一、培训内容及时间

培训将采取以中文进行，内容包括环境、非自愿移民、民生及安保政策，以及性别平等和土地法等。培训将通过演讲、案例研究、讨论和问答，使参会人员掌握有关亚行安保政策和性别发展方面的项目实施知识和技能。具体培训议程详见附件 1，内容和时间简介如下：

- 1、亚行原住民安保政策：2022 年 8 月 22 日
- 2、亚行性别平等政策：2022 年 8 月 23 日

3、亚行移民安保政策：2022 年 8 月 26 日

4、亚行环境安保政策：2022 年 8 月 29 日

#### 一、参加人员

各项目实施单位的社环和环安安保负责人员。

#### 三、其他事项

1、各单位参加人员名单于 8 月 16 日上午 10 时前反馈至报名表（见附件 2）并盖章，扫描件及电子版邮件发送至中心，邮件：ljswco@163.com，由我中心汇总后发送亚行。

2、培训采用 zoom 会议软件。参会人员需自行搜索并安装 zoom 会议软件。培训会议的详细安排，包括链接和说明，将在亚行收到报名表后通过发送邮箱提供。

3、联系人：吴雄海，联系电话：13600856833。

附件：1、培训议程

2、亚行贷款项目社会和环境安保系列线上培训报名表

福建省水土保持与乡村发展亚行贷款项目中心

2022 年 8 月 8 日

# ADB ENVIRONMENT SAFEGUARD POLICY ONLINE TRAINING

## 亚行环境保障政策网络培训

2022.8.29

Time 时间	Activity/Topic 活动安排/主题	Remarks 备注
08:30-09:00	Online Sign-in 线上签到	Jie Li, Jia Guo 李洁, 国佳
09:00-10:20	Session 1: Due Diligence on New Loans and Proposed Scope Change at Implementation (Part I) 第一部分: 贷款审查和环境尽职调查 (上)	
10:20-10:30	Tea/Coffee Break 茶歇	
10:30-11:50	Session 2: Due Diligence on New Loans and Proposed Scope Change at Implementation (Part II) 第二部分: 贷款审查和环境尽职调查 (下)	
11:50-12:00	Q&A 问答	
12:00-14:00	Lunch Break 午休	
14:00-15:20	Session 3: Implementation of EMP, Monitoring and Evaluation 第三部分: 项目实施期环境管理计划实施、监测和评价	
15:20-15:30	Tea/Coffee Break 茶歇	
15:30-16:50	Session 4: Completion Evaluation on Environment 第四部分: 项目完工检查环境评估	
16:50-17:00	Q&A 问答	

培训人员 Trainers:

Mingtao Nie, Staff Consultant

聂明涛, 咨询专家

Ning Li, Senior Environment Officer, ADB

李宁, 亚行高级环境官员

Na Cong, Environment Officer, ADB

丛娜, 亚行环境官员

## (2) Sustainable farming training

	
Pinghe	



	
Shouning	Shouning
	
Pucheng	Ninghua

### (3) Training on EMP implementation during operation

