

Environmental Monitoring Report

Project Number: 52026-001
Semestral Report (July-December 2021)
January 2022

People's Republic of China: Anhui Huangshan Xin'an River Ecological Protection and Green Development Project

Prepared by Huangshan Project Management Office for the Huangshan Municipal Government and the Asian Development Bank.

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CURRENCY EQUIVALENTS

(as of 31 December 2021)

Currency unit	–	Yuan (CNY)
CNY1. 00	=	€ 0. 1384
€ 1. 00	=	CNY 7.2229

ACRONYMS AND ABBREVIATIONS

ADB	-	Asian Development Bank
CSC	-	Construction Supervision Company
EA	-	Executing Agency
EEB	-	Ecology and Environment Bureau
EHS	-	Environmental, Health and Safety
EIA	-	Environment Impact Assessment
EMA	-	External Monitoring Agency
EMP	-	Environmental Management Plan
EMR	-	Environmental Monitoring Report
ESMS	-	Environmental and Social Management System
GAP	-	Gender Action Plan
GIF	-	Green Investment Fund
GRM	-	Grievance Redress Mechanism
HMG	-	Huangshan Municipal Government
HPMO	-	Huangshan Municipal Project Management Office
HTIC	-	Huangshan Trust and Investment Corporation
HXIC	-	Huangshan Xintou Investment Corporation
KfW	-	Kreditanstalt für Wiederaufbau
IA	-	Implementing Agency
IEE	-	Initial Environmental Examination
LIEC	-	Loan Implementation Environment Consultant
MIS	-	Management Information System
PAM	-	Project Administration Manual
PMO	-	Project Management Office
PRC	-	People's Republic of China
RP	-	Resettlement Plan
SME	-	Small and medium-sized enterprise
SPS	-	Safeguard Policy Statement
TA	-	Technical Assistance
WWTS	-	Wastewater Treatment Station
YREB	-	Yangtze River Economic Belt

SUMMARY PROJECT INFORMATION

GENERAL INFORMATION	
Project title:	Anhui Huangshan Xin'an River Ecological Protection and Green Development Project
Date of project effectiveness:	25 September 2020
Executing agency:	Huangshan Municipal Government
Implementing agency:	Huangshan District Government Huizhou District Government Tunxi District Government Xiuning County Government She County Government Yi County Government Qimen County Government Huangshan Xintou Investment Corporation and their respective Project Implementing Units
PMO (name of agency):	Huangshan municipal project management office
PMO Environment Officer (name, email):	Mr. Yin Quan, Tel: 0559-2355872, Email: hsshxmb@126. com
Loan implementation consultant / firm:	ESD
LIEC:	Mr. Zhang Defa, ESD
ADB web link to EMP:	https://www.adb.org/projects/documents/prc-52026-001-pam
Domestic web link to EMP:	http://fgw.huangshan.gov.cn/tzgg/8879220.html
ENVIRONMENTAL SAFEGUARD MONITORING	
ADB environment safeguard category:	B
Environmental report prepared as per ADB requirements for this category:	Initial Environmental Examination
Domestic safeguard report:	Project EIA
Quarterly period covered by this report:	1 July to 31 December 2021
# EMRs to date including this report:	3
Agency/person responsible for internal environmental monitoring:	Seven district or county IA and Construction Supervision Company
Agency/person responsible for external environment monitoring:	Huangshan Angel Environmental Monitoring Co. , Ltd
Agency/person responsible for EMP implementation and progress monitoring:	Mr. Zhang Defa, the LIEC from ESD
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

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EXECUTIVE SUMMARY

1. **Overview.** This semi-annual report presents the status of compliance with the environment management plan (EMP) and environmental and social management system (ESMS) requirement during the project implementation from 1 July to 31 December 2021.
2. **The environmental personnel of the project agencies have been appointed.** During the reporting period, a total of 15 people from the project office, the implementing agency, the contractors, and the construction supervision companies assigned qualified environmental personnel to coordinate the implementation of environmental management plan (EMP). Three qualified environmental officers from HTIC (2 environmental major) are responsible for due diligence and implementation of the ESMS for the GIF projects. They were appointed in a Presidential Directive issued by HTIC on 21 September 2020.
3. **Mitigation measures are implemented as required.** During the reporting period, the mitigation measures before/during/after construction are well implemented based on EMP and domestic environmental requirements, which were strictly complied with by PMOs, with the assistance of consultants.
4. **Environmental and Social Management System (ESMS) is being implemented as required.** The Screening and the environmental and social due diligence work for the first investment project - Yixian Younong Ecological Agriculture Co., LTD. under GIF have been completed, and No Objection from ADB has been received. The semi-annual ESMS implementation progress report has been submitted by HTIC as required. **See Appendix 4.**
5. **External monitoring was carried out as per EMP requirement, and the results comply with the relevant standards defined in the IEE.** Huangshan Angel Environmental Monitoring Co., Ltd. was requested to conduct the onsite environment monitoring in December 2021 and the results were completed in January 2022. The report was submitted on January 29, and the results comply with the EMP and domestic environmental protection requirements. During the reporting period, the PMOs, the IAs and consultants visited the project sites and found that EMP was effectively implemented without significant environmental impacts.
6. **Public participation and Grievance Redress Mechanism (GRM) have been implemented.** The public participation activities have been implemented before/during construction by IAs, design institutes, and contractors. In addition, GRM has been established and implemented as required and no complaints were received up to the end of December 2021.
7. **Training and capacity-building plan have been carried out effectively.** The site supervision for the environment and safety has been organized by HPMO with the assistance of consultants during the reporting period. Seminar on ESMS implementation for staff involved GIF project has been mobilized by HTIC. The training on various content of project management (including environmental management) has been conducted out in the ADB & KfW Mission activities. In addition, the training of on-site construction management covered the requirements of environmental management.
8. **Compliance with covenants of Loan Agreement (LA).** The implementation activities of the EMP complied with the covenants of environmental safeguard clauses of LA.

9. The action of Memorandum of Understanding (MOU) on the environment of ADB -KfW previous Loan Inception Mission has been completed as required. The environmental measures proposed in the MOU (including i) regular environmental training is provided to the IAs, civil work contractors, and supervision companies; ii) monitor the implementation of the contractor health and safety plans and report the implementation status in the environment monitoring reports; iii) submission of ESMS implementation report by HTIC; and iv) submission of revised second semi-annual EMR and third semi-annual EMR) are completed as required.
10. **Lessons learned and next steps.** Lessons learned during reporting period include: (i) trainings and capacity building improved the ESMS implementation. Though extensive trainings, not only the environment officers of the HTIC, but also other staff from HTIC and application companies that involve in subproject selection increased environmental awareness, and as a result, great attention was paid to environmental and social issues during subproject selection and implementation. (ii) HTIC/HXIC is exploring innovations in ESMS implementation, such as a) It is proposed to integrate ESMS into other businesses of HTIC, such as integrating it into the trading of forestry carbon sequestration and pollution rights of Jiangnan Forest Exchange. b) HTIC will, with the assistance of the scientific research institute, provide technical support to sub-projects and incorporate better environmental technology practices into its activities to promote the environmental and social impacts of sub-projects. Next steps include: project implementation consultants will continue assist PMOs to conduct centralized training and in-work environment management training as planned, and maintain regular communication with project stakeholders. Monitoring activities for the next period (1 January to 30 June 2022) will be carried out in accordance with the EMP monitoring plan and the next semi-annual environmental monitoring reports will be submitted as planned.

I. INTRODUCTION

A. Purpose of report

11. The purpose of this environmental monitoring report (EMR) is to describe and assess progress for implementation of the environmental management plan (EMP) for the Anhui Huangshan Xi'an River ecological protection and green development project, for the reporting period 1 July to 31 December 2021. This EMR is submitted in compliance with the Safeguard Policy Statement (SPS) of the Asian Development Bank (ADB) and the loan agreement between ADB and the project executing agency.
12. This is the 3rd EMR for the project. It covers the bidding and construction phases of the project. The report describes: (i) project readiness with respect to fulfilling environmental requirements (ii) implementation of mitigation measures; (iii) monitoring activities; (iv) public consultations and including grievance redress; (v) training and capacity building; (vi) reporting; and (vii) an overall assessment of key achievements, challenges, issues, corrective actions, and lessons learned, during the reporting period.

B. Project outcomes and outputs

13. The project is aligned with the following impact: sustainable economic growth and environmental improvement in the Yangtze River Economic Belt (YREB) achieved. The project will have the following outcome: economic and environmental conditions in the upstream of Xin'an River improved.
14. The project is expected to produce four outputs, namely,
 - **Output 1: Urban point source pollution management facilities upgraded.** This output will include (i) sewage and storm water management through upgrading the existing centralized sewerage systems in Huangshan's central district and four county urban areas; and (ii) river rehabilitation and flood control through river embankment.
 - **Output 2: Rural point and non-point source pollution control facilities and systems enhanced.** Innovative approaches supporting green agricultural and ecological practices will be adopted. This includes point and non-point source pollution controls through (i) decentralized sewage and on-site treatment system and environment management in rural villages; (ii) changing fertilizer application practices, including the improved use of organic fertilizer and biological pesticides with low toxicity at agricultural and forestry sites; and (iii) improvement of pine forest conditions through disease monitoring and prevention.
 - **Output 3: Green financing mechanisms piloted.** This includes the establishment, piloting and operationalization of a (i) Green Incentive Fund to encourage farmers to adopt sustainable farm management practices to address agricultural non-point source pollution in Huangshan; and (ii) green investment fund to invest in SMEs involved in green business.
 - **Output 4: Capacity for ecological system and project management strengthened.** This will enhance HMG's capacity in water resources and flood forecasting management in the Xin'an River Basin. This includes (i) establishing environmental, health, and safety management systems to strengthen its industrial and urban environmental monitoring and emergency response capacity; (ii) integrated smart¹⁰ MIS; (iii) studies on Huangshan city green development strategy,

eco-compensation mechanisms, rural wastewater discharge standards, and green farming certification; and (iv) HMG implementation support and capacity development.

C. Project implementation progress

15. The date of project effectiveness is 25 September 2020. As of 31 December 2021, procurement of 19 civil construction contracts were completed and some of the construction contracts were initiated. Implementation progress for subcomponents is summarized in Table 1.

Table 1: I
Implementation Status of Civil Work Contracts, as of 31 December 2021

No.	Contract Name	Contract Content	Contract Status	Date of Constr. Started	Contractor	Supervisor	Implementation Description
1	Works-HS-1	Xinhua Village Green Agriculture Demonstration Project in Huangshan District	Signed	2021/6	Fujian Yuchen Construction Co., Ltd	Chuangda Consult Ltd	Approximately 40% of works completed
2	Works-HS-2	Sewage and Stormwater Sewer Upgrade Project in Huangshan District	Signed	2021/6	Jiangsu Shuigong Construction Co., Ltd	Anhui Chizhou Jiu Hua Engineering Consulting Co., Ltd.	Approximately 60% of works completed
3	Works-HS-3	Xinhua Village Environment Improvement Project in Huangshan District	In bidding	N/A			
4	Works-HS-4	Caocun River Rehabilitation Project in Huangshan District	Signed	2020/12	Zhejiang Jiuhe Environmental Co., Ltd	Hubei Three Gorges Construction Project Management Co. LTD	Approximately 95% of works completed
5	Works-HZ-1	Sewage and Stormwater Sewer Upgrade Project in Huizhou District-1	Signed	2021/3	Shanhu Construction Group Co., Ltd	Anhui Hengzheng Construction Project Management Co. LTD	Approximately 90% of works completed
6	Works-HZ-2	Village Environment Improvement Project in Huizhou District	Signed	2021/3	Kunpeng Construction Group Co., Ltd	Jiangsu Yutian Engineering Consulting Group	Approximately 85% of works completed
7	Works-QM-1	Sewage and Stormwater Sewer Upgrade Project in Qimen County-1	Signed	2021/9	Anhui Xinjian Holding Group	Anhui Hengxin Construction Engineering Management Co. , Ltd	Approximately 45% of works completed
8	Works-QM-2	Sewage and Stormwater Sewer Upgrade Project in Qimen County-2	Signed	N/A	Shanhu Construction Group Co., Ltd	Anhui Hengxin Construction Engineering Management Co. , Ltd	Application for construction permit.

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No.	Contract Name	Contract Content	Contract Status	Date of Constr. Started	Contractor	Supervisor	Implementation Description
9	Works-SX-1	Sewage and Stormwater Sewer Upgrade Project in She County-1	Signed	2021/4	China Petroleum Pipeline Engineering Co., Ltd	Zhejiang Yihua Construction Supervision Co. Ltd	Approximately 50% of works completed
10	Works-SX-2	Sewage and Stormwater Sewer Upgrade Project in She County-2	Construction Design	N/A			
11	Works-SX-5	Xitou Village Environment Improvement Project in She County-2	Signed	2021/6	Xingrun Construction Co., Ltd		Approximately 85% of works completed
12	Works-SX-6	Xitou Village Environment Improvement Project in She County-1	Signed	2021/6	Tianjin Pipeline Engineering Group Co., Ltd		Approximately 30% of works completed
13	Works-SX-7	Environmental Infrastructure Improvement along Xin'an River in She County	Construction Design	N/A			
14	Works-SX-8	Xi'an River Green Agriculture Demonstration Project in She County	Signed	2021/12	Gorden Road Group & Zhejiang Jiuhe Environment Co.,Ltd		Application for construction permit.
15	Works-SX-9	Xitou and Yancun Water Supply Network Construction	Construction Design	N/A			
16	Works-TX-1	Village Environment Improvement Project in Tunxi District-1	Signed	2020/9	Hangzhou Xiaoshan Landscape Group Co., Ltd	Anhui Hengxin Construction Engineering Management Co. , Ltd	Construction Completed
17	Works-TX-2	Village Environment Improvement Project in Tunxi District-2	Signed	2021/1	Kunpeng Construction Group Co., Ltd		Approximately 98% of works completed
18	Works-TX-3	Village Environment Improvement Project in Tunxi District-3	Signed	2020/12	Kunpeng Construction Group Co., Ltd		Approximately 98% of works completed

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No.	Contract Name	Contract Content	Contract Status	Date of Constr. Started	Contractor	Supervisor	Implementation Description
19	Works-XN-1	Sewage and Stormwater Sewer Upgrade Project in Xiuning County - 1	Signed	2020/12	Anhui Xinda Construction & Installation Co. Ltd	Anhui Hongji Construction Project Management Co. , Ltd	Approximately 50% of works completed
20	Works-XN-2	Sewage and Stormwater Sewer Upgrade Project in Xiuning County - 2	Signed	2021/6	Tiangong Fangyuan Construction Group Co. Ltd	Hebei Sanyuan Construction Supervision Co. Ltd	Approximately 40% of works completed
21	Works-XN-3	Village Environment Improvement Project in Xiuning County-Shangshan 1	In bidding	N/A			
22	Works-XN-4	Village Environment Improvement Project in Xiuning County-Shangshan 2	In bidding	N/A			
23	Works-XN-5	Village Environment Improvement Project in Xiuning County-Shangshan 3	In bidding	N/A			
24	Works-XN-6	Village Environment Improvement Project in Xiuning County-Xikou	Signed	2021/12	Zhejiang Jiuhe Environment Co.,Ltd & Anhui Changcheng Construction Engineering Co., Ltd		Approximately 5% of works completed
25	Works-XN-7	Village Environment Improvement Project in Xiuning County- Wucheng	Signed	2021/12	Tonglin Shizheng Construction Co., Ltd		Approximately 5% of works completed
26	Works-YX-1	Sewage and Stormwater Sewer Upgrade Project in Yi County, and Zhang River Rehabilitation Project in Yi County	Signed	2020/12	Anhui Xinjian Holding Group	Jiangsu Yutian Engineering Consulting Group	Approximately 80% of works completed

16. In addition, other sub-contract implementation progress is as follows,

- The bidding documents of Sewage and Stormwater Sewer Upgrade Project in She County-2 (Works-SX-2) completed and to be tendered soon
- The bidding documents of Environmental Infrastructure Improvement along Xin'an River in She County (Works-SX-7) completed and to be tendered soon
- The bidding documents of Xitou and Yancun Water Supply Network Construction (Works-SX-9) completed and to be tendered soon.
- The first candidate of Xinhua Village Green Agriculture Demonstration Project in Huangshan District (Works-HS-3) has been selected and construction is expected to start in the first quarter of 2022.
- The tender bidding for 3 contract packages (Works-XN-3-5) of Village Environment Improvement Project in Xiuning County is being conducted.

17. Green Investment Fund (GIF) implementation progress is as follows,

- HXIC completed the contract signing with the first investor, Yi County Younong Ecological Agriculture Co., Ltd., on October 12, 2021. The total investment of the project is 55 million CNY, accounting for 30% of the shares. In the second half of 2021, activities in the project area, such as agricultural socialization services, straw collection and utilization, research and development of chrysanthemum products, agricultural product transportation, utilization of agricultural machinery and equipment, and improvement of the environmental and social management system within the project investor, have been promoted by the HXIC through investment activities. The implementation details are shown in Appendix 4 Semi-annual Project Reports on the Implementation of the ESMS, submitted by HTIC. The investment has been paid to the investee in December 2021. HXIC is carrying out the second investment project (Huangshan Hualvyuan Biotechnology Co., Ltd. - Green Standard Tea Production Capacity Improvement Project). The environmental and social due diligence work and investment negotiation for the second investment project application is still in progress, and it is expected to be submitted to ADB in mid-May 2022

II. SUMMARY OF THE PROJECT ENVIRONMENTAL MANAGEMENT PLAN (EMP)

18. 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 is to be implemented in all phases of the project: design, pre-construction, construction, and operation. The EMP is to ensure project compliance with PRC environmental laws and ADB's Safeguard Policy Statement (SPS 2009).
19. The EMP describes: the roles and responsibilities of all project agencies to implement this EMP; anticipated impacts and mitigation measures; inspection, monitoring, and reporting arrangements; training and capacity building; grievance redress mechanism (GRM); and public consultation and awareness raising.
20. **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 (Yin Quan, HPMO), acting on behalf of the HPMO. The implementing agencies, contractors, and construction supervision companies are responsible for on-site implementation of the EMP. Guidance and supervision to the PMO Environment Officer is given by the Loan Implementation Environment Consultant (Mr. Zhang Defa, ESD).
21. **Potential impacts and mitigation (Section C of the EMP).** This section of the EMP summarizes the potential impacts of the subprojects in the three districts and four counties during project preparation, design, construction and operation, and proposed mitigation measures. The effectiveness of these measures will be evaluated based on environmental inspections and monitoring to determine whether they should be continued, improved or adjusted.
22. **Training (Section E of the EMP).** This section of the EMP describes the training program for environmental safeguards, including the recipients and frequency of training.
23. **Grievance Redress Mechanism (Section F 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.
24. **Environmental monitoring program (Section D of the EMP).** Three types of project monitoring will be conducted under the EMP: (i) internal monitoring- to be conducted by the seven IAs and the CSCs; (ii) external monitoring - of air, water and noise standards - to be conducted by the certificated EMA in each project county/district; and (iii) compliance monitoring - to be conducted by both the EMA and LIEC, to ensure the EMP is being implemented.
25. **Public Consultation (Section G of the EMP)** During construction, the project will continue to seek public consultation and raise awareness of project activities, especially those may impact the public. The public consultation plan includes public participation in evaluating environmental benefits and impacts.
26. **Reporting.** The reporting requirements for the project, including the responsible agencies and reporting frequency was described in EMP.

III. IMPLEMENTATION STATUS OF ENVIRONMENTAL MANAGEMENT DURING THE REPORTING PERIOD

27. The chapter provides an overview of the implementation progress of the EMP during the reporting period.

A. Establishment of project agency personnel

28. During the reporting period, the project office, the implementing agency, the contractor, the construction supervision company and the consultant designated qualified environmental personnel to coordinate the implementation of the environmental management requirements in accordance with the requirements of ADB. HTIC has appointed project environmental management officers as required by ESMS, and there are 3 qualified environmental officers (2 environmental major) to support the environmental management of the GIF. On November 19, 2021, a total of 15 people, including environmental and social officer and investment project managers, were mobilized and appointed by HTIC to implementation of ESMS. Environmental Specialist from the consulting company have participated in the project since November 2020 to support activities related to environmental management. The work management, coordination and communication in EHS of project are generally satisfactory.

29. Table 2-1 and Table 2-2 summarizes the project specified environmental management personnel contacts.

Table 2-1: Information of dedicated environmental management correspondents

Cities and counties	Institutions	Name of institution	Environmental Officer	Email
Huangshan City	Huangshan Project Office	Huangshan Municipalities	Yin Quan	hsshxmb@126.com
Huangshan Mountain	Huangshan District Project Office (Implementation Agency)	Huangshan District Government	Qin Ling	122066540@qq.com
Huizhou District	Huizhou District Project Office(Implementation Agency)	Huizhou District Government	Zheng Wenjing	405550201@qq.com
Tunxi District	Tunxi District Project Office (Implementation Agency)	Tunxi District Government	Cheng Shichang	852428591@qq.com
Suning District	Xiuning District Project Office (Implementation Agency)	Xiuning District Government	Chen Weisong	512368047@qq.com
She County	She County Project Office (Implementation Agency)	She County Government	Fang Xiaohui	hssxshb@126.com
Yi County	Yi County Project Office (Implementation Agency)	Yi County Government	Wang Xin	392297684@qq.com

Cities and counties	Institutions	Name of institution	Environmental Officer	Email
Qimen County	Qimen County Project Office (Implementation Agency)	Qimen County Government	Fang Sheng	291536803@qq.com
Huangshan City	Implementing Agency	Municipal Forestry Bureau	Xu Rui	hsssfz@163.com
Huangshan City	Implementing Agency	Huangshan Trust Investment Company	Fan Xiangguang	86691776@qq.com
Huangshan City	Implementing Agency	Huangshan Trust Investment Company	Liu Xinyue	86691776@qq.com
Huangshan City	Implementing Agency	Huangshan Trust Investment Company	Chen Junqi	86691776@qq.com

**Table 2-2: Information of dedicated environmental management correspondents
(Project in construction)**

Contract number	Main content	Company Name		Environmental Officer
Works-HS-2	Caocun River Rehabilitation Project in Huangshan District	Construction Unit	Jiangsu Shuigong Construction Co., Ltd	Zhang Han
		Supervision Unit	Anhui Chizhou Jiuhua Engineering Consulting Co., Ltd.	Su Zhihui
Works-HS-4	Sewage and Stormwater Sewer Upgrade Project in Huangshan District	Construction Unit	Zhejiang Jiuhe Environmental Limited Company	Fang Zhengfei
		Supervision Unit	Hubei Three Gorges Construction Project Management Co. , Ltd	Cheng Hongyu
Works-HZ-1	Sewage and Stormwater Sewer Upgrade Project in Huizhou District-1	Construction Unit	Shanhu Construction Group Co., Ltd	Dong Ming
		Supervision Unit	Anhui Hengzheng Construction Project Management Co. LTD	Liu Guoqing
Works-HZ-2	Sewage and Stormwater Sewer Upgrade Project in Huizhou District-1	Construction Unit	Kunpeng Construction Group Co., Ltd	Song Dengfeng
		Supervision Unit	Jiangsu Yutian Engineering Consulting Group Co. , Ltd	Lin Zhijian
Works-	Village	Construction	Hangzhou Xiaoshan Garden	Cheng Yuping

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Contract number	Main content	Company Name		Environmental Officer
TX-1	Environment Improvement Project in Tunxi District-1	Unit	Group Co. , Ltd	
		Supervision Unit	Anhui Hengxin Construction Engineering Management Co. , Ltd	Chen Hui
Works-TX-2	Village Environment Improvement Project in Tunxi District-2	Construction Unit	Kunpeng Construction Group Co. , Ltd	Gao Liang
		Supervision Unit	Anhui Hengxin Construction Engineering Management Co. , Ltd	Chen Hui
Works-TX-3	Tunxi Ecological Village Construction Project-3	Construction Unit	Kunpeng Construction Group Co. , Ltd	Hong Chunyou
		Supervision Unit	Anhui Hengxin Construction Engineering Management Co. , Ltd	Chen Hui
Works-SX-5	Xitou Village Environment Improvement Project in She County-2	Construction Unit	Xingrun Construction Co., Ltd	Wang Shenghao
		Supervision Unit	Zhejiang Yihua Construction Supervision Co. Ltd	Zhan Shuhua
Works-SX-6	Xitou Village Environment Improvement Project in She County-1	Construction Unit	Tianjin Pipeline Engineering Group Co., Ltd	Wang Xiaojun
		Supervision Unit	Zhejiang Yihua Construction Supervision Co. Ltd	Zhan Shuhua
Works-XN-1	Sewage and Stormwater Sewer Upgrade Project in Xiuning County - 1	Construction Unit	Anhui Xinda Construction and Installation Co. , Ltd	Cui Tao
		Supervision Unit	Anhui Hongji Construction Project Management Co. , Ltd	Yu Changzhong
Works-XN-2	Sewage and Stormwater Sewer Upgrade Project in Xiuning County - 2	Construction Unit	Tiangong Fangyuan Construction Group Co. Ltd	Han Zhigang
		Supervision Unit	Hebei Sanyuan Construction Supervision Co. Ltd	Wu Chunjiu
Works-YX-1	Sewage and Stormwater Sewer Upgrade Project in Yi County	Construction Unit	Anhui Xinjian Holdings Limited	Wang Qing
		Supervision Unit	Jiangsu Yutian Engineering Consulting Group Co. , Ltd	Zhou Chunlong
Works-QM-1	Sewage and Stormwater Sewer Upgrade Project in Qimen County-1	Construction Unit	Anhui Xinjian Holdings Limited	Mr. Zhen
		Supervision Unit	Anhui Hengxin Construction Engineering Management Co. , Ltd	Ye Pingbo

30. During the reporting period, the consultants paid attention to the EHS training for the personnel of PMOs, IAs, supervisors, and construction units during on-site supervision in districts/counties. The ADB's safeguard policy and on-site safety management priorities are introduced to clarify the environmental management requirements of each responsible party and maintain regular communication among project stakeholders.
31. **Conclusion.** The project organization setup plan in the environmental management plan is being implemented as required, and the implementation meets the requirements of the environmental management plan.

B. Implementation of the project mitigation measures

32. Table 3 summarized the implementation status of the mitigation measures in the EMP as of 31 December.

Table 3: Project impacts, mitigation measures, and implementation status

Item	Potential impacts / issues	Mitigation measures	Implementation status	Whether in compliance (Yes/No)
Detailed design stage	Institutional strengthening for EMP Implementation and supervision	At least 1 month before construction: (i) reconfirm the full-time status of the HPMO Environmental Officer for the project; (ii) appoint at least one environment officer in each of the 7 IAs (excluding HTIC, which will separately engage an environment officer for the ESMS).	Environmental protection responsible persons of municipal/county project offices and subcontractors have been appointed Employees Fan Xiangui, Liu Xinyue, and Chen Junqi were appointed as environmental officers, and Cheng Shifeng, Chen Yan, and Jiang Junyu were appointed as social officers by HTIC in November 2020. Among environmental officer, Fan has a master's degree in agronomy from Northwest Agriculture and Forestry University. In addition, Liu and Chen majored in environment of South China Agricultural University, and they have received learning and training in environmental ecology	Yes
		At least 2 months before any construction, engage LIEC.	ESD as a LIEC, including an environmental consultant, was hired	Yes

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Item	Potential impacts / issues	Mitigation measures	Implementation status	Whether in compliance (Yes/No)
			in October 2020 .	
		At least 2 months before any construction, provide training to all environmental staff for EMP implementation.	In the second half of 2021, the consulting company (ESD) visited all 19 construction sites and introduced the ADB's environmental requirements to the IA, supervisors and construction contractors	Yes
		Confirm that at least one certified EMA has been recruited for the project at least 2 months before any construction.	The consulting company (ESD) visited all 19 construction sites and introduced the ADB's environmental requirements to the IA, supervisors and construction contractors	Yes
		When the contractors and CSCs have been engaged, conduct training on the project EMP.	In the second half of 2021, the consulting company (ESD) visited all 19 construction sites and introduced the ADB's environmental requirements to the IA, supervisors and construction contractors	Yes
	Updating the EMP	Update the mitigation measures defined in this EMP based on final detailed design. This will include the specific designs for the use of biopesticides which have been prepared during the detailed designs (see IEE Section V.D.6 and Section X).	The design for relevant sub-project is being conducted	Yes
		Asbestos. Under ADB's List of Prohibited Investment Activities (SPS, 2009), the use of asbestos is prohibited except for the "purchase and use of bonded asbestos cement sheeting where the asbestos content is <20%" (SPS 2009: 76). However: (i) in practice it is difficult to assess whether asbestos content is <20%; and (ii) international development banks are increasingly banning the use of all asbestos from their projects. To ensure international best practice for human health and safety for this project: no asbestos of any kind will be used in any materials supported by the project.	The EMP has been distributed to the design institutes by the PMO and specifies that no asbestos of any kind shall be used in the design of the project.	Yes
		Check with the design institute and HPMP to ensure the proposed materials do not include the use of asbestos.	The construction design has been reviewed by PMOs and environmental consultants and the proposed materials	Yes

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			do not include the use of asbestos.	
		Submit the updated EMP to ADB for review;	There is no major variation in the project and no need to update EMP	Yes
		In case of major changes of project location and/or additional physical components, form a DEIA team to conduct additional DEIA and public consultation. The revised DEIA should be submitted to Huangshan and district/county EEBs and ADB for approval and disclosure. To determine if the change is minor or major the HPMO will consult with ADB.	Up to December 31, 2021, there is no major variation in the project site or content and no need to update EMP	Yes
Construction Preparation	Environmental monitoring plan	Prior to construction, the HPMO will hire an EMA for environmental monitoring;	Huangshan Angel Environmental Monitoring Co., Ltd is responsible for the external environmental monitoring of the project. On the other hand, the third-party monitoring agency entrusted by the environmental protection department conducts daily environmental monitoring according to domestic environmental requirements	Yes
		Prepare detailed monitoring plan in accordance with the monitoring plan in this EMP.	A further detailed environmental monitoring plan has been prepared based on the latest procurement plan and EMP.	Yes
	Bidding and contract documents	Mitigation measures in the EMP are incorporated in all bidding documents;	The EMP was included in the first bidding document submitted to ADB.	Yes
		Bidding documents are sent to ADB for review;	The bidding documents has sent to ADB for review	Yes
		Prepare environmental contract clauses for contractors.	Environmental contract clauses have been prepared for contractors.	Yes

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	EMP training	LIEC, or invited environment specialists and/or officials from EEBs provide training on construction environmental management, implementation, supervision, to contractors and CSCs, in accordance with the training plan in this EMP	In the second half of 2021, the HPMO, with the assistance of LIEC, visited all 19 construction sites and introduced the ADB's environmental requirements to the IAs, CSC and construction contractors	Yes
	Establish GRM	Responsibility for GRM implementation is assigned to the HPMO and IA Environmental Officers and HPMO Social Officers, and is included in their terms of reference;	GRM has been established in the preliminary preparation stage of the project. The responsible personnel have been designated.	Yes
		HPMO and IA personnel will be aware of, and trained in, the GRM, and will help support the environmental and social officers when necessary.	In the second half of 2021, ADB's environmental requirements, including GRM, are introduced by HPMO with the assistance of LIEC to the contractors and CSCs	Yes
		Key contact details for the GRM (phone number, fax, address, email) will be provided on the HPMO, IAs and/or EEB public websites and information boards at construction sites.	HPMO has unified a dedicated environmental board, which includes the GRM	Yes
	Site EMPs	Prior to any works, prepare site-specific EMP for individual construction sites	At present, 19 civil works contracts have started. 19 site EMPs have been prepared for all construction sites	Yes
		Review and ensure site EMP comply with the measures in this EMP	Environmental consultant reviewed and ensured that site EMP complies with the measures in this EMP	Yes
Wastewater management	Construction wastewater and domestic wastewater generated from construction activities	Sedimentation tanks will be installed on site and, after settling out of solids, the upper clear liquid will be recycled for spraying the construction site (dust control), and the waste residue in the tank will be cleared and transported to the construction spoil disposal sites.	Being implemented	Yes
		Oil-water separators will be installed before the sedimentation tank for oily wastewater treatment.	Being implemented	Yes

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		All sites for washing of construction equipment will be equipped with water collection basins and sediment traps.	Being implemented	Yes
		Domestic wastewater generated from construction camps will be disposed in three ways: (i) for project sites nearing septic tanks in surrounding villages, domestic wastewater will be treated by the septic tanks before being used for irrigation; (ii) for project sites accessible to municipal sewerage systems, domestic wastewater will be discharged into the nearest sewerage system; (iii) for project sites neither close to villages nor sewerage systems, temporary septic tanks will be constructed for the centralized treatment of domestic wastewater.	N/A. Existing house are leased for all on-site offices and the domestic wastewater is discharged through the existing pipe. No temporary buildings involved.	Yes
		Fuel storage, machinery maintenance workshop and vehicle cleaning areas must be stationed at least 500 m away from the waterbody.	N/A. The crawler and wheel loaders used are leased from equipment vendors, who are responsible for fuel and maintenance. There is no fuel storage or maintenance workshop on site.	Yes
		Storage facilities for fuels, oil, and other hazardous materials will be within secured areas on impermeable surfaces and provided with bunds and cleanup installations.	N/A. There is no fuel storage or maintenance workshop on site.	Yes
		Contractors will develop actions for control of oil and other dangerous substances as part of their site EMPs.	Being implemented	Yes
		Contractors' fuel suppliers must be properly licensed. They shall follow proper protocol for transferring fuel and the PRC standard of JT3145-91 (Transportation, Loading and Unloading of Dangerous or Harmful Goods. revised).	Being implemented	Yes
		Labor camps will be located at least 500 m from waterbody.	N/A. Existing house are leased for all on-site offices and the domestic wastewater is discharged through the existing pipe. No temporary buildings involved.	Yes
		Portable toilets and on-site wastewater pre-treatment systems will be installed at construction camps along with proper maintenance protocols.	N/A.	Yes
Water supply	Interruption to existing water supply due to works	Ensure that existing water and wastewater services continue to be provided to communities during the civil works.	Being implemented	Yes
		Any interruptions to such services as a result of the project works are as limited as possible.	Being implemented	Yes

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		Prior to any such interruptions, consultations are held with all affected communities.	Before the start of construction activities, the construction plan has been discussed with relevant communities and villages, and the construction can only be started after receiving a positive reply	Yes
Ambient Air	Dust generated by construction activities, gaseous air pollution (CO, CH and NO2) from construction machinery, and fugitive emission of odor (NH3 and H2S) from existing sewage pipes	Establish a series of measures for dust control in construction sites before work commencement.	Being implemented	Yes
		Install barriers at the boundary of construction sites with a height no less than 2.5m.	The barriers at the boundary of urban construction sites installed. . The alleys in rural villages are narrow, only 1-2m. it is difficult to install fences. At present, the safety requirements can be met by setting up warning signs and reminding passers-by by safety worker	Yes
		Spraying water daily on construction sites where fugitive dust is being generated. Before excavation, proper spraying shall be performed on the working surface to maintain a certain humidity to reduce dust generation.	Being implemented	Yes
		Cover stockpiles with dust shrouds or tarpaulin to avoid spillage or dust generation. For the earthwork management for backfill, measures will include surface press and periodical spraying and covering. Extra earth will be cleared from the project site in time to avoid long term stockpiling.	Being implemented	Yes
		Vehicles with a closed load-carrying case shall be used to transport potentially dust- producing materials.	Being implemented	Yes
		Design haulage routes and schedules to avoid transport occurring in the central areas, traffic intensive areas or residential areas.	The excavated soil is used for in-situ backfill of trenches. No external transport of soil involved	Yes
		Install vehicle washing equipment or conduct wheel washing manually at each exit of the work area to prevent trucks carrying mud and soils onto public roads.	The excavated soil is used for in-situ backfill of trenches. No external transport of soil involved	Yes
		Keep construction vehicles and machinery in good working order, regularly service and turn off engines when not in use. Ensure vehicle and machinery emissions comply with PRC standards of GB18352-2005, GB17691-2005, GB11340-2005, and GB18285-2005.	Responsible by the vehicle rental vendors	Yes

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		During high wind, dust-generating operations shall not be performed and onsite construction materials shall be covered with shrouds. When wind speed exceeds PRC Levels 4 or 5, excavation, soil transportation and demolition works are not permitted. Special precautions need to be applied in the vicinity of sensitive receptors such as schools, kindergartens and hospitals.	Being implemented	Yes
		Transport the sludge from existing sewer pipes offsite timely to reduce fugitive odor emission.	Being implemented	Yes
		Use exhaust fans at welding sites to increase ventilation and promote the diffusion of organic exhaust gas onsite.	Being implemented	Yes
		Timely monitoring of air quality and inspections during construction.	Being implemented	Yes
Noise	Noise generated from construction and transportation activities	Construction activities will be planned in consultation with local authorities and communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in the least disturbance.	Being implemented.	Yes
		Construction works will be limited to daytime and will be strictly prohibited during the nighttime (22:00 h to 06:00 h) and noon (12:00 h to 14:00 h). Exceptions will only be allowed in exceptional cases, and only after getting the approval of the surrounding residents, local environmental authority and other relevant departments. The contractor shall apply for the approval seven days before the construction works. Nearby residents will be notified of such nighttime activities well in advance.	Before construction, the construction plan has been publicized and reviewed by the local authorities and discussed with the community and villages, and the construction can only be started after receiving a positive reply	Yes
		When preparing construction planning, simultaneous high-noise activities will be avoided. High noise activities will be scheduled during the day rather than evening hours. Similarly, the construction sites will be planned to avoid multiple high noise activities or equipment from operating at the same location.	Noisy activities such as earth excavation and concrete pavement drilling work are carried out only during the day	Yes
		Movable noise barriers will be adopted during construction at daytime. The barriers will: be of adequate size and thickness to reduce construction noise to the required standards; and (ii) be placed to maximize noise absorption.	Being implemented	Yes
		Low-noise equipment will be selected as much as possible. Equipment and machinery will be equipped with mufflers and will be properly maintained to minimize noise.	Being implemented	Yes
		Transportation routes and delivery schedules will be planned to avoid densely populated and sensitive areas and high traffic times. Vehicles transporting construction materials or waste will slow down and not use their horn when passing through or nearby sensitive locations, such as residential communities, schools and hospitals. No	Being implemented	Yes

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		honking is permitted during nighttime.		
		Monitor noise at sensitive areas at regular intervals. If noise standards are exceeded, equipment and construction conditions shall be checked, and mitigation measures shall be implemented to rectify the situation.	Being implemented	Yes
		Conduct regular interviews with residents/villagers adjacent to construction sites to identify noise disturbance. Community feedback will be used to adjust work hours of noisy machinery.	Frequent communication between IAs, the construction units, the community, and the village to be maintained	Yes
		For the households that will be within 60 m of construction works (Section V.D.3 of IEE), particular attention will be provided. This will include: (a) follow-up consultations with these households prior to the start of any works, to specify the exact planned dates and schedule of works, nature of works, equipment to be used, safety measures, and public access during construction; (b) installation of noise barriers to reduce as much of the emissions as possible, and/or installation of additional layers on the windows of the affected homes as necessary, based on the assessment of the most technically effective method and feedback from the community consultations; (c) agreement on the duration of daily works.	Before construction, the construction plan has been publicized and reviewed by the local authorities and discussed with the community and villages, and the construction can only be started after receiving a positive reply	Yes
Soil erosion	Soil erosion caused by construction activities, earthworks	Prepare site soil erosion management plans before works begin.	Being implemented	Yes
		Level the ground for the temporary spoil storage sites with proper blocking measures.	Being implemented	Yes
		During construction phase, the earthwork will be reasonably planned and balanced to reduce the stockpiling of spoil onsite as much as possible. Spoil will be reused onsite to the maximum extent feasible as fill. The spoil sites will be away from roads and be restored after storage activities.	The excavated soil is used for in-situ backfill of trenches. No external transport of soil involved	Yes
		Limit construction during rainy season and high winds. Appropriate stormwater drainage systems and slope protection measures will be implemented to minimize soil erosion, such as perimeter bunds and temporary detention and settling ponds to control topsoil runoff.	Being implemented	Yes
		The construction schedule will be well designed to minimize the exposure time of bare land surface and stabilize all earthwork disturbance areas timely after the earthworks are completed.	N/A. Detailed construction plans of all urban projects have been prepared and approved by the local authorities, and publicized around the site. All 8 urban projects under construction are constructed according to the construction schedule. The excavation areas for	Yes

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			pipeline installation in rural projects is small (0.6~1m wide), the construction speed of excavation and backfilling is fast, and the exposure time is short.	
		Minimize open excavation areas and slope during trenching.	The excavation areas and slope are specially designed, and if necessary, pile measures are adopted to reduce the excavation areas	Yes
		Construction camps, storage areas and access roads will be located within the acquired land to minimize the impacts on the soil and land vegetation in surrounding area.	N/A. Existing house are leased for all on-site offices and the domestic wastewater is discharged through the existing pipe. No temporary buildings involved.	Yes
		Landscaping will only use native plant species.	N/A	Yes
		Construct intercepting channels and drains to prevent runoff entering construction sites and divert runoff from sites to existing drainage or open ground for watering the vegetation.	Being implemented	Yes
		Rock material for the gabion cages for river revetment will be sourced from: (i) licensed suppliers of construction materials; and (ii) the old revetment material extracted from the Caocun River as part of the project works.	The construction of the river revetment of the Zhang River in Yixian County and Caocun River in Huangshan District has been implemented according to this	Yes
Solid Waste	Solid waste generated by construction activities and from workers' camps	Provide appropriate waste collection and storage containers at locations away from surface water or sensitive spots;	Being implemented	Yes
		Arrange with municipal waste collection services for regular collection of waste;	Being implemented	Yes
		Properly remove and dispose residual materials, wastes and contaminated soils. Paving or vegetating shall be done as soon as the materials are removed to stabilize the soil;	Being implemented	Yes
		Burning of waste is strictly prohibited;	Being implemented	Yes
		Provide sufficient garbage bins at strategic locations and ensure that they are protected from birds and vermin, and emptied regularly by the municipal waste collection systems.	Being implemented	Yes
		CONTRACTOR PERFORMANCE TARGET:	Being implemented	Yes

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		No uncollected waste at close of construction activities each day.		
Ecology	Protection of flora and fauna around construction sites	Minimize damage to vegetation. Minimize the damage to existing vegetation and recover the vegetation timely after the completion of construction works. Native plant species will be used for replanting and site rehabilitation.	Being implemented	Yes
		The surface soil (0-30 cm) will be stored separately for reuse for landscape greening or agriculture. The stockpiling shall have a height less than 5m and a slope less than 1:1.5 with proper compaction to avoid soil erosion.	Being implemented	Yes
		Minimize damage to aquatic habitats. For the stone debris removal from river channel in Caocun River, only debris from previous river revetment works will be removed, and all works shall be conducted manually without intervention of any mechanical equipment to prevent mechanical damage to the riverbed.	Being implemented	Yes
		All river channel related works will be carried out during dry season (October to March) to minimize potential impacts on the aquatic habitat.	Being implemented	Yes
		Landscaping and site rehabilitation. All planting activities under the project, including re-vegetation, landscaping, and rehabilitation of construction sites, will only use plant species which are (i) native (i.e. naturally occurring) to the Xin' an River basin, and (ii) are sourced from local stock within Huangshan Municipality.	N/A	Yes
		In the event that non-native seedlings are required for rapid stabilization of exposed soils and sites, HMG will and will cause the IAs to ensure that only sterile seedlings are used to prevent the spread of weeds.	N/A	Yes
		Training. Provide trainings to contractors and workers to increase their awareness on the need to protect the environment, wildlife and vegetation around the construction sites.	The consulting company visited all 19 construction sites and introduced the ADB's environmental requirements to the IA, supervisors and construction contractors	Yes
		Site inspection. The CSCs and the environmental officer of the HPMO will regularly inspect construction sites to ensure that habitats are well demarcated, and workers are fully informed of "no-go" areas.	Regular on-site EHS and quality supervision are carried out by consulting company organized by HPMO	Yes
		Biopesticides. Before any use of biopesticides, confirm that: (a) a complete inventory of the pest species to be addressed for each demonstration site has been prepared; (b) any "pest" species which are rare, threatened, restricted range, or protected species have be excluded from the pest management program; (c) the specific organisms or other agents to be used as biopesticides have been identified during the detailed engineering designs; (d) each proposed agent or method has been confirmed to be	N/A. No use of biopesticides is involved in started project	Yes

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		highly crop-specific and will only act on the intended pest species, and will not affect local flora and fauna (e.g. the use of water mixed with tobacco will not be used as it may impact aquatic organisms in nearby streams); (e) specific application procedures, volumes, and post-application monitoring have been detailed, to ensure safe and responsible use of the biopesticides.		
Protected Area	Damage to protected area during construction	Engineering design will be in line with the Taiping Lake Scenic Zone Master Plan (2015- 2030) and Huashan Mysterious Grottoes Scenic Zone Master Plan (2007-2025);	N/A	Yes
		All works will be conducted within the confirmed ecological red line only;	N/A	Yes
		Avoid setting up temporary storage sites for construction waste within scenic zones, and all waste generated will be transported out for disposal timely;	N/A	Yes
		For subprojects near riverway, proper onsite wastewater treatment facilities (e.g. sedimentation tank) will be set up to avoid direct discharge of wastewater and impairing of aquatic ecosystem along the river;	N/A	Yes
		Design the location and shape of spoil piles before construction;	N/A	Yes
		Vehicles will slow down within scenic zones and frequent water spraying in construction sites will be performed to minimize dust;	N/A	Yes
		Recover the vegetation in construction sites timely after the completion of construction works to minimize soil erosion and visual landscape impact in scenic zones.	N/A	Yes
Physical cultural resources	Damage to known or unknown above or below-ground cultural relics	Establish chance-find procedures for physical cultural resources;	N/A	Yes
		If a new site is unearthed, work shall be stopped immediately and the IA, HPMO and local CRB promptly notified. The construction will resume only after a thorough investigation and with the permission of appropriate authority.	N/A	Yes
Community and occupational health and safety	Site and access safety	Erect signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles and excavations, and raising awareness on safety issues;	Establishment of on-site safety and traffic guidance plates implemented.	Yes
		Assign personnel to direct pedestrians around dangerous work areas;	The full-time safety management personnel on site and traffic guiders for closed urban road have been arranged	Yes
		Ensure that all sites are secure, discouraging access through appropriate fencing;	Temporary barriers and reflective cones are installed on site	Yes

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		Place clear signs at construction sites in view of the people at risk (including workers and nearby communities), warning people of potential dangers such as moving vehicles, hazardous materials, excavations, and raising awareness on safety issues;	Establishment of on-site safety and traffic guidance plates implemented.	Yes
		At the end of each day, all sites and equipment will be made secure (through fencing and/or lock-down of equipment) to prevent public access;	Being implemented	Yes
		Erect safety barricades around all excavations;	Temporary barriers and reflective cones are installed on site	Yes
		Hold a public consultation meeting prior to commencing construction to discuss issues associated with ensuring the safety of nearby communities in vicinity of the construction site.	The plan has been discussed with relevant communities and villages before construction, and the construction can only be started after receiving a positive reply	Yes
	Occupational health	Provide personal protection equipment to workers as needed, e.g. safety boots, helmets, gloves, protective clothing, goggles, ear protection in accordance with health and safety regulations.	Being implemented	Yes
		An emergency response plan to take actions on accidents and emergencies, including environmental and public health emergencies associated with hazardous material spills and similar events will be prepared, and submitted to the IA for review and appraisal. A fully equipped first-aid base in each construction site will be provided.	Being implemented	Yes
		A Records Management System will be established to document occupational accidents, diseases, and incidents, that: (a) includes a tracking system to ensure that incidents are followed-up; (b) can easily retrieve records; and (c) can be used during compliance monitoring and audits. The system will be backed up on at least one external hard drive to protect records against loss or damage.	Being implemented	Yes
		Ensure that safety, rescue and industrial health matters are given a high degree of publicity to all persons regularly or occasionally on the Site. Posters drawing attention to site safety, rescue and industrial health regulations will be made or obtained from the appropriate sources and will be displayed prominently in relevant areas of the site.	Being implemented	Yes
		Train all workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their work and sites and the requirements for community safety.	Being implemented	Yes
		Asbestos. In the event that materials containing asbestos are suspected: (i) the contractor will immediately inform the IA, who will inform the HPMO; (ii) the contractor will subcontract the municipal center for hazardous waste, who will be responsible for the safe handling, transport, and	No asbestos use found	Yes

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		disposal of the materials; (iii) such materials will only be disposed in a landfill site certified and designed to receive hazardous materials.		
	Community health and safety - COVID-19 prevention and control	(a)Organization and mobilization Establish street (township) and community (village) level prevention and control work teams, with cadres, community health service centers and family doctors as the main force, supplemented by residents and volunteers, and full-time and part-time staff, so as to implement grid-based management and carpet-style management, with responsibility attributable to corresponding person, so as to fully cover communities (villages), buildings (natural villages) and families, and to implement prevention and control measures.	Being implemented	Yes
		(b)Health education Make full use of a variety of methods to carry out targeted publicity on the prevention and control of pneumonia caused by novel coronavirus infection. Raise the awareness of the masses on the health knowledge, the key points of protection, the importance of healthy habits and protection in time.	Being implemented	Yes
		(c)Information notification Release the information of medical treatment to the public, and remind all kinds of patients to go to designated institutions for medical treatment by classification and levels. Release local pandemic information, information on traffic and travel risks on a daily basis .	Being implemented	Yes
		(d)Management of returnees from affected areas Issue a notice, requiring people returning from affected area to register for physical examination immediately, and take the initiative to self isolate for 14 days. People with respiratory symptoms such as fever should seek medical treatment nearby in time, and be isolated at home or go to designated institutions for isolation as required.	Being implemented	Yes
		(e)Environmental sanitation management Clean up key places and dispose of garbage and dirt. Organize and carry out comprehensive vector control and disinfection in time to effectively reduce vector density.	Being implemented	Yes
		(f)Material preparation; Provide necessary prevention and control items and materials, such as thermometers, masks, disinfection supplies, etc.	Being implemented	Yes
		(g)Close contact management Close contacts of confirmed cases of pneumonia caused by novel coronavirus should be investigated and observed at home or subject to centralized medical observation. Where conditions permit, the centralized observation place should be clearly defined. Follow up the health status of close contacts every day, guide the observation subjects to monitor the changes of their own status properly and timely, and make records at any time. Make proper preparations for patient isolation control and transfer to designated hospitals.	Being implemented	Yes
		(h)Disinfection Properly carry out disinfection of pandemic spots such as the home, building units, offices and conference rooms of the employer of the confirmed case, and clean and disinfect	Being implemented	Yes

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		public places.		
		(i) Blockade of affected area For communities defined as affected areas, when necessary, measures can be taken to block the affected areas, where efforts should be made to restrict the access by personnel, and temporarily requisition houses and transportation tools.	Being implemented	Yes
		(j) Restrict the gathering of people In the community, fairs and gatherings shall be restricted or suspended, and public places such as public baths, hot springs, cinemas, Internet cafes, KTVs and shopping malls should be closed. Suspend work, business or classes when necessary.	Being implemented	Yes
	Occupation health and safety - COVID-19 prevention and control	(a) The Contractor should prepare a detailed profile of the project work force, key work activities, schedule for carrying out such activities, different durations of contract and rotations (e.g. 4 weeks on, 4 weeks off).	Being implemented	Yes
		This should include a breakdown of workers who reside at home (i.e. workers from the community), workers who lodge within the local community and workers in on-site accommodation. Where possible, it should also identify workers that may be more at risk from COVID-19, those with underlying health issues or who may be otherwise at risk.	Being implemented	Yes
		Consideration should be given to ways in which to minimize movement in and out of site. This could include lengthening the term of existing contracts, to avoid workers returning home to affected areas, or returning to site from affected areas.	Being implemented	Yes
		Workers accommodated on site should be required to minimize contact with people near the site, and in certain cases be prohibited from leaving the site for the duration of their contract, so that contact with local communities is avoided.	Being implemented	Yes
		Consideration should be given to requiring workers lodging in the local community to move to site accommodation (subject to availability) where they would be subject to the same restrictions.	Being implemented	Yes
		Workers from local communities, who return home daily, weekly or monthly, will be more difficult to manage. They should be subject to health checks at entry to the site (as set out above) and at some point, circumstances may make it necessary to require them to either use accommodation on site or not to come to work.	The Personnel Health Monitoring Record Sheet has been filled regularly by staff on duty. Construction Workers are tested for nucleic acid before work	Yes
		(b) Establishing a system for controlling entry/exit to the site, securing the boundaries of the site, and establishing designating entry/exit points (if they do not already exist). Entry/exit to the site should be documented.	Being implemented	Yes
		Training security staff on the (enhanced) system that	Being implemented	Yes

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		has been put in place for securing the site and controlling entry and exit, the behaviors required of them in enforcing such system and any COVID -19 specific considerations.	Personnel responsible for COVID-19 management and monitoring has been appointed by the IAs, CSC and contractors	
		Training staff who will be monitoring entry to the site, providing them with the resources they need to document entry of workers, conducting temperature checks and recording details of any worker that is denied entry.	Being implemented The Personnel Health Monitoring Record Sheet has been filled regularly by staff on duty. Construction Workers are tested for nucleic acid before work	Yes
		Confirming that workers are fit for work before they enter the site or start work. While procedures should already be in place for this, special attention should be paid to workers with underlying health issues or who may be otherwise at risk. Consideration should be given to demobilization of staff with underlying health issues.	Being implemented COVID-19 prevention and control policies and measures are informed to all project workers	Yes
		Checking and recording temperatures of workers and other people entering the site or requiring self-reporting prior to or on entering the site.	Being implemented The temperature of workers is monitored before entering the site	Yes
		Providing daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures, using demonstrations and participatory methods.	Being implemented	Yes
		During the daily briefings, reminding workers to self-monitor for possible symptoms (fever, cough) and to report to their supervisor or the COVID-19 focal point if they have symptoms or are feeling unwell.	Being implemented	Yes
		Preventing a worker from an affected area or who has been in contact with an infected person from returning to the site for 14 days or (if that is not possible) isolating such worker for 14 days.	Being implemented	Yes
		Preventing a sick worker from entering the site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days.	Being implemented	Yes
		(c) Workers should wear appropriate personal protective equipment (PPE), which includes protective outerwear, gloves, boots, goggles or a face shield, and a mask; they should perform hand hygiene frequently; and they should avoid touching eyes, nose, and mouth with unwashed hands.	Being implemented	Yes
		Train field workers and staff	Being implemented COVID-19 prevention and control policies	Yes

Item	Potential impacts / issues	Mitigation measures	Implementation status	Whether in compliance (Yes/No)
			and measures are informed to all project workers	
		Placing posters and signs around the site, with images and text in local languages.	Being implemented	Yes
		Ensuring handwashing facilities supplied with soap, disposable paper towels and closed waste bins exist at key places throughout site, including at entrances/exits to work areas; where there is a toilet, canteen or food distribution, or provision of drinking water; in worker accommodation; at waste stations; at stores; and in common spaces. Where handwashing facilities do not exist or are not adequate, arrangements should be made to set them up. Alcohol based sanitizer (if available, 60-95% alcohol) can also be used.	Being implemented	Yes
		Setting aside part of worker accommodation for precautionary self-quarantine as well as more formal isolation of staff who may be infected.	Being implemented	Yes
		(d) Conduct regular and thorough cleaning of all site facilities, including offices, accommodation, canteens, common spaces.	Being implemented	Yes
		Providing cleaning staff with adequate cleaning equipment, materials and disinfectant.	Being implemented	Yes
		Review general cleaning systems, training cleaning staff on appropriate cleaning procedures and appropriate frequency in high use or high-risk areas.	Being implemented	Yes
		Where it is anticipated that cleaners will be required to clean areas that have been or are suspected to have been contaminated with COVID-19, providing them with appropriate PPE: gowns or aprons, gloves, eye protection (masks, goggles or face screens) and boots or closed work shoes. If appropriate PPE is not available, cleaners should be provided with best available alternatives.	Being implemented	Yes
		Training cleaners in proper hygiene (including handwashing) prior to, during and after conducting cleaning activities; how to safely use PPE (where required); in waste control (including for used PPE and cleaning materials).	Being implemented	Yes
		(e) If a worker has symptoms of COVID-19 (e.g. fever, dry cough, fatigue) the worker should be removed immediately from work activities and isolated on site.	Being implemented	Yes
		If testing is available on site, the worker should be tested on site. If a test is not available at site, the worker should be transported to the local health facilities to be tested (if testing is available).	Being implemented	Yes
		If the test is positive for COVID-19 or no testing is available, the worker should continue to be isolated.	Being implemented	Yes

Item	Potential impacts / issues	Mitigation measures	Implementation status	Whether in compliance (Yes/No)
		This will either be at the work site or at home. If at home, the worker should be transported to their home in transportation provided by the project.		
		Extensive cleaning procedures with high-alcohol content disinfectant should be undertaken in the area where the worker was present, prior to any further work being undertaken in that area. Tools used by the worker should be cleaned using disinfectant and PPE disposed of.	Being implemented	Yes
		Co-workers (i.e. workers with whom the sick worker was in close contact) should be required to stop work, and be required to quarantine themselves for 14 days, even if they have no symptoms.	Being implemented	Yes
		Family and other close contacts of the worker should be required to quarantine themselves for 14 days, even if they have no symptoms.	Being implemented	Yes
		If a case of COVID-19 is confirmed in a worker on the site, visitors should be restricted from entering the site and worker groups should be isolated from each other as much as possible.	Being implemented	Yes
		If workers live at home and has a family member who has a confirmed or suspected case of COVID-19, the worker should quarantine themselves and not be allowed on the project site for 14 days, even if they have no symptoms.	Being implemented	Yes
		Workers should continue to be paid throughout periods of illness, isolation or quarantine, or if they are required to stop work, in accordance with national law.	Being implemented	Yes
		Medical care (whether on site or in a local hospital or clinic) required by a worker should be paid for by the employer.	Being implemented	Yes
		(f) Training of workers should be conducted regularly, providing workers with a clear understanding of how they are expected to behave and carry out their work duties.	Being implemented	Yes
		Training should address issues of discrimination or prejudice if a worker becomes ill and provide an understanding of the trajectory of the virus, where workers return to work.	Being implemented	Yes
		Training should cover all issues that would normally be required on the work site, including use of safety procedures, use of construction PPE, occupational health and safety issues, and code of conduct, taking into account that work practices may have been adjusted.	Being implemented	Yes

33. The bidding documents that incorporate environmental requirements into the contractual arrangement have been submitted to ADB for review before tender bidding during the reporting period.

34. Before the start of construction activities, the construction plan has been discussed with relevant communities and villages, and the construction can only be started after receiving a positive reply. During the construction period, HPMO, with the assistance of environmental specialist from consulting company, has designed environmental management publicity boards according to the characteristics of this project for use by all districts and counties. Leasing of existing house is given priority to the project office establishment. Up to date, existing house are leased for all on-site offices and the domestic wastewater is discharged through the existing pipe. No temporary buildings involved. Local villagers will be preferentially employed by the construction contractors in rural projects on the premise of meeting basic construction skills. The measures that enclosure of urban construction site, establishment of safety and traffic guidance plates, sprinkling water for suppressing dust during earthwork excavation, properly wearing safety hats and other PPEs, have been implemented.
35. **Conclusion.** Mitigation measures in the environmental management plan are being implemented as required and the project meets the requirements of the environmental management plan.

C. Implementation of ESMS

36. HXIC completed the contract signing with the first investor, Yi County Younong Ecological Agriculture Co., Ltd. (hereinafter referred to as Younong Company"), on October 12, 2021. The total investment of the project is 55 million CNY, accounting for 30% of the shares. HXIC is carrying out the second investment project (Huangshan Hualvyuan Biotechnology Co., Ltd. - Green Standard Tea Production Capacity Improvement Project) and has completed the due diligence work and is in the process of valuation and investment plan negotiations.
37. Investment activities is being implemented by HXIC and sub-projects (Younong Company) in accordance with the requirements of ESMS, including
- Implementation of high-standard green agriculture. i) State-certified non-GMO rice seeds are procured; ii) planting is controlled in accordance with green production standards; iii) soil testing and formulations were carried out in the early stage to reduce the amount of chemical fertilizers, and biological pesticides uniformly distributed in Huangshan City were used; iv) carbonization of rice and rape straw;; v) batches of agricultural products are tested to meet the national Milled Rice Standard (GB/T1354-2018), Green Food - Rice Standard (NY/T419-2014) and General Hygienic Code for Food Production (GB14881-2013).
 - Implementation of soil improvement. Some farmland is planted astragalus as green manure when the farmland is on vacation; organic fertilizers based on humic acid were applied during the planting process.
 - Cultivation open. Use open field cultivation instead of mulching;
 - Prevention and control of pests and weeds. include growing a variety of crops; reasonable crop rotation and sowing, adjust harvest time to reduce the impact of pests and diseases
 - Disposal of waste. i) carbonization of straw and elimination of burning; ii) Timely recycling of packaging wastes such as biological pesticides and fertilizers; iii) the

personal garbage of the operators shall be taken away in time and shall not be discarded at will.

- Younong Company reached a research and development cooperation with Nanjing Agricultural University, and completed the transplanting of 10,000 Huangshan chrysanthemum seedlings, called "Jingongju No. 1", in Bishan Village, Yi County, Huangshan City, as well as developed special fertilizer for chrysanthemum, and successfully prepared 10 tons of soil conditioner and foliar fertilizer. The R&D is still in progress.
- Unified use and management of agricultural machinery and equipment. i) Transplanting with a rice transplanter to reduce the use of herbicides; ii) utilize drones for plant protection to reduce the use of pesticide; iii) all agricultural machinery and equipment meet the China 5 emission standard; iv) alleviate and avoid the inefficiencies and fuel consumption of smallholder farmers in the mountains through intensive land services and efficient agricultural machinery; v) agricultural machinery and equipment shall be kept by the operator or stored in the existing warehouse of the sub-project enterprise, and there is no new warehouse.
- During the period, Younong company prepared 2 internal management system documents with reference to ESMS, namely "Internal Supervision Procedures for Green Food Management System" and "Planting Management System". The internal management is more standardized, and the awareness of environmental protection is deeper into the enterprise though the updating and revising of systems.

38. Benefit and improvement of sub-project ESMS implementation at this stage. During the application of ESMS, it is understood that sub-projects must pay attention to environmental and social issues in the process while improving agricultural productivity and pursuing maximization of agricultural benefits. It helps subprojects proactively implement mitigation measures in ESMS and, more importantly, environmental, and social awareness and capabilities of project participants have been improved. a) With the increase of participants and the scope of training, the scope of information dissemination of ESMS is expanded and the effect is enhanced, thereby improving the environmental awareness of sub-project participants and the ability to deal with environmental and social risks in investment activities. b) ESMS implementation brings training and educational opportunities to surrounding communities, especially to help women and poor people build and improve their resilience to risk and encourage their enthusiasm and initiative to participate in projects and poverty reduction activities and ultimately engage them in social and economic activities. As for Younong Company during the reporting period, the number of female employees in Younong Company has increased to a certain extent. 40% employees are women (the total number of employees in Younong Company is 57), and 50% of management positions are women (the total number of management positions are 14).

39. Lessons learned and innovation of sub-project ESMS implementation. During the reporting period, while ESMS implementation has achieved some results. HTIC/HXIC is exploring innovations in ESMS implementation, such as a) It is proposed to integrate ESMS into other businesses of HTIC, such as integrating it into the trading of forestry carbon sequestration and pollution rights of Jiangnan Forest Exchange. b) HTIC will, with the assistance of the scientific research institute, provide technical support to sub-projects and incorporate better environmental technology practices into its activities to promote the environmental and social impacts of sub-projects.

40. Monitoring and reporting of GIF. During the period, effective supervision on Younong Company carried out by HXIC. Including, review the risk information of sub-projects once

a week, collect monthly financial statements of Younong Company on time; 3 times on-site review on the farmland for implementation activities of ESMS, which played a practical and effective supervision on the sub-projects. The detailed activities of the GIF and implementation report of ESMS during the reporting period in accordance with the requirements of LA and PA has submitted by HTIC. See Appendix 4 Semi-annual Project Reports on the Implementation of the ESMS.

41. **Information disclosure and GRM.** The project basic information including location, activities, potential impact, and communication information of environmental and social officials, as well as GRM has been publicized by HTIC. These disclosures are publicized on HTIC's website, as well as on the boards of Younong company where the sub-projects are located. The sub-project is classified as Category C for environment and does not involve civil works. However, farmers within the scope of sub-project activities, especially women and poor people, can still complain directly to the IAs on environmental and social issues at any time. No complaints of any kind have been received by sub-project and HXIC during the period.
42. **Training and capacity building for GIF.** On November 19, 2021, a training on ESMS implementation was mobilized by HTIC for 15 managers, 10 of whom were women in charge of environmental, social and investment projects. On September 15, 2021, a training on ESMS implementation was mobilized by HTIC for 10 managers and technicians, 4 of whom were women from sub-project (Younong Company). In addition, during the reporting period, 13 times training and visit on agricultural technology and safety production were conducted by Younong Company for a total of 84 person-times, 27 of whom were women.
43. **Next step.** In the first half of 2022, HTIC/HXIC a) will continue to implement, monitor and report all sub-projects in accordance with ESMS requirements, and ensure that ESMS is always concerned in the activities of the sub-projects; b) strengthen training and capacity building, especially for employees of investee enterprises, in an effort to ensure the integration of ESMS among implementing unit; c) plans to complete the selection, contract signing and investment payment for the second investment project in the first half of 2022.
44. **Conclusion.** The investment projects under GIF are being carried out in accordance with the requirements of the Environmental and Social Management System (ESMS).

D. Implementation of the project monitoring program

45. Environmental protection monitoring, including internal monitoring, external monitoring, compliance monitoring, was implemented during the reporting period.
46. **Internal monitoring.** During the construction, the construction supervision company and seven implementing agencies will be responsible for internal environmental monitoring according to the monitoring plan. The results will be reported to the implementing agency and Huangshan Project Office through the monthly report of the construction supervision company. The project office, the project implementing agencies and the project implementing organization have been trained. IAs have appointed environmental officers to update the internal environmental monitoring results on schedule after the contract package construction begins. The consulting company assists in carrying out on-site EHS supervision in daily management and introduces ADB's environmental management policies and EMP to the construction participants.

47. **External environmental monitoring.** The environmental monitoring work in the second half of 2021 has implemented by external environmental monitoring unit (Huangshan Angel Environmental Monitoring Co. , Ltd.) recruited by LIEC.
48. Table 4 summarizes the external monitoring plan and implementation status of EMP. On-sites monitoring for 12 civil works contracts that were fully started (another 4 civil works contracts have just been signed, and 3 civil works contracts are basically completed) has been conducted in last monitoring in December. Monitoring only involves ambient air quality (TSP) and noise (LAeq) during construction, as well as water quality of influent and effluent from wastewater treatment station (WWTS).
49. Accord the monitoring result, TSP concentration during the construction period did not increase significantly compared to the background value, which shows that the construction activities have not caused a large negative impact on the ambient air quality. The monitoring value of noise can comply with the requirements of "Environmental Noise Emission Standard for Construction Site Boundary" (GB 12523-2011). During the operation period, the effluent quality of the WWTS can meet Class III of "Pollutant Discharge Standard for Urban Sewage Treatment Plant" (GB 18918-2002). The monitoring value of H₂S and NH₃ can meet Class I of "Pollutant Discharge Standard for Urban Sewage Treatment Plant" (GB 18918-2002); The noise value of WWTS can meet Class II of "Emission Standard for Industrial Enterprises Noise at Boundary" (GB12348-2008). See Appendix 2~3 for details of external monitoring.

Table 4: Environmental Monitoring Program and Implementation Status

Subject	Parameter	Location	Frequency	Implement Supervise
1. Construction phase – compliance with measures in Table EMP-2				
Internal monitoring (contractors, CSCs, HPMO and IA Environment Officers)				
Ambient air quality	Dust mitigation	Visual inspection at all construction sites	1 time / week	Being implemented
Noise	<ul style="list-style-type: none"> • LAeq: measured with hand-held meter • Consultations with affected residents 	<ul style="list-style-type: none"> • At each construction site boundary • Settlements within 60 m of construction works – see Table EMP-2 and IEE Section V.3 	Daily measurements and consultations or as needed during peak construction levels at individual sites	Being implemented
Solid waste	Domestic and construction waste	Visual inspection at all construction sites and work-camps	Daily	Being implemented
Soil erosion	On-site management of soil erosion	Visual inspection at spoil sites and all construction sites	1 time / week; and immediately after heavy rainfall	Being implemented
Community health and safety	Measures for traffic management and on-site safety described in in Table EMP-2	Construction sites and public roads and paths	Daily during construction at all individual sites	The measures that establishment of safety plates and gates, properly wearing safety PPEs, as well as regularly filling the "Personnel Health Monitoring Record Sheet" by staff on duty, have been implemented
Occupational health and safety	Camp hygiene, safety, availability of clean water	Inspection at all construction sites and work-camps	1 time / week	Existing house are leased for all on-site offices and the domestic wastewater is discharged through the

Subject	Parameter	Location	Frequency	Implement Supervise
				existing pipe. No temporary buildings involved.
External monitoring (certified environment monitoring agency)				
Water quality	SS, petroleum	Onsite treated construction wastewater (by oil-water separator and/or sedimentation tank)	1 time / month during construction	Construction wastewater treated on site has not yet been involved
Ambient air quality	Dust: TSP	All construction sites (at least 1 point upwind and 1 point downwind) and the nearest sensitive receptor	1 time / month during construction	Implemented. The results can meet Class I of "Pollutant Discharge Standard for Urban Sewage Treatment Plant" (GB 18918-2002)
Noise	LAeq	Boundaries of all construction sites and the nearest sensitive receptor for each construction site	1 time / month (twice a day: once in daytime and once at nighttime, for 2 consecutive days) during construction	Implemented. The results comply with requirements of the "Environmental Noise Emission Standard for Construction Site Boundary" (GB 12523-2011)
Operation phase				
Water quality of effluent from WWTS	pH, CODcr, SS, NH3-N, TP	Influent and effluent from WWTS	4 times / year	Implemented. The results can meet Class III of "Pollutant Discharge Standard for Urban Sewage Treatment Plant" (GB 18918-2002)
Ambient air quality	Odor: NH3 and H2S	At the nearest sensitive receptor from WWTS (1 point upwind and 2 points downwind)	2 times / year	Implemented. The results can meet the Class I of "Pollutant Discharge Standard for Urban Sewage Treatment Plant" (GB 18918-2002)
Noise	LAeq	At boundary of pump stations (IEE Section V.E) and the nearest sensitive receptor	2 times / year (twice a day: once in daytime and once at nighttime)	Implemented. The results can meet Class II of "Emission Standard for Industrial Enterprises Noise at Boundary"(GB12348-2008)

50. **Compliance monitoring.** The loan implementation environmental consultant will review the progress of the project and the implementation of the environmental management plan by field visits and environmental monitoring reports provided by the environmental monitoring agency. The work of loan implementation consulting team began in October 2020, including an environmental expert.

51. The following tasks were carried out by loan implementing environmental consultant during the reporting period:(i) on-site visits, including municipal project offices and county/district project sites;(ii) review of project documents such as research, preliminary design and bidding documents;(iii) environmental and social security training and communication for municipal/county project offices, implementing agencies and Huangshan Trust and Investment Corporation;(iv) review of project progress and implementation of environmental management plan; and (vi) preparatory work for

environmental monitoring and review for environmental monitoring reports; (vii) Assist municipal project office environmental officers in the preparation and submission of the second semi-annual environmental monitoring report to ADB.

52. During the reporting period, PMOs, IAS and consultants have visited the projects, in particular started construction site. The IAs and the contractors strictly abide by EMP and the requirements of domestic environmental protection, so as to ensure that the environment, occupational health and safety during the construction period are in good condition, and there are no adverse events related to the environment, occupational health and safety.

53. **Conclusion and next steps.** During the reporting period, all environmental monitoring work was carried out in compliance with the requirements of the environmental management plan, and the monitoring results showed that all environmental indicators met the national environmental quality standards. Monitoring activities for the next phase (January 1 to June 30, 2022) will be carried out in accordance with the EMP monitoring plan.

E. Public consultations and grievance redress mechanism

54. This section summarizes the implementin progress of ppublic consultations and grievance redress mechanism during the current reporting period.

55. The project construction information was publicized and informed at the construction site of each subproject. Road closure information will also be issued in a timely manner to reduce travel troubles for residents during construction. Grievance redress channels have been further improved by supervision unit and dissatisfactions and complaints of the affected population are collected and received by special personnel from each sub-project office. The officer and his/her office address and communication information have been publicized in the project area. Smooth communication channels in townships and villages in the project area has been established to redress grievance, and the PMOs /implementation unit also invite them to participate in the design and implementation of the project. For example, during the design of sewer pipe in Huang Village, Yangcun Township, Huizhou District, some villagers expressed their concerns of the construction plan because the earthwork excavation could affect the foundation of their houses. After receiving the request, the on-site visit and consultation meetings were organized by Huizhou District with the assistance of relevant responsible government departments, village representatives, construction responsible entities and consulting management company. The pipeline installation plan was then adjusted to meet the requirements of the villagers Table 5 summarizes the Implementation status public consultation plan.



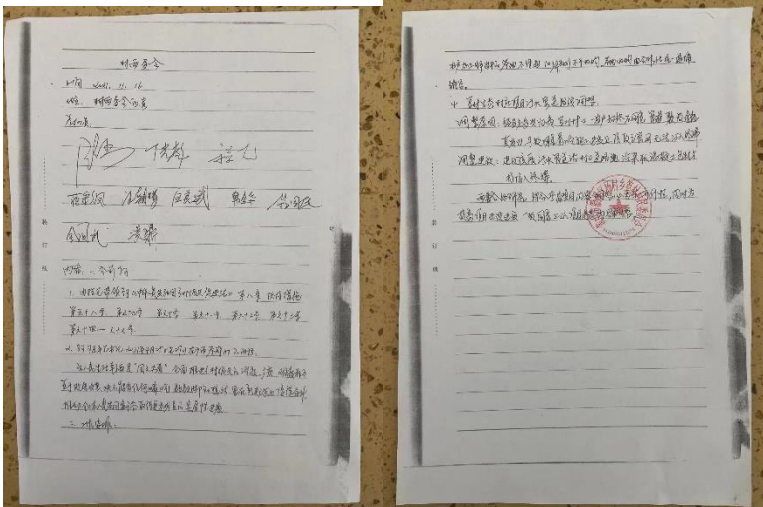
	participate in the consultation meeting on plan adjustment (the meeting minutes are shown as below)
	

Table 5: Public Consultation and Participation Plan

Organizer	Approach	Times/Frequency	Subjects	Participants	Implementation status
HPMO, IAs, LIEC	Site visits, informal interviews	At least once a week during peak construction	Construction impacts; adjusting mitigation measures if necessary; feedback	Affected persons Workers	Being implemented
	Site-specific basis	At least one month before the start of construction at any new site	Anticipated risks-noise, dust, etc.	Affected persons	The public consultation of EIA and EMP was implemented
	Public workshops	At least once during peak construction period	EMP implementation progress; construction impacts; adjusting mitigation measures if necessary; feedback	Affected persons	Being implemented

56. In accordance with the EMP, any grievances which arise due to project activities will be managed through a grievance redress mechanism (GRM), as follows.

- Stage 1 (5 calendar days): If a concern arises during construction or operation, the affected person may submit a written or oral complaint to the contractor. The contractor will: (i) respectfully acknowledge the issue and immediately stop the causal activity; (ii) not resume the activity until the complaint has been resolved; (iii)

inform the Project Managers of IAs of the incident on the same day of the incident occurring;(iv) give a clear reply to the affected person within two calendar days; and (v) as far as possible, resolve the problem within five calendar days from receiving the complaint.

- Stage 2 (5 calendar days): If the issue cannot be resolved in Stage 1, after five calendar days, the IAs and/or HPMO will take over responsibility. Eligibility of the complaint will be assessed, and a recommended solution given to the complainant and contractors within two calendar days. If the solution is agreed by the complainant, the contractors will implement the solution.
- Stage 3 (15 calendar days): If no solution can be identified by the HPMO and/or IA, and/or the complainant is not satisfied with the proposed solution, the HPMO and/or HPMO will organize, within seven (7) calendar days, a stakeholder meeting. A solution acceptable to all shall be identified including clear steps. The contractors will immediately implement the agreed solution.

57. The HPMO will report to ADB on all complaints and solutions according to the grievance redress mechanism, and relevant documents will be included in the progress report.

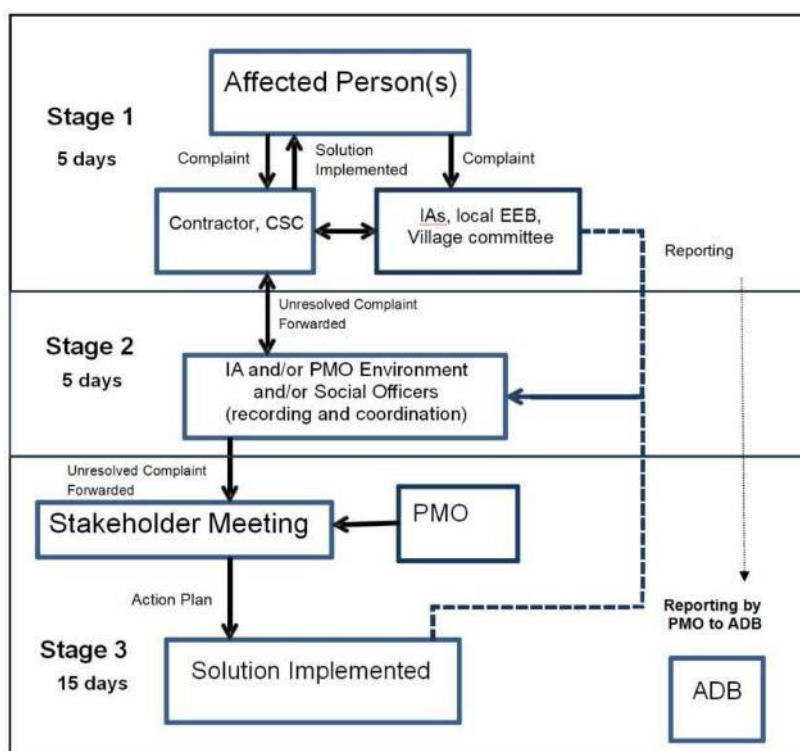


Figure 1: Operation Chart of the Grievance Redress Mechanism

ADB = Asian Development Bank, CSC = construction supervision company, EEB = ecology and environmental bureau, GRM = grievance redress mechanism, IA = implementing agency, HPMO = Huangshan Municipal project management office.

58. The grievance redress mechanism (GRM) of the project has been established as required during the reporting period, and the environmental and social officials of the Huangshan Project Office and the project office of the three districts and four counties will act as the main coordinator for the implementation of the grievance redress mechanism. Prior to construction, the contact information (telephone number, address and email address) of the corresponding environmental coordinator will be made public

on the information board of the construction site and the website of the local ecological environment bureau.

59. During the reporting period, the construction of 17 civil works contracts have been fully conducted/to be started, of which 6 contracts have been completed or almost completed. The project process is relatively smooth. Both of the public consultation and grievance redress mechanism in the process are implemented well. So far, no complaints have been received from stakeholders about the construction of sewerage system. The affected residents, especially the villagers in towns, generally support the connection to wastewater systems, believing that this will improve the status of domestic wastewater into the river and the surrounding water environment.

60. **Conclusions and next steps.** The public consultation and grievance redress mechanism have been conducted well at the site where construction has been started and no complaints or grievance have been received. Public consultation will be regularly organized by the county/district project office during the remaining implementation period. If there are any petitions and/or complaints, the relevant agencies will keep records.

F. Training and capacity building

61. Project implementing agencies in the three districts and four counties of Huangshan Municipality have no previous experience with ADB-funded projects and safeguard requirements. The experience of individual staff within the district and county EEBs for environmental management varies considerably.

62. Therefore, a capacity building program will be implemented on: (i) the EMP, including the mitigation measures, monitoring, and reporting; (ii) the grievance redress mechanism, including roles, responsibilities, and procedures; (iii) procurement and contract management, focusing on EMP incorporation and implementation; (iv) operation and maintenance of the WWTS; and (v) measures for improved efficiency in the use of agricultural chemicals and water resources for agriculture.

63. Over the reporting period, in the activities of ADB-KfW Loan Review Mission, training on various contents of project management including environmental management were conducted. Introduction on the specific requirements of ESMS to the personal of HTIC and Younong Company were conducted by environmental consultant and social and resettlement consultant of ADB during the Mission, particularly what kinds of activities GIF will encourage and what kinds of activities GIF will not support. On-site training and introduction on ADB's environmental management for PMOs, IAs, contractors, and supervision units at all levels were conducted by relevant experts of LIEC. Table 6 shows the implementation of training and capacity-building during the reporting period.

Table 6: Training on environmental safeguards conducted during the reporting period

Training projects	Training content	Training time and venue	Trainees	# Trainees		Training specialists	Outcomes
				M	F		
Implementation of EMP and ESMS	Financial payments, environment & social safeguard, including implementation of EMP, GRM, ESMS	December 7-10, 2021, ADB-KfW Loan Review Mission	Participants from municipal/district/county PMOs, IAs, HTIC and consultants.	23	5	ADB-KfW Loan Review Mission	Further understanding of relevant concepts of ADB's environmental and safety management

Training projects	Training content	Training time and venue	Trainees	# Trainees		Training specialists	Outcomes
				M	F		
							achieved
Preliminary Information Session on ADB's Safeguard Policy Review	Introduction of SPS	Nov 5, 2021	Participants from municipal/district/county PMOs, IAs, HTIC and consultants.	14	4	ADB	SPS were further learned by participants
EHS Management	Training on EHS management of on-site, including implementation of EMP, GRM, ESMS	December, 2021	Participants from district/county PMOs, IAs, design unit, supervisor, and contractors	40	12	Consulting Company	Effective implementation of EMP is promoted
ESMS Implementation	Seminar on ESMS Implementation for project managers organized by HTIC	November 19, 2021	Participants included project managers, environmental and social officers from HTIC	15	6	HTIC	The ESMS requirements were discussed in detail by the participants, and ESMS is further recognized by all
ESMS Implementation	Training on ESMS Implementation for investee enterprise (Younong Company)	September 15, 2021	Participants included project managers, environmental and social officers from HTIC and personnel from Younong Company	10	4	HTIC	Basic understanding of ESMS concepts achieved but further training required;
Work safety and fire drills	Training on work safety and fire drills	December 25, 2021	Participants from Younong Company	15	10	Younong Company	Basic understanding of relevant concepts achieved but further training required;

64. Conclusions and next steps. After the training, participants had a basic understanding of the implementation of environmental management plans, monitoring and reporting requirements and the concept and implementation of grievance redress mechanism. As the project progresses, other contracts with new contractors and supervision companies will be signed, so further environmental management training will be conducted in the next reporting period according to the progress of project implementation. GIF projects are continuously implemented by the HTIC in accordance with the requirements of ESMS; the selection of 3 projects will be carried out in 2022, including an environmental and social assessment plan for the proposed project; as well

as training on the requirements of ESMS for personnel involved in the project from HTIC and personnel of the proposed investment company.

G. Compliance with loan and project agreement

65. Loan agreements and project agreements between the government and ADB include 25 environmental safeguards and/or guarantees related to environmental issues (or "terms"). This involves the timely and effective implementation of environmental management plans and specific project guarantees for current projects. Compliance with these terms is a condition of the loan and project agreement. The environmental safety and security provisions during the reporting period(including the environment, safeguards provisions, pre-construction preparation, safeguard and monitoring reports and grievance redress mechanism) and their implementation progress are described in Table 7.

Table 7 Compliance with environmental assurances

Para No.	Description	Remarks / Issues	Type
10-11	10. HMG shall, and shall cause the IAs 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) subsequently agreed between ADB and HMG.	In Compliance	Safeguards
	11. HMG shall, and shall cause the IAs to, ensure that agricultural chemicals listed as hazardous under Classes I or II by the World Health Organization or listed as prohibited or strictly controlled use under the Borrower's national regulations for pesticide management are not used within the Project area.		
15	15. HMG shall, and shall cause the IAs to, make available necessary budgetary and human resources to fully implement the EMP and the RPs.	In Compliance	Safeguards
16	16. HMG shall ensure that all bidding documents and contracts for Works entered into by HMG contain provisions that require contractors to:	In Compliance	Safeguards
	(a) comply with the measures and requirements relevant to the contractor set forth in the IEE, EMP, the related RP (to the extent they concern impacts on the respective affected people under the Environmental Safeguards and the Involuntary Resettlement Safeguards during construction) and any corrective or preventative actions set forth in (i) a Safeguards Monitoring Report, or (ii) subsequently agreed between ADB and HMG;		
	(b) make available a budget for all such environmental and social measures;		
	(c) provide HMG with a written notice of any unanticipated environmental, resettlement or indigenous peoples/ethnic minorities risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, and the RPs;		
	(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport		

Para No.	Description	Remarks / Issues	Type
	materials and construction; and (e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition as early as possible but no later than the completion of construction.		
17	17. HMG shall ensure that each IA: (a) appoint at least one qualified environment officer and one social officer as full time Project management office staff to coordinate implementation of the EMP, the RP, and the GAP; (b) recruit a start-up loan implementation consultant to support the Project management office; and (c) ensure that the Project management office has engaged one external social monitoring specialist.	In Compliance	Safeguards
18	Before and during the implementation of Works, HMG shall cause each IA to organize and conduct training on implementation and supervision of the EMP for construction supervision companies, and contractors, and shall ensure that the appropriate staff and officers receive such training.	In Compliance	Safeguards
19	19. HMG shall do the following: (a) submit semiannual Safeguards Monitoring Reports to ADB until the issuance of ADB's Project completion report, unless a longer period is agreed in the EMP, and disclose relevant information from such reports to the respective affected people under the Environmental Safeguards promptly upon submission; (b) 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, the EMP, or the RP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and (c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP or the RP promptly after becoming aware of the breach.	In Compliance	Safeguards
20	20. HMG shall ensure that a safeguards grievance redress mechanism acceptable to ADB is established and maintained in accordance with the provisions of the IEE, the EMP, the RP and the PAM, to consider safeguards complaints	In Compliance	Safeguards

H. Actions in ADB Memorandum of Understanding

66. Asian Development Bank (ADB) and Kreditanstalt Fuer Wiederaufbau (KfW) conducted a Loan Review Mission for Anhui Huangshan Xin'an River Ecological Protection and Green Development Project from 7 to 10 December 2021 and issued a Memorandum of Understanding (MOU). The MOU records identified issues and follow-up actions. Table 8 summarizes the environmental issues raised in the Mission, the corrective actions need to be taken and the current status of them.

Table 8: Implementation progress of environmental measures in the MOU of Loan Review Mission

Actions agreed	Responsible Unit	Completion Date	Completion status
Submission of revised second semi-annual EMR	PMO, external monitor	30-Dec-21	Completed in 30-Dec-21
Submission of third semi-annual EMR covering 1 July to 30 December 2021	PMO, external monitor	30-Jan-22	Completed in 30-Jan-22

I. Reporting

67. Table 9 summarizes the project environmental safeguard reporting requirements and implementation status during the reporting period, including: i) progress reports submitted by construction supervision companies to implementing agencies; (ii) external monitoring reports submitted by environmental monitoring agencies to implementing agencies and HPMP; and (iii) environmental monitoring progress reports submitted by project offices to ADB.

Table 9: Environmental reporting requirements and status of implementation during the reporting period

Report	From	To	Reporting frequency	Implementation status
Internal progress reports	Construction Supervision Company	IAs	Monthly	Completed
Implementation report of ESMS	HTIC	EA, HPMP	Half a year	Completed in January, 2022
External monitoring reports	Environmental monitoring agency	EA, HPMP	Half a year	Monitoring activities were carried out in the second half of 2021 and reports were issued. (See Appendix 2).
Compliance monitoring and EMP progress reports	Huangshan Project Office/ Loan Implementation Environmental Specialist	ADB	Half a year	Refer to this semi-annual progress report on environmental monitoring

68. **Conclusions and next steps.** The reporting system for the environmental management plan is being implemented as required, and the next semi-annual report on environmental monitoring will report on the implementation for the period from 1 January 2022 to 30 June 2022.

IV. LESSONS LEARNED

69. Lessons learned during reporting period include: (i) trainings and capacity building improved the ESMS implementation. Though extensive trainings, not only the environment officers of the HTIC, but also other staff from HTICC and application companies that involve in subproject selection increased environmental awareness, and as a result, great attention was paid to environmental and social issues during subproject selection and implementation. (ii) HTIC/HXIC is exploring innovations in ESMS implementation, such as a) It is proposed to integrate ESMS into other businesses of HTIC, such as integrating it into the trading of forestry carbon sequestration and pollution rights of Jiangnan Forest Exchange. b) HTIC will, with the assistance of the scientific research institute, provide technical support to sub-projects and incorporate better environmental technology practices into its activities to promote the environmental and social impacts of sub-projects. During the reporting period, the environmental management organization of the project is well established, the responsibilities and tasks of all levels of institutions are clear as well as the facilities are well-equipped. However, with the increase in the number of projects started, new institutions are constantly participating, especially new construction units and supervision units, many new personnel are not familiar with the project and ADB's environmental safeguard policies. It is necessary for the PMO, with the assistance of relevant consulting agencies, to ensure the smooth progress of the EMP by training for new personnel during the implementation period.

APPENDIX 1 PHOTOS OF ON-SITE ENVIRONMENTAL MANAGEMENT ACTIVITIES



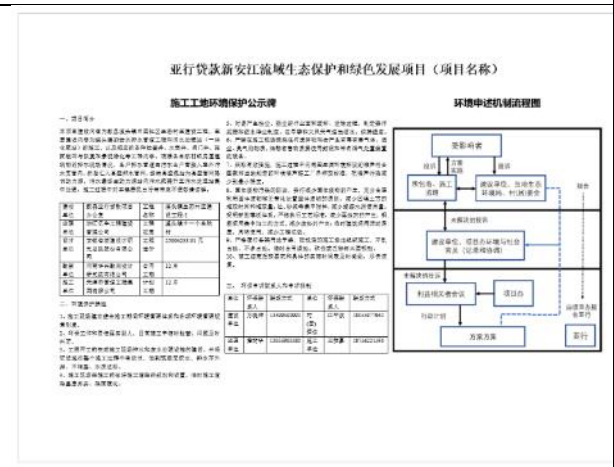
Works-XN-7 Ecological village project - site entrance gate and enclosure of construction area



Works-XN-1 Workers arrangement during pipe jacking construction



Works-SX-5 Workers with PPEs (safety hats and reflective vests)



Designed environmental management publicity boards

各类工地工作人员摸排及核酸检测情况统计表

报送单位: 安徽信达建筑安装有限公司 报送时间: 2021 年 8 月 10 日

工地名称	工作人员总数	其中自省外(来)返黄人员		采样时间	采样人数	未采样原因	备注 1	备注 2
		行程码*	人数					
休宁县污水管网提升工程(1)	5	0	0	/	/	现场人员一直在省内(黄山休宁)未到往风险地区		
合计								

说明: 1. 行程码*人员中, 若有中高风险地区旅居史、南京禄口机场返黄史或来自张家界史的, 请在备注栏 1 说明人数及集中隔离情况。

Statistics sheet of nucleic acid testing for workers



Nucleic acid testing for workers



The barriers for confined space of pumping station supervised by HP MO and consultant



Construction and supervision documents review by HP MO and consultant



Goods-HSC-7 Lot1 Water quality monitoring equipment has been installed



Goods-HSC-7 Lot2 The electronic screen of control room has been installed in Circular Economy Industrial Park in She District

APPENDIX 2 EXTERNAL ENVIRONMENTAL MONITORING REPORT (No.3. JAN 2022)



检 测 报 告

Test Report

报告编号: RC-C20220100501
Report No

委托单位 黄山安琪尔环境检测有限公司
Entrusted Client

受检单位 亚行新安江项目
Inspected Client

检测性质 委托监测
Test Properties

检测类别 废水、无组织废气、噪声
Test Category

江苏安琪尔检测科技有限公司
JiangSu AnQiEr Testing Technology Co., Ltd

报告编号(Report No.): RC-C20220100501

报 告 说 明

Report Declaration

一、本报告须经编制人、审核人及签发人签字，加盖本公司检验检测专用章和 CMA 章后方可生效。

This report is only valid with signatures of compiler, reviewer, approver and AnQiEr special seal and CMA seal.

二、本报告仅对采样/收到的送样样品检测结果负责。

This report is only responsible for the test results of samples/received samples.

三、对本报告有疑义，请于收到报告 10 天内与本公司联系。

Please contact us within 10 days after received this report, if you have any queries.

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AnQiEr is responsible for the authenticity, legality, applicability and scientificity of the report.

六、除客户特别声明并支付样品管理费，所有超过标准规定时效期的样品均不再留样。

The expired sample shall not be reserved without additional cost.

七、本次检测所有记录档案保存期限根据生态环境档案管理规范要求执行。

The retention period of all records and archives in this test shall be implemented according to the requirements of ecological environment archives management specifications.

八、样品基本信息、检测结果基本信息和调查参数的数据是阅读本报告的重要关联信息，但此内容不在 CMA 资质范围内，不属于 CMA 管理范畴。

The data in basic information of samples, basic information and test parameters of test results are important relevant information for reading this report, but such information is outside the scope of CMA.

地 址：江苏省无锡市惠山区智慧路 1 号清华创新大厦 2001 室

邮政编码：214174

电 话：0510-88581906

电子邮件：jsaqejc@163.com

江苏安琪尔检测科技有限公司

检测信息

Reference Declaration

样品信息:

Sample Information

受检项目名称	亚行新安江项目 施工环境监测		
项目地址	/		
联系人	吴丹	联系电话	17755951077
采(送)样人	薛明晖、张凌峰、吴庆、林琳	采(送)样日期	2022年1月17日~1月19日
		分析日期	2022年1月17日~1月21日
备注	/		

样品基本信息:

Sample Basic Information

无组织废气监测期间气象参数同步测定情况

点位	监测时间		风 向	风速(m/s)	气温(℃)	气压(kPa)	天气状况
SX-6 上风向	1月18日	16:11~17:11	东南	2.6	15.1	100.4	晴
SX-6 下风向	1月18日	16:11~17:11	东南	2.6	15.1	100.4	晴
SX-6 敏感体	1月18日	16:11~17:11	东南	2.6	15.1	100.4	晴
XN-1 上风向	1月18日	9:21~10:21	东南	2.6	6.7	101.0	晴
XN-1 下风向	1月18日	9:21~10:21	东南	2.6	6.7	101.0	晴
XN-1 敏感体	1月18日	9:21~10:21	东南	2.6	6.7	101.0	晴
QM-1 上风向	1月19日	9:17~10:17	东南	2.3	8.1	101.2	晴
QM-1 下风向	1月19日	9:17~10:17	东南	2.3	8.1	101.2	晴
QM-1 敏感体	1月19日	9:17~10:17	东南	2.3	8.1	101.2	晴
HS-1 上风向	1月19日	13:02~14:02	东南	2.2	15.3	100.6	晴
HS-1 下风向	1月19日	13:02~14:02	东南	2.2	15.3	100.6	晴
HS-1 敏感体	1月19日	13:02~14:02	东南	2.2	15.3	100.6	晴
HS-2 上风向	1月19日	16:04~17:04	东南	2.1	14.3	100.7	晴
HS-2 下风向	1月19日	16:04~17:04	东南	2.1	14.3	100.7	晴
HS-2 敏感体	1月19日	16:04~17:04	东南	2.1	14.3	100.7	晴
XN-2 上风向	1月18日	9:07~10:07	东南	2.6	6.6	101.0	晴
XN-2 下风向	1月18日	9:07~10:07	东南	2.6	6.6	101.0	晴
XN-2 敏感体	1月18日	9:07~10:07	东南	2.6	6.6	101.0	晴
XN-3 敏感体	1月18日	12:31~13:31	东南	2.6	11.9	100.8	晴
SX-1 上风向	1月18日	15:32~16:32	东南	2.6	15.8	100.5	晴
SX-1 下风向	1月18日	15:32~16:32	东南	2.6	15.8	100.5	晴

江苏安琪尔检测科技有限公司

Anhui Huangshan Xin' an River Ecological Protection and Green Development Project
Semi-Annual Environmental Monitoring Report (No. 3)

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SX-1 敏感体	1月18日	15:32~16:32	东南	2.6	15.8	100.5	晴
TX-3 上风向	1月19日	9:26~10:26	东南	2.5	7.1	101.3	晴
TX-3 下风向	1月19日	9:26~10:26	东南	2.5	7.1	101.3	晴
TX-3 敏感体	1月19日	9:26~10:26	东南	2.5	7.1	101.3	晴
QM-2 敏感体	1月19日	12:13~13:13	东南	2.2	11.9	101.0	晴
HS-3 敏感体	1月19日	15:51~16:51	东南	2.1	15.0	100.7	晴

检测依据:

Reference Contents

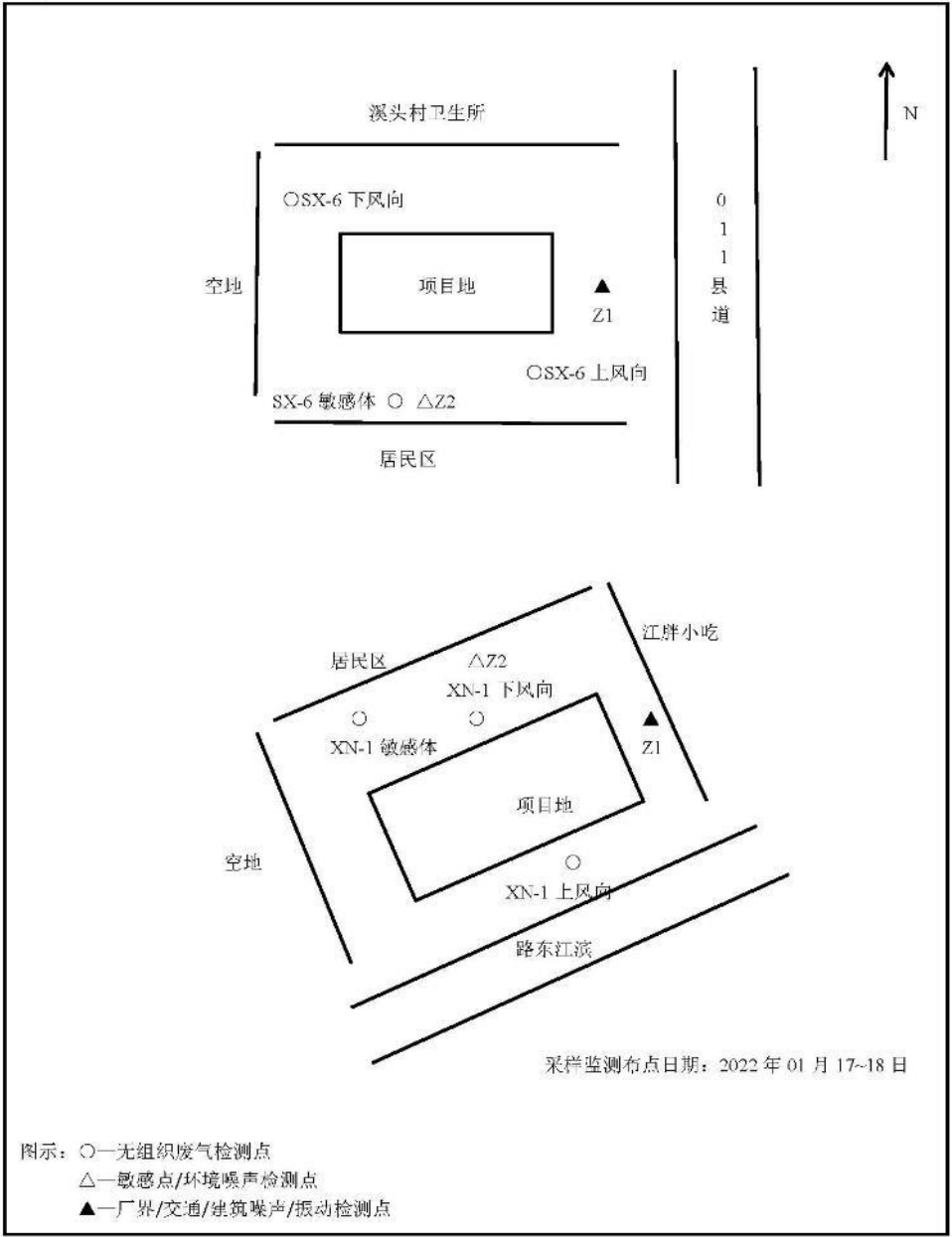
检测项目	检测标准(方法)名称及编号(含年号)	设备名称及编号	备注
无组织废气	环境空气 总悬浮颗粒物的测定 重量法 GB/T 15432-1995 及修改单(生态环境部公告 2018 年第 31 号)	恒温恒流大气/颗粒物采样器(19 代) X-ZY-056、X-ZY-057、 X-ZY-058 全自动大气/颗粒物采样器 X-ZY-003、X-ZY-004、X-ZY-005 风向风速表 X-ZY-045、X-ZY-023 空盒气压表 X-ZY-021、X-ZY-020	/
	环境空气和废气 氨的测定 纳氏试剂分光光度法 HJ 533-2009	恒温恒流大气/颗粒物采样器(19 代) X-ZY-056、X-ZY-057、 X-ZY-058、X-ZY-059 风向风速表 X-ZY-045 空盒气压表 X-ZY-021	/
	《空气和废气监测分析方法》(第四版增补 版) 国家环境保护总局(2003 年) 3.1.11.2	恒温恒流大气/颗粒物采样器(19 代) X-ZY-056、X-ZY-057、 X-ZY-058、X-ZY-059 风向风速表 X-ZY-045 空盒气压表 X-ZY-021	/
废水	pH 值	水质 pH 值的测定 电极法 HJ 1147-2020 便携式 pH 计 X-ZY-028 水温计 X-ZY-039	/
	氨氮	水质 氨氮的测定 纳氏试剂分光光度法 HJ535-2009	紫外可见分光光度计 J-ZY-007 /
	总磷	水质 总磷的测定 钼酸铵分光光度法 GB/T 11893-1989	紫外可见分光光度计 J-ZY-007 /

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检测项目		检测标准（方法）名称及编号（含年号）	设备名称及编号	备注
	化学需氧量	水质 化学需氧量的测定 重铬酸盐法 HJ828-2017	全自动定滴定管 J-ZY-005	/
	悬浮物	水质 悬浮物的测定 重量法 GB/T 11901-1989	电子天平 J-ZY-010 鼓风干燥箱 J-FZ-043	/
噪 声	工业企业厂界 环境噪声	工业企业厂界环境噪声排放标准 GB 12348-2008	多功能声级计 X-ZY-041、X-ZY-040 风向风速表 X-ZY-045、X-ZY-023、X-ZY-046	/
	建筑施工场界 环境噪声	建筑施工场界环境噪声排放标准 GB 12523-2011	多功能声级计 X-ZY-041、X-ZY-040 风向风速表 X-ZY-045、X-ZY-023、X-ZY-046	/

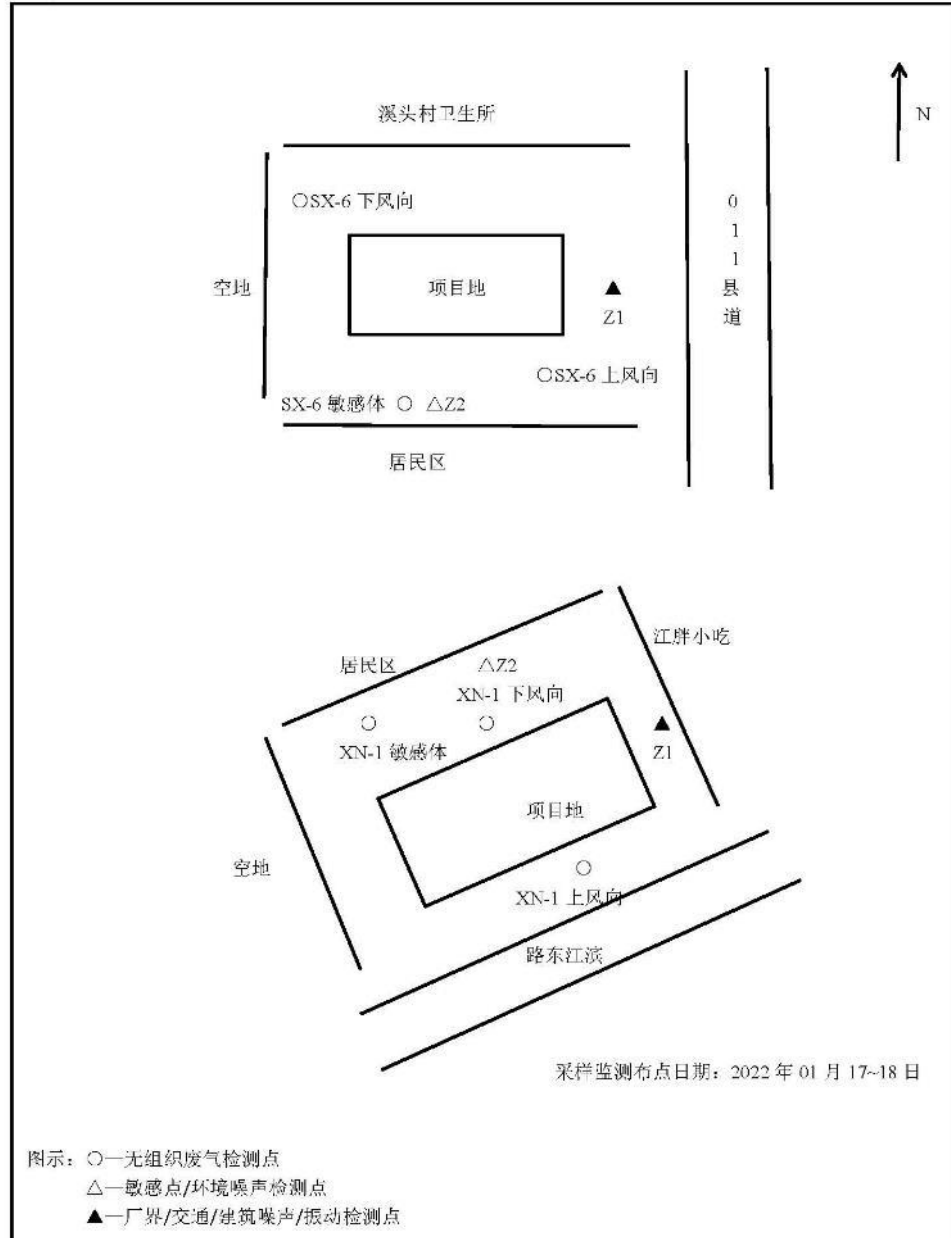
江苏安琪尔检测科技有限公司

检测布点图:
Sample Distribution Plan



检测布点图:

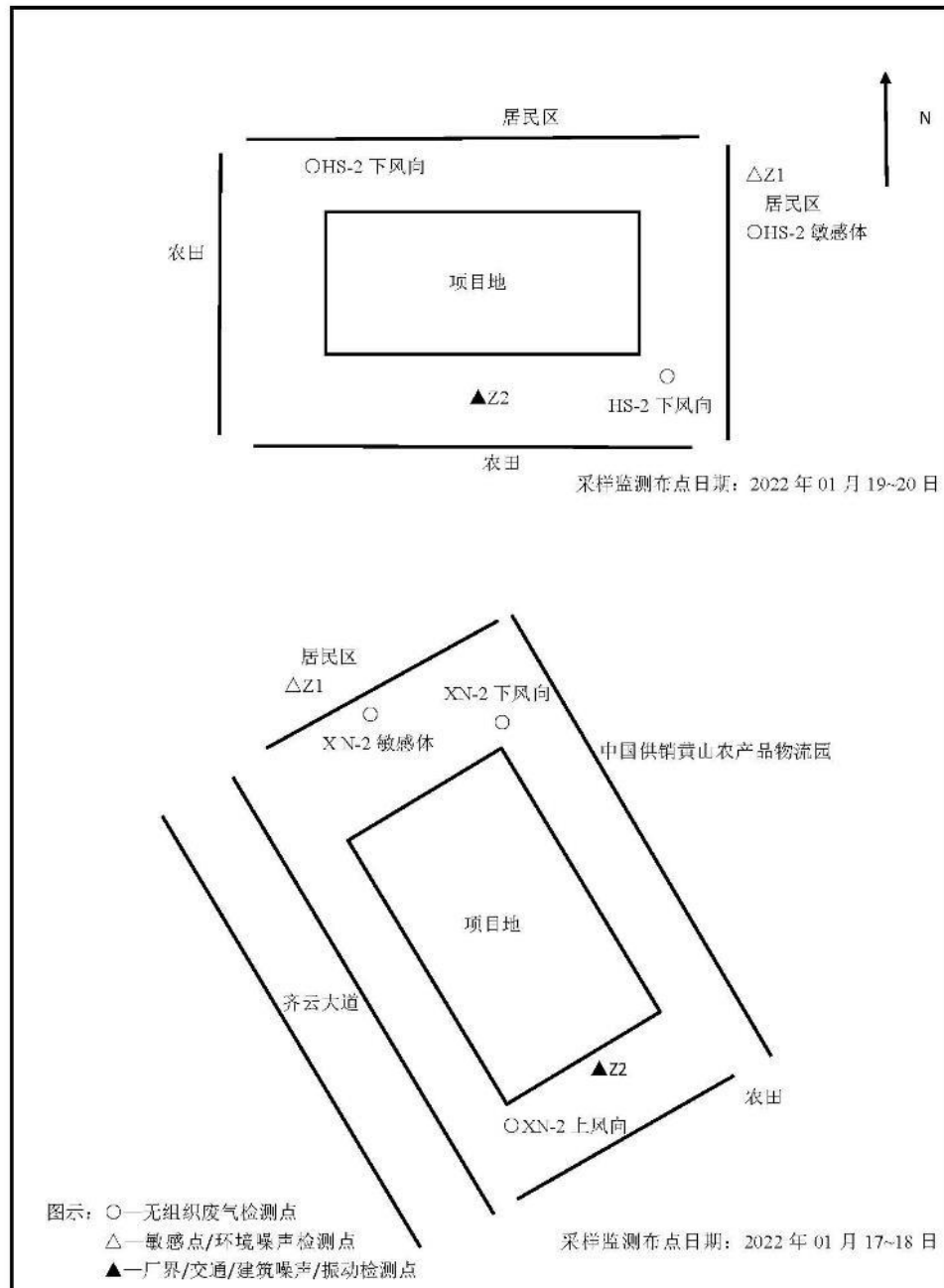
Sample Distribution Plan

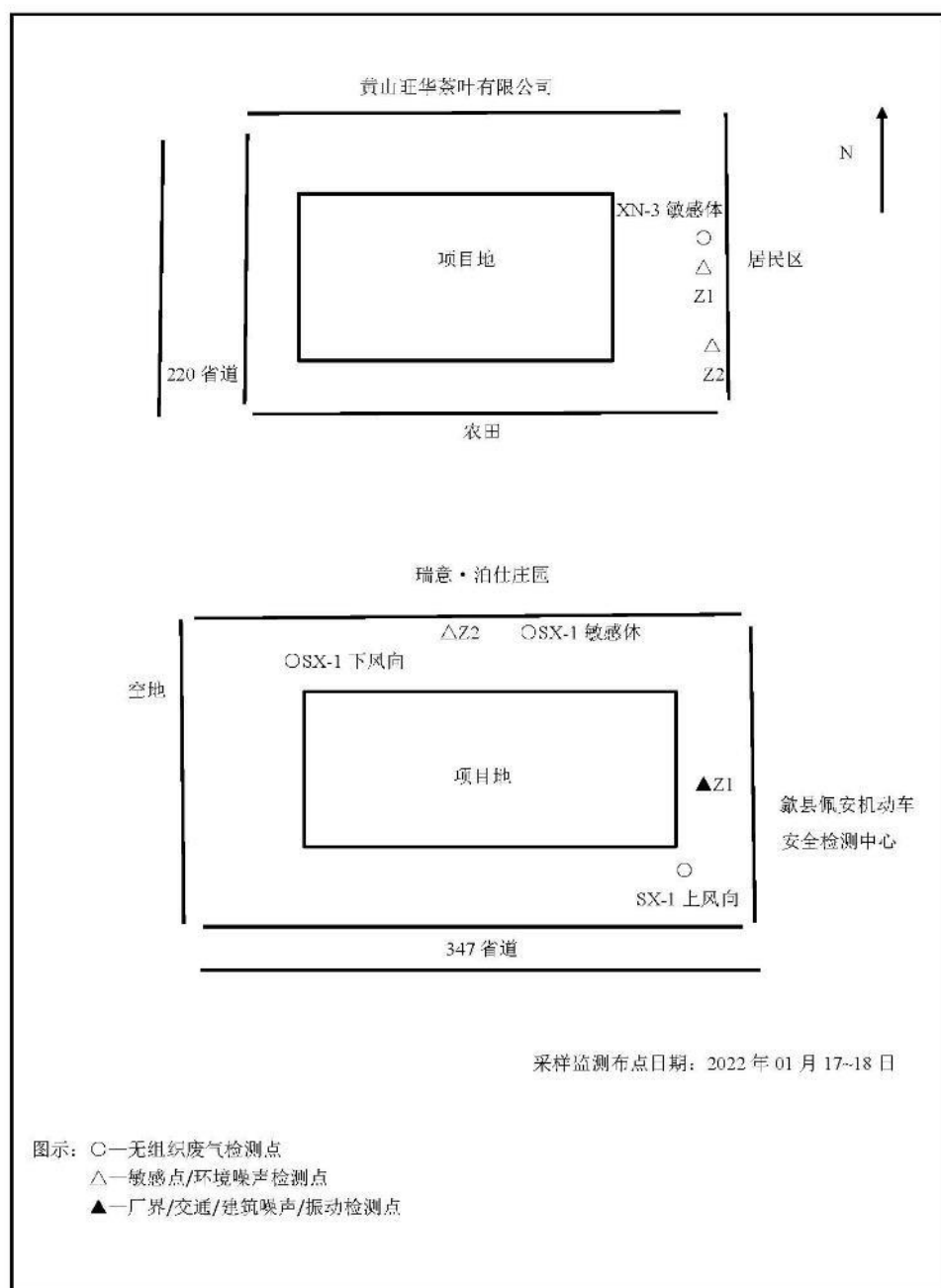


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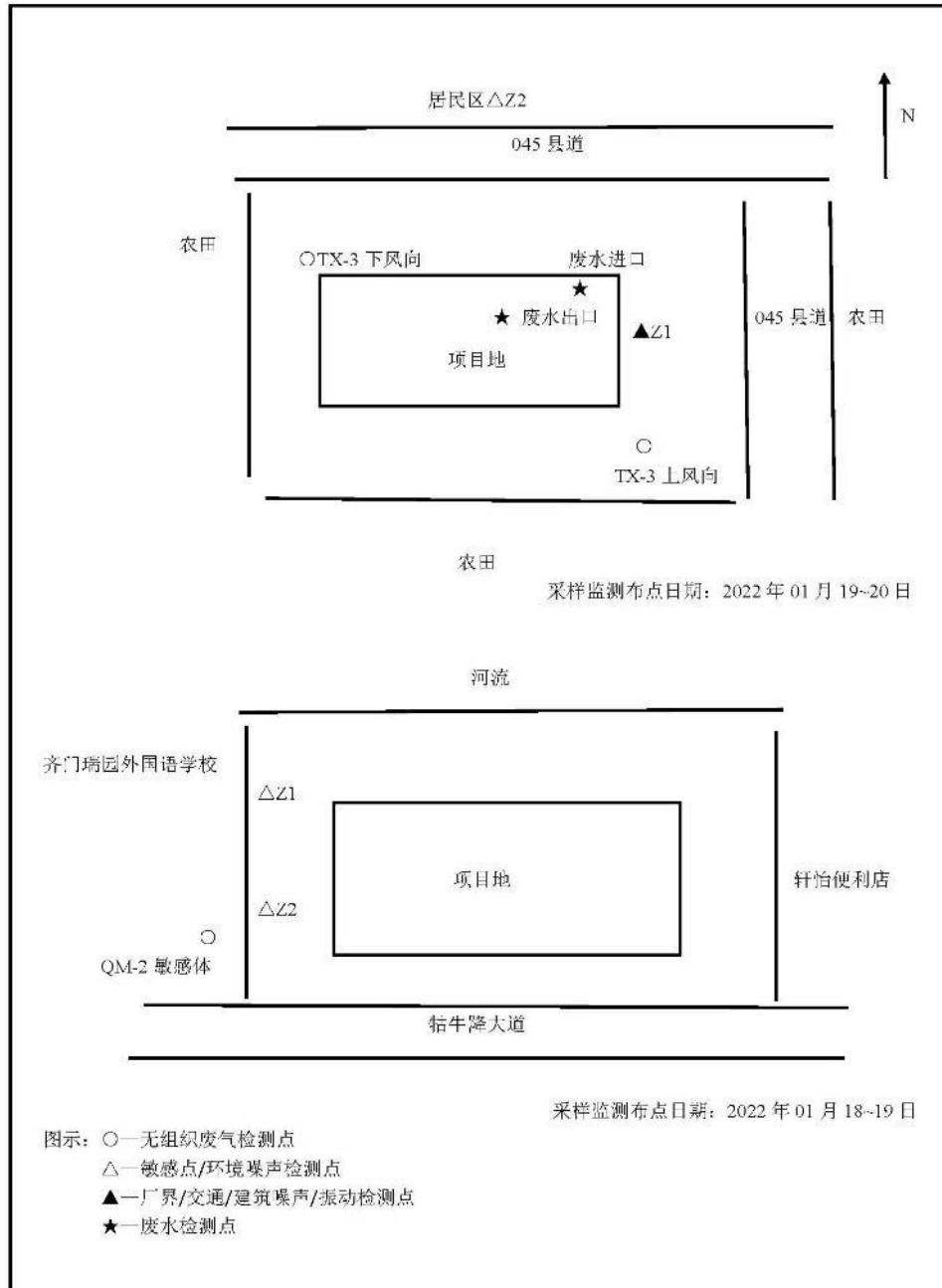
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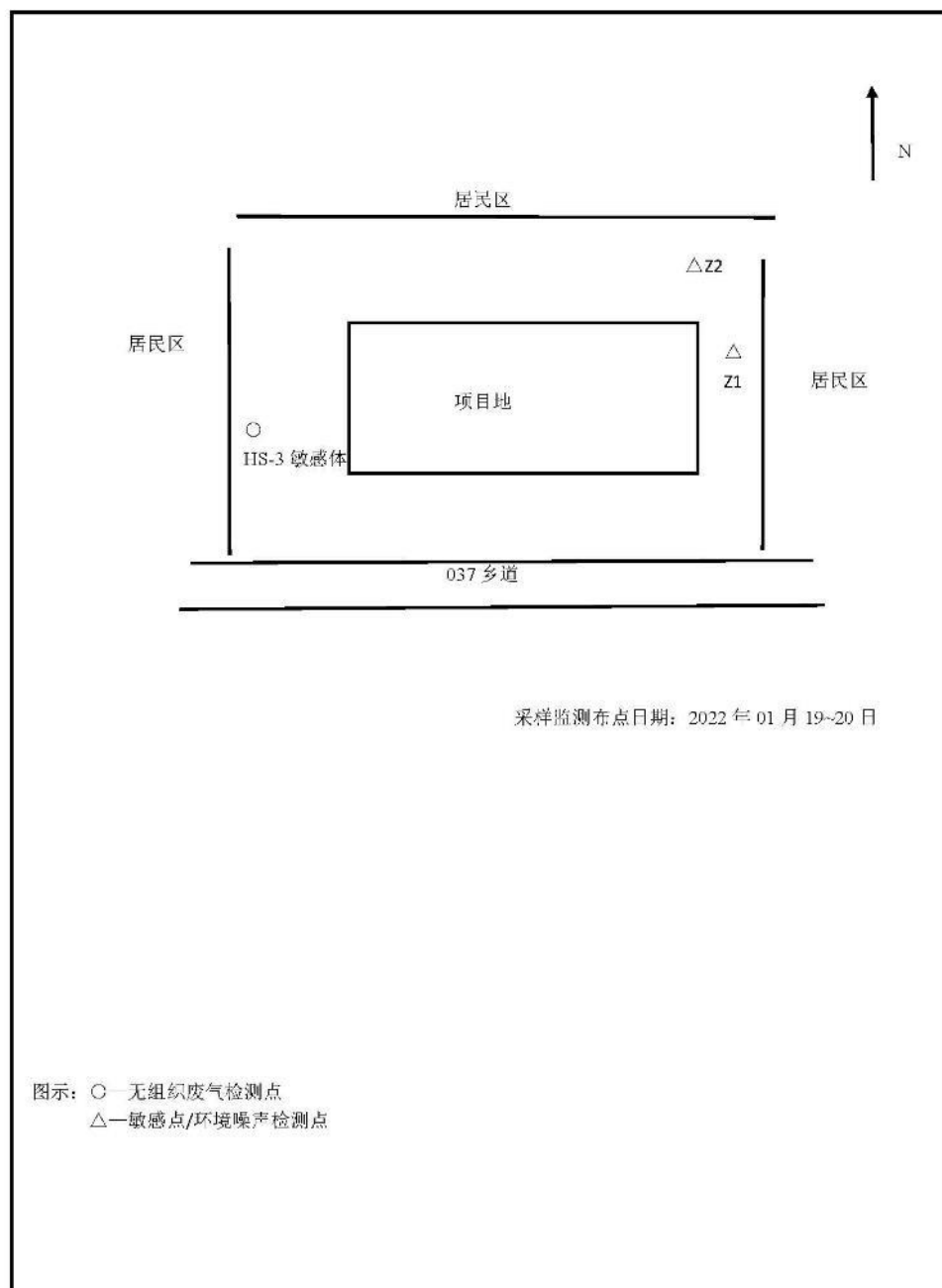




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检 测 结 果

Test Result

表 1 废水检测结果

检测项目	样品编号		SC2201005001	SC2201005002	/	/
	点位名称		TX-3 废水进口	TX-3 废水出口	/	/
	样品性状		微黄、微浑、微臭	微黄、微浑、无味	/	/
	检出限	单位	检测结果			
化学需氧量	4	mg/L	111	40	/	/
氨氮	0.025	mg/L	45.9	34.3	/	/
总磷	0.01	mg/L	3.72	3.54		
悬浮物	4	mg/L	50	31	/	/
pH 值	/	无量纲	8.1	7.8	/	/

表 2 无组织废气检测结果

检测项目	点位名称		XN-2 上风向	XN-2 下风向	XN-2 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005001	QC2201005002	QC2201005003
	检出限	单位	检测结果		
	0.024	mg/m ³	0.152	0.366	0.333
检测项目	点位名称		XN-1 上风向	XN-1 下风向	XN-1 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005004	QC2201005005	QC2201005006
	检出限	单位	检测结果		
	0.024	mg/m ³	0.100	0.334	0.450
检测项目	点位名称		XN-3 敏感体	HS-3 敏感体	QM-2 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005007	QC2201005025	QC2201005029

	检出限	单位	检测结果		
	0.024	mg/m ³	0.300	0.367	0.417
检测项目	点位名称		SX-1 上风向	SX-1 下风向	SX-1 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005008	QC2201005009	QC2201005010
	检出限	单位	检测结果		
	0.024	mg/m ³	0.200	0.300	0.400
检测项目	点位名称		SX-6 上风向	SX-6 下风向	SX-6 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005011	QC2201005012	QC2201005013
	检出限	单位	检测结果		
	0.024	mg/m ³	0.166	0.399	0.433
检测项目	点位名称		HS-1 上风向	HS-1 下风向	HS-1 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005019	QC2201005020	QC2201005021
	检出限	单位	检测结果		
	0.024	mg/m ³	0.100	0.266	0.366
检测项目	点位名称		HS-2 上风向	HS-2 下风向	HS-2 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005022	QC2201005023	QC2201005024
	检出限	单位	检测结果		
	0.024	mg/m ³	0.167	0.300	0.350
检测项目	点位名称		QM-1 上风向	QM-1 下风向	QM-1 敏感体
总悬浮颗粒物	实验室样品编号		QC2201005026	QC2201005027	QC2201005028
	检出限	单位	检测结果		
	0.024	mg/m ³	0.183	0.316	0.383
检测项目	点位名称		TX-3 上风向	TX-3 下风向	TX-3 敏感体
氨	实验室样品编号		QC2201005030	QC2201005031	QC2201005032
	检出限	单位	检测结果		
	0.01	mg/m ³	0.51	0.72	0.62

Anhui Huangshan Xin' an River Ecological Protection and Green Development Project
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检测项目	点位名称		TX-3 上风向	TX-3 下风向	TX-3 敏感体
硫化氢	实验室样品编号		QC2201005033	QC2201005034	QC2201005035
	检出限	单位	检测结果		
	0.001	mg/m ³	ND	0.002	0.002

表 3 工业企业厂界环境噪声检测结果

测量日期	2022 年 1 月 19 日		测量时间	昼间: 10: 34~11:00
环境条件	昼间: 晴, 风速 2.3m/s		测试工况	昼间: 81%
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	TX-3 泵站	机械噪声	58.2	60
Z2	TX-3 敏感受体	机械噪声	55.8	
测量日期	2022 年 1 月 20 日		测量时间	昼间: 8: 01~8: 27
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	昼间: 80%
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	TX-3 泵站	机械噪声	57.3	60
Z2	TX-3 敏感受体	机械噪声	55.2	
备注	排放标准限值参考《工业企业厂界环境噪声排放标准》(GB12348-2008)表 1 中 2 类功能区类别进行。			

表 4 建筑施工场界环境噪声检测结果

测量日期	2022 年 1 月 17 日		测量时间	昼间: 12: 46~13:31
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	XN-2 边界处	混凝土搅拌机	57.8	70
Z2	XN-2 敏感受体	混凝土搅拌机	55.1	
测量日期	2022 年 1 月 17 日		测量时间	昼间: 13: 52~14:38
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	XN-1 边界处	混凝土搅拌机	58.3	70
Z2	XN-1 敏感受体	混凝土搅拌机	55.8	
测量日期	2022 年 1 月 17 日		测量时间	昼间: 15: 07~15:53
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	XN-3 边界处	混凝土搅拌机	57	70
Z2	XN-3 敏感受体	混凝土搅拌机	56	
测量日期	2022 年 1 月 17 日		测量时间	昼间: 17: 08~17:54
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间

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Z1	SX-1 边界处	混凝土搅拌机	60.2	70
Z2	SX-1 敏感受体	混凝土搅拌机	57.1	
测量日期	2022 年 1 月 17 日		测量时间	昼间: 18: 32~19:21
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	SX-6 边界处	混凝土搅拌机	57.6	70
Z2	SX-6 敏感受体	混凝土搅拌机	54.8	
测量日期	2022 年 1 月 18 日		测量时间	昼间: 10: 15~11:02
环境条件	昼间: 晴, 风速 2.1m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	XN-2 边界处	混凝土搅拌机	58.3	70
Z2	XN-2 敏感受体	混凝土搅拌机	55.4	
测量日期	2022 年 1 月 18 日		测量时间	昼间: 10: 31~11:19
环境条件	昼间: 晴, 风速 2.1m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	XN-1 边界处	混凝土搅拌机	59.8	70
Z2	XN-1 敏感受体	混凝土搅拌机	57.6	

测量日期	2022 年 1 月 18 日		测量时间	昼间: 12: 32~13:19
环境条件	昼间: 晴, 风速 2.1m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	MQ-1 边界处	混凝土搅拌机	59.2	70
Z2	MQ-1 敏感受体	混凝土搅拌机	56.8	
测量日期	2022 年 1 月 18 日		测量时间	昼间: 13: 15~14:00
环境条件	昼间: 晴, 风速 2.1m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	XN-3 边界处	混凝土搅拌机	58	70
Z2	XN-3 敏感受体	混凝土搅拌机	57	
测量日期	2022 年 1 月 18 日		测量时间	昼间: 13: 37~14:23
环境条件	昼间: 晴, 风速 2.1m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	MQ-2 敏感受体	混凝土搅拌机	58	70
Z2	MQ-2 敏感受体	混凝土搅拌机	57	
测量日期	2022 年 1 月 18 日		测量时间	昼间: 16: 44~17:29
环境条件	昼间: 晴, 风速 2.1m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	SX-1 边界处	混凝土搅拌机	58.1	70

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Z2	SX-1 敏感受体	混凝土搅拌机	55.2	
测量日期	2022 年 1 月 18 日		测量时间	昼间: 17: 18~18:04
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	SX-6 边界处	混凝土搅拌机	58.3	70
Z2	SX-6 敏感受体	混凝土搅拌机	55.7	
测量日期	2022 年 1 月 19 日		测量时间	昼间: 10: 15~11:00
环境条件	昼间: 晴, 风速 2.3m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	QM-1 边界处	混凝土搅拌机	58.2	70
Z2	QM-1 敏感受体	混凝土搅拌机	56.5	
测量日期	2022 年 1 月 19 日		测量时间	昼间: 13: 11~14:04
环境条件	昼间: 晴, 风速 2.3m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	QM-2 敏感受体	混凝土搅拌机	57	70
Z2	QM-2 敏感受体	混凝土搅拌机	54	
测量日期	2022 年 1 月 19 日		测量时间	昼间: 14: 10~14:55
环境条件	昼间: 晴, 风速 2.3m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间

Z1	HS-1 边界处	混凝土搅拌机	58.6	70
Z2	HS-1 敏感受体	混凝土搅拌机	56.5	
测量日期	2022 年 1 月 19 日		测量时间	昼间: 16: 58~17:43
环境条件	昼间: 晴, 风速 2.3m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	HS-3 敏感受体	混凝土搅拌机	56	70
Z2	HS-3 敏感受体	混凝土搅拌机	57	
测量日期	2022 年 1 月 19 日		测量时间	昼间: 17: 11~17:55
环境条件	昼间: 晴, 风速 2.3m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	HS-2 边界处	混凝土搅拌机	60.1	70
Z2	HS-2 敏感受体	混凝土搅拌机	56.1	
测量日期	2022 年 1 月 20 日		测量时间	昼间: 10: 36~11:21
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	HS-1 边界处	混凝土搅拌机	59.5	70
Z2	HS-1 敏感受体	混凝土搅拌机	57.6	

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环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	HS-2 边界处	混凝土搅拌机	61.4	70
Z2	HS-2 敏感受体	混凝土搅拌机	58.7	
测量日期	2022 年 1 月 20 日		测量时间	昼间: 14: 33~15:18
环境条件	昼间: 晴, 风速 2.4m/s		测试工况	/
测点位置	测点名称	主要噪声源	测量值 L_{eq} dB(A)	排放标准限值 dB(A)
			昼间	昼间
Z1	HS-3 敏感受体	混凝土搅拌机	58	70
Z2	HS-3 敏感受体	混凝土搅拌机	55	
备注	排放标准限值参考《建筑施工场界环境噪声排放标准》(GB12523-2011)表 1 中进行。			

报告结束

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APPENDIX 3 SITE PHOTOLOG OF ENVIRONMENTAL MONITORING



Works-SX-6 Monitoring for TSP of site boundary in Xitou Township, She County



Works-SX-6 Monitoring for noise of sensitive receptor in Xitou Township, She County



Works-SX-1 Monitoring for TSP of site boundary in She County



Works-XN-1 Monitoring for TSP of sensitive receptor in Bingjiangdong Road



Works-XN-2 Monitoring for TSP of site boundary in Qiyun Road



Works-XN-3 Monitoring for TSP in Shangshan Township (background value)



Works-HS-1 Monitoring for TSP of site boundary in Xinhua Township, Huangshan District



Works-HS-1 Monitoring for noise of sensitive receptor in Xinhua Township, Huangshan District



Water samples were taken at the influent of WWTS



Water samples were taken at the effluent of WWTS

APPENDIX 4 SEMI-ANNUAL PROGRESS REPORTS ON THE IMPLEMENTATION OF THE ESMS

安徽黄山新安江流域生态保护和绿色发展项目

贷款编号：3888-PRC

黄山市绿色投资基金 ESMS 实施报告

报告期

2021 年 7 月 1 日至 12 月 31 日

由黄山信投集团编制

日期：2022年1月

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I. 介绍

1. 亚洲开发银行（以下简称亚行）于 2019 年 12 月 1 日批准了安徽黄山新安江流域生态保护和绿色发展项目。亚行与中国政府于 2020 年 6 月 17 日签署了该贷款协议，该项目于 2020 年 9 月 25 日生效。其中绿色投资基金（以下简称本项目）作为安徽黄山新安江流域生态保护和绿色发展项目的绿色融资机制试点子项目，计划总投资 2 亿元人民币，其中亚行贷款 1 亿元人民币，KfW5000 万元人民币，政府配套资金 5000 万元人民币。亚行贷款期限为 25 年，其中有 6 年的宽限期。贷款到期日为 2044 年 12 月 1 日。

2. 安徽黄山新安江流域生态保护和绿色发展项目资源将用于支持实现四项产出。产出 1：城市点源污染治理设施升级。产出 2：加强农村点源和非点源污染防治设施和体系建设。产出 3：绿色融资机制试点。包括机构设置，项目推动和实践（1）设立绿色补偿资金鼓励农民解决农业面源污染的可持续农业管理实践；以及（2）绿色投资基金，投资于从事绿色业务的中小企业。产出 4：加强生态系统和项目管理能力。这将提高黄山市政府在新安江流域水资源和洪水预报管理方面的能力。

3. 作为绿色融资机制试点的一个创新子项目，本项目与其他采用传统模式运营的项目相比，最显著的区别是通过市场化运作将本项目项目资源用于支持地方特色农业的发展。本项目将为参与绿色商业发展的中小企业提供资金支持，将进一步推动其涉足和拓展生态农业、生态旅游和污染控制领域。与中国传统的以投入为基础和以基础设施为导向的公共干预措施相比，新的融资机制将预计有效和创新的干预措施将在项目范围之外产生更广泛的影响。

4. 根据财政部与亚行签订的《贷款协定》约定，本项目的实施机构由黄山市信投集团的全资子公司黄山信投投资有限公司作为普通合伙人和基金管理人管理绿色投资基金，并采纳经亚行事先批准的“环境和社会管理体系”（以下简称 ESMS），按照 ESMS 体系规范履行在环境和

社会管理体系中的职责。

5. 报告期内，本项目共按时支付息费130953.81元人民币，其中亚行贷款部分支付承诺费34465.42元人民币，支付利息21244.63元人民币。本项目实施机构严格按照转贷协议约定，按时及时履约。（截止2021年12月31日，共计支付相关息费433702.92元人民币。）

6. 报告期内，本项目顺利推进黄山市市内程序批复完毕。包括：1）经市政府批准印发《黄山市绿色投资基金方案》；2）完成黄山市绿色投资基金工商注册；3）完成基金托管银行遴选；4）与市亚行办会、市新保中心共同开展基金项目库征集；5）完成首个子项目（黟县有农生态农业有限公司社会化服务提升项目）的提款和投资。

7. 报告期内，随着首个子项目的顺利推进，实施机构除了按亚行要求实施ESMS外，还重点关注：1）加强对ESMS实施效果的监测（包括管理层和子项目）；2）持续优化和改进ESMS实践；3）获取经验，加强ESMS的可持续发展。

8. 报告期内，Covid-19几乎对本项目没有影响。为了对项目进行后续监督管理，实施结构减少了子项目现场监督调查次数，增加了在线跟踪监督管理的频率。即通过电话、QQ、微信、网络会议等方式与子项目进行沟通和监督管理，并要求子项目及时反馈实施效果来加强ESMS。

9. 报告期内，黄山市累计确诊Covid-19病例0例。黄山市政府一如既往地抓好常态化疫情防控工作，并由黄山市疫情防控应急指挥部及时发布各种疫情防控措施。实施机构作为国有企业，严格遵守市政府相关疫情防控要求，并且拥有严格的企业内部疫情防控措施。如：1）发布每日疫情防控通报；2）制定办公区域消毒清洁工作计划；3）要求业务人员工作期间佩戴口罩；4）定时追踪业务人员和客户的健康码信息。

10. 报告期内，实施机构还要求子项目结合国家防治规定和Covid-19防控措施，及时了解Covid-19当地情况，详细掌握当地防治措施，并制定

相应疫情防控计划。如：1) 门禁管理；2) 食堂就餐管理；3) 防护知识宣传及消毒管理。

11. 报告期内，子项目主要活动：①对原有的黄山市范围内的8757亩水稻提供全程社会化服务；②对黟县6000亩水稻秸秆提供打捆、收集和利用服务；③将社会化服务产品线拓展至黄山贡菊。活动地点在黄山市农田范围内，活动对象为黄山本地农民，因此，Covid-19对这些活动的实施进展没有很大影响。

II. 重要行动和保障

A. 主要行动

1. 在项目办、顾问团队和实施机构的共同努力下，报告期内实施的与ESMS 有关的重要活动如下：

- **促进 ESMS 与自身业务的整合。**黄山市信投集团于 2020 年 9 月 21 日发布“总经理指令”，正式发布将环境和社会管理体系纳入黄山信投集团业务程序的指令，并要求全体员工认真学习领会，在工作全流程中自觉践行，提高环境与社会管理方面的专业性，不断提升投资工作水平与内涵。同时，宣布组建环境与社会管理办公室，任命 3 名环境专员，3 名社会专员。
- **加强对 ESMS 效果的监测。**从 2019 年对本项目获批准并建立 ESMS 开始，根据项目进度，实施机构要求对拟投资的子项目进行全周期的环境和社会风险控制，以加强对 ESMS 实施效果的监控。实施机构发现，与那些没有实施 ESMS 项目的相比，子项目在实施 ESMS 后更关注环境和社会方面的发展，子项目能够雇佣更高比例的妇女和贫穷的农民，表明 ESMS 已经融入子项目活动。
- **实施建立和实施 ESMS。**报告期内，实施机构严格遵循 ESMS 规定，用于子项目的筛选，并对 1 个子项目（黄山华绿园生物科技有限公司绿色标准茶叶产能提升项目，以下简称华绿园项目）进行了筛选

和分类，预计在华绿园项目得到亚行批准后，在项目所在企业内部以及茶园建立 2 个 ESMS。

项目筛选时，实施机构发现，因为本项目有明确的投资方向和投资原则。1) 投资方向为生态农业、生态旅游、绿色环保、绿色能源等绿色产业，2) 投资原则为支持生态环境改善和促进生态资源转化为经济价值的项目企业。所以实施机构对于子项目的筛选，既要符合黄山市政府批准的本项目的投资要求，也要符合 ESMS 支持的活动要求，两者保持了相同的准则。因此，本项目在实施 ESMS 时要同时接受亚行和黄山市政府的监督与指导，能够确保 ESMS 实施得到有效的质量控制。同时，实施机构将通过定期后续检查，来确保 ESMS 实施。

- **扩大培训和信息传播的范围。**报告期内，根据项目要求，实施机构进行了 2 次 ESMS 培训（附件一），包括管理层面和子项目层面。1) 实施机构对项目经理、环境与社会办公室的环境专员、社会专员共计 15 人进行体系解读、尽调要求贯彻等，要求所有参与项目工作的人员必须熟知 ESMS 体系内容，并且自觉贯通到项目立项、筛选、尽调、投后管理等全过程。2) 实施机构对于子项目的财务人员、技术人员进行了在线培训，介绍了 ESMS 的目的和相关知识。通过培训，向子项目传达了以下信息：在提高农业生产力和追求农业效益最大化的同时，还必须在此过程中关注环境和社会问题。这有助于帮助子项目主动实施 ESMS 中所列的缓解措施；随着学员和培训范围的变化，ESMS 的信息传播扩大，效果增强，从而提高了子项目参与者的环境意识。通过 ESMS 培训和信息管理，为实施机构将 ESMS 融入自身业务提供了理论和实践基础，提高了其在投资活动中应对环境和社会风险的能力。
- **获取经验，加强 ESMS 的可持续发展。**在本项目中建立和实施 ESMS 的初衷是评估和管理实施机构活动可能产生的环境和社会影响。根

据 ESMS 的建立与实施和实施机构绿色金融发展理念具有一致性，下一步将继续引导子项目建立基于 ESMS 的绿色金融模式，不断调整和优化自身和客户群体的环境和社会风险管理和控制标准，成功构建绿色金融体系，在扩大绿色农业生产和节能减碳等层面发挥积极作用。

- **收集良好实践的案例。**在报告期内，经过首个子项目的 ESMS 实施，实施机构和子项目在 ESMS 的建立和应用方面积累了经验和良好的实践。从 ESMS 的最初建立、不同的培训方法、持续的监督和随访以及 ESMS 的实施开始，我们将努力不断收集良好实践的案例。
- **持续优化和探索 ESMS 实践。**在报告期内，子项目的活动取得了一定的成效。根据黄山市黟县农业农村水利局《黟县水稻侧深施肥示范片总结》的报告显示（附件二），与单户种植水稻采用的各项措施相比，子项目通过统一的社会化服务，在促进粮食增产、农业增效、农民增收和生态环境保护取得了新成效。主要表现在：1）通过水稻侧深施肥+缓释肥技术的应用，2021 年，使用红四方配方肥（N-P₂O₅-K₂O 为 26-8-15，缓释型），用量 32.5kg/亩，随侧深施肥机械一次性施用，后期不追肥。较常年 N 用量 11 公斤/亩，减到 8.45 公斤/亩，减少 2.55 公斤/亩，减幅 23.18%。P₂O₅ 用量 3 公斤/亩，减到 2.6 公斤/亩，减少 0.4 公斤/亩，减幅 13.33%。2）应用水稻良种种法，采用“品种、育秧、整地、栽插”的统一科学调度，实现了成片化种植管理，方便了水稻病虫害的统防统治工作，为优质粮源的生产提供了有利保障。3）改变整地方式，即第一次浅水旋耕，使土壤中草种、落地谷发芽，一星期后二次旋耕整平，减少水土流失，杀灭已经发芽的草种和谷芽，降低杂草基数，达到减少或不用化学除草的目的。4）浅水勤灌、干湿交替方法应用改变大水漫灌的方法节约用水 30%，改良土壤状况。5）通过以上科学措施的应用，增强水稻的抗逆性，提高了水稻病虫害的抗性，减少农

药使用量和喷施次数，往年农药一般喷施 2-3 次，2021 年只喷施一次，减少农药用量 60-70%。6) 通过水稻侧深施肥+缓释肥等技术的应用，在减少 N₂ 55 公斤/亩，减少 P₂O₅ 0.4 公斤/亩的情况下，水稻不减产，达到产年的 500 公斤/亩的均产，同时每亩可节约农资和人工成本约每亩 40 元。做到了减少面污染源，保护环境，节约成本，提高稻米的品质，实现了农民增收、农业增效的目的。

- **ESMS 实施的探索计划。**在报告期内，ESMS 仍处于起步阶段，尽管在子项目层面取得了一定成效，但在管理层层面仍是基础实施阶段，未有取得新突破。实施机构仍在考虑探索 ESMS 实施的创新，如：1) 积极与亚行环境/社会专家沟通，逐步优化和完善 ESMS；2) 将 ESMS 结合到实施机构其他业务中，如融入江南林交所林业碳汇、排污权等交易中。

B. 环境保护措施

通过子项目建立和实施 ESMS 的进展：环境保障措施

1. 在报告期间，实施机构共完成对1个子项目的投资，并在子项目企业内部、服务的农田范围内实施了ESMS。共制定并实施4个，其中子项目企业内部管理1个，农业生产活动1个，农产品运输1个，农机设备使用1个。
2. 在报告期内，实施机构对子项目实施采取定期管理的措施，每周对子项目进行风险信息排查1次，按时收集企业每月财务报表，共赴企业检查农田ESMS实施活动3次（附件三），对子项目起到切实有效的监管。
3. 在子项目活动的农田范围内，具体活动内容描述如下：

农业社会化服务

- 报告期内，子项目为7个农业合作社、7个家庭农场提供农业全程社会化服务，涉及农田面积8757亩，均基于黄山市范围内的现有基本农田，种植品种均为水稻，最小面积115亩，最大面积1663亩。

●子项目在农田范围内的主要活动为栽培、施肥、耕田、病虫草害防治、收割。

● 主要的做法：1) 水稻种子采购自由国家审定认证的非转基因品种；2) 种植均按照绿色产品标准进行管控；3) 所有农田前期对土壤进行测土配方，化肥减量，同时在病虫害防治采用黄山市统一集中配送的生物农药；4) 水稻和油菜秸秆还田；5) 农产品批批进行检测，均符合国家大米 GB/T1354-2018 标准、绿色食品稻米 NY/T419-2014 标准和食品安全国家标准 GB14881—2013。

●采取的缓解措施：1) 通过土壤改良，部分地块轮休时种植紫云英作为绿肥、种植过程中均施用以腐殖酸为主的有机肥，水稻、油菜或小麦收割后均采用秸秆还田的方式改良土壤、测土配方，土壤配肥处理均通过秸秆粉碎还田，不进行其他处理；2) 栽培，通过露地栽培，不使用地膜材料；3) 病虫草害防治，通过物理防治，模拟自然生态系统，种植多样化作物，是病虫害农业防治的基本措施；通过包括时间与空间两种形式的多样化种植，进行合理轮作与播种，调整收获时间的变化选择，减少病虫害的影响；4) 废弃物处理及环境保护措施，秸秆全部炭化，杜绝焚烧、生物农药和肥料等包装废弃物及时回收，不得留在田间、田间作业人员的个人垃圾及时带走，不得留在田间、田间不得随意丢弃烟头饭盒等杂物。

秸秆收集和利用

●报告期内，子项目在黄山市黟县范围内完成 6000 亩水稻秸秆打捆、收集和利用服务。主要通过秸秆打捆机进行打捆和收集，通过移动式秸秆炭化设备进行炭化处理。

●减缓措施：报告期内，通过机械打捆和收集，经炭化后：1) 生产炭基肥，用于土壤改良，减少化肥投入，提高品质。2) 压成生物质颗粒，直接代替燃煤，不用更换原燃煤锅炉，低位热值达 4200 大卡以上（附件四），跟燃煤对比减少了硫的排放。根据国家标

准化管理委员会公布的标准号为 GB/T 15224.2-2021 的《煤炭质量分级第 2 部分：硫分》，对煤层煤硫分做了分级，其中 $\leq 0.5\%$ 的为特低硫煤，而子项目以秸秆炭化压成的生物质颗粒硫分在 0.20%左右，远低于此标准。

菊花产品的研发

●报告期内，子项目与南京农业大学合作就“秸秆生物质炭基产品生产关键技术研究及产业化应用”进行技术研发，主要研究活动为：1) 在子项目服务的各农田进行生物质炭土壤应用试验，分别针对黄山茶叶、黄山贡菊和水稻等进行作物/农业生产大田实验，取得效果数据，指导下一步产品开发；2) 南京农业大学对炭化产品进行物理、化学、生物等方面检测评价，对生物质炭对照 IBI 标准进行评价，返回调整或优化炭化工艺及产品标准。

●报告期内，在黄山市黟县碧山村完成黄山贡菊种苗“金贡菊 1 号”1 万株移栽，并研制菊花专用肥，成功配制 10 吨土壤调节剂和叶面肥。

●报告期内，该项技术正在研发过程中，通过技术的研发，预期达成以下成效：1) 在黄山可形成年产农业生物质炭 1 万吨，各式炭基产品 3 万吨，每吨降低碳排放 15-20%，生态效益明显；2) 利用炭基肥孔隙中的吸附能力达到固碳效果，有效起到病害防治作用，目前此项技术正在研发之中，预计能够降药 20%-30%，对多个田间试验的数据整合分析发现，生物质炭施用后农田氧化亚氮和稻田甲烷排放分别降低 13.6%和 15.2% 。

●实施机构将会持续关注子项目技术研发进展，对子项目的研发过程进行实时监督、跟踪和帮助，期望通过金融赋能解决生物质炭基肥的市场化问题，开创生物质炭基绿色新型农耕文明，影响黄山农

业发展和碳中和实践。

农产品运输

●报告期内，子项目生产的农产品主要销售范围为安徽省黄山市和安徽省合肥市，销售模式为商超合作或网上销售，没有自建销售点。商超销售主要采用物流运输，网上销售采用快递公司运输。

●活动主要是生产和运输袋装大米，对环境的影响主要是噪音和一些废物，它们对环境的负面影响可以忽略不计。因此，它们在环境影响评估中属于C类。

●缓解措施：(i)采用低噪声设备和工艺，严格控制施工时间，夜间禁止生产；(ii)加工采购活动产生的废弃物按废弃物分类及时清除、集中处理；(iii)运输过程中按道路运输规定要求包装良好。

农机设备的使用

●报告期内，子项目在提供社会化服务时分别使用自动播种机、高速插秧机、拖拉机、无人植保机、收割机、烘干机，提供机械化服务。

●减缓措施：报告期内，1)通过插秧机进行插秧，减少除草剂的使用；2)利用无人机植保，减少农药用量；3)农机设备均使用国5排放标准的农机；4)通过集约化土地统一提供服务，农机工作效率高，减缓避免山地小农作业的低效率问题，减少油耗；5)农机设备由农机手自行保管或存放于子项目企业现有的仓库中，无新建库房。

子项目企业的内部管理

●报告期内，子项目更新了企业内部管理制度2项，分别为《绿色食品管理体系内部检查程序》、《种植管理制度》（附件五），通过制度的更新和修订，规范子项目的内部管理，使环保意识更加深

入企业内部。

●在更新的制度中，我们看到，对种植提出以下措施：1）坚决按照“规模发展、科学种植、标准化生产、产业化经营”的原则；2）严格遵守农药和肥料使用准则；3）每年依托省内具有资质的环境检测机构和产品检验检测机构，对基地环境和基地产品进行一次检验检测；4）严格执行绿色食品NY/T393农药使用准则和NY/T394肥料使用准则；5）使用后的肥料和农药包装袋、瓶、箱应集中回收，统一处理。对内部检查提出以下措施：1）对生产环境、空气净化条件、以及设施安全性进行定期检查；2）对农机操作者、员工有破坏环境的行为和违反环保政策的行为进行定期检查。

C. 社会保障

1. 根据 ESMS 的要求，进行评估和检查，了解子项目对周边社区和公众的社会影响，包括征地、非自愿安置、少数民族和土地使用权转让等。

征地和移民

2. 在报告期内，子项目不涉及亚行保障政策声明和项目 ESMS 中定义的征地和非自愿安置问题；没有因征地或非自愿安置造成的住宅搬迁和经济损失。因此，征地和移民问题属于 C 类。

土地使用权转让

3. 子项目与农民之间不发生直接的土地使用权转让行为，农民与以其承包土地作为股份成立合作社，签订《经营权入股合同》，而后子项目与合作社签订提供全程农作物种植社会化服务的合同，在报告期内，子项目新签约 0 项服务合同。预计将在 2022 年为 1 个合作社（歙县定潭有农种植专业合作社）提供社会化服务，该合作社有 41 户农民以其承包土地（合计 33.5 亩）作为股份成立合作社，并与合作社签订《经营权入股合同》（附件六），以受益于价值链发展，但这些活动不涉及土地使用权转让，因此，没有触发亚行和政府商定的土地使用权转让框

架的要求。实地研究表明，在将土地转换为股份的活动中，也没有待决问题需要解决。

4. 根据 ESMS 的要求，实施机构同时对《经营权入股合同》进行了审核和验证。合同甲方为农民，乙方为合作社，合同对以下内容进行了明确：1) 本着平等、自愿、有偿的原则，经双方协商一致，就土地承包经营权入股事宜，订立合同；2) 土地入股的保底红利标准不低于当地土地流转的市场价格；3) 土地的所有权和农业用途不变；4) 甲方入股的土地承包经营权在乙方破产清算不承担清偿责任；5) 当地政府对合同备案监管；6) 甲方（农民）拥有自主决策权，可申请退社或社员之间转让；7) 争议的处理方案。据此，我们得出协议已明确且可以接受的结论。截至目前，子项目已涉及 7 项经营权入股合同，涉及农户约 2335 户，受中国农村传统户籍登记制度制约，户籍登记户主多为男性，由户主代表家庭签署合同，但签署行为均得到配偶同意。

少数民族

5. 根据少数民族发展要求，对少数民族的影响的评估需要考虑该项目对他们带来的影响和少数民族社区的脆弱性。根据亚行的保障政策声明和 ESMS 的规定，子项目活动不涉及任何少数民族问题，对少数民族影响的影响都属于 C 类（不需要监测）。

6. 在报告期内，子项目服务的农田都不在少数民族地区，不涉及少数民族问题。

D. 社会和性别

1. 在报告期内，子项目针对企业人员、合作社和农业企业管理、农户开展了 4 次能力建设活动。能力建设内容包括 ESMS 相关知识、水稻种植技术、数字农业、劳动教育和安全生产。此外，为了拓宽子项目实施者的视野，了解发达地区发展特色农业和农村融资的经验，子项目组织负责人员到其他各省考察，了解项目特色农业发展和农产品推广，共

计10次。

2. 按照“ESMS”的实施目标，子项目对55名员工包括农民进行培训，其中贫困人口10人，占比5%，妇女21人，占38%。在培训过程中，子项目更关注参与培训的女性比例。经过培训的技术人员包括作物技术人员、农业机械技术人员、贫困农民。

3. 培训使越来越多的贫困农民和妇女能够获得培训和教育，从而帮助贫穷妇女建立她们自己的发展和抵抗风险的能力，并动员她们的热情和倡议参与项目和减贫活动。最后，将促进他们参与社会和经济活动。

4. 子项目在人员配备方面也注意性别，并增加了妇女工作人员的人数。例如，子项目有57名员工，女性占比40%；中层管理员工总数为14人，其中女性占比50%。

通过在该项目中实施社会包容性发展，它将为少数民族、妇女和穷人带来利益。

禁止投资活动

在报告期内，所有资金，均未用于支持亚行保障政策声明附件 5 中所列的任何禁止活动。

信息披露

实施机构披露了子项目的基本信息，包括地点、活动、潜在影响，以及环境和社会官员的联系方式，以及申诉解决机制。这些披露的信息被发布在实施机构的网站上，以及子项目所在企业公告栏（附件七）。披露期限为 10 天，以确保公众有足够时间向公众提供书面或口头反馈。

E. 申诉解决机制实施进展

1. 根据ESMS体系中对于申诉处理机制的规定，以及亚行关于申诉解决的规定，实施结构遵守了项目申诉解决机制。因子项目为环境C类，不涉及土建工程。但在子项目活动范围内的农民，特别是少数民族、妇

女、贫困人员，仍然可以随时就环境和社会等问题直接向实施机构提出投诉。

在报告期内，实施机构和子项目没有收到任何形式的投诉（附件八）。

III. 项目环境监测的有效性及其影响

2. 通过在实施机构和指项目中建立和实施ESMS，在管理层面以及子项目活动的环境保护方面都产生了一定的影响，为项目区农业生产的可持续发展提供了理论依据。具体内容如下：

- **ESMS的建立和实施。**自2019年启动以来，目前已建立并实施2项ESMS。子项目使用亚行贷款用于农业社会化服务活动，包括种植、耕田、收割等。在实施过程中，子项目按照相应ESMS中的环境要求开展项目活动。
- **制定缓解措施。**针对各子项目活动对环境的影响，已制定了缓解措施。根据不同项目活动，通过内部治理、科学种植、标准化生产等原则，减缓C类活动的影响范围，尽量减少农业活动对环境的影响。
- **扩大覆盖率，提高影响水平。**作为亚行黄山项目的创新项目，在项目中采用基金形式来支持农业活动，保护环境的新概念得到各级政府的认可。在项目实施过程中，通过持续的ESMS培训、实地研究、信息披露等活动，提高了实施机构工作人员、财务人员和农业生产者的环境保护意识。
- **取得的社会荣誉。**报告期内，首个子项目获得一系列社会荣誉。包括：1) 由中华人民共和国农业农村部授予的首批全国农业社会化服务典型单位、创新试点；2) 由安徽秸秆暨畜禽养殖废弃物综合利用产业博览会组委会颁发的金奖；3) 黄山市生态环境局颁发的首批黄山市生态环境教育基地；4) 子项目总经理徐海波获得黟县民营经济优秀人才；5) 子项目女性员工李燕萍获得“县级巾帼双创之星”。通过绿色投资基金对子项目的金融和ESMS治理支撑，子项目得到更

好的发展机会，并取得一定成效。

IV. 在 ESMS 实现中遇到的问题 and 解决方案

A. 问题

1. 2020 年，在首个子项目开始尽职调查和达成投资协议后，实施机构意识到，将 ESMS 整合到投资业务中，不仅可以有效降低环境风险，还可以促进绿色金融的发展。同时，本项目将需要继续学习，因为它是创新金融机制项目，必须为其可持续性创造有利的环境。

2. 在报告期内，实施 ESMS 过程中遇到的主要问题包括：(i) 尽管实施机构已经将 ESMS 嵌入了业务，但两者的融合尚未完全实现。一方面，作为创新项目，业务人员需要进一步提高其对 ESMS 的知识、经验和能力。另一方面，对于项目实施 ESMS 评估，延长了以往投资业务评估的时间；(ii) 子项目被要求提供大量信息，有时子项目无法准确理解和阐述子项目 ESMS 评估相关问题，需要环境专员和社会专员多次重复确认，沟通成本高，且子项目多为农业企业，受制于中国农村现状和农民基本文化素质的制约，存在基础数据收集有难度的情况，对成果转换的专业检测力度也不足，难以对其实施过标准的 ESMS 要求，存在实现度上的困难。

B. 解决方案

3. 鉴于上述问题，我们采取了以下行动：(i) 加强与咨询管理团队的沟通，为实施机构提供技术服务。报告期内，实施机构与咨询管理团队保持紧密的沟通关系，现场对接 1 次，在线沟通多次；(ii) 加强与黄山市亚行办的沟通，寻求项目办的监督和技术支持，包括多次会议和在线沟通；(iii) 加强能力建设活动。在报告期内，组织了 2 次培训，并督促业务人员在投资活动中理解、接受和采用 ESMS，这将有助于今后实现金融机构的绿色融资。

4. 鉴于实施机构在实施 ESMS 相关活动方面面临的挑战，应考虑以

下措施：(i)需要多部门协调努力，及时给予实施机构财务、环境和社会的各项辅导；(ii)为子项目，包括已投资和拟投资的子项目，寻求其他政策、资源、资金等突破，有效促进其可持续发展；(iii)加强与子项目的沟通，反复核实相关问题，确保相关问题准确回答；(iv)进一步要求子项目提供对环境影响的全面缓解措施，实施机构的环境和社会专员将在环境和社会管理方面进行管理和指导。

5. 实施机构通过定期报告和监督来加强和增加监督频率，以确保各种环境和社会保障措施和政策得到实施，ESMS 发挥应有作用。此外，应努力使子项目在活动时，能够在保护弱势群体和环境方面发挥更积极的作用。

V. 经验和下一步行动

A. 经验

1. 在本项目实施过程中，实施机构学习和接受亚行项目 ESMS 的系统原理，有利于加强处理实施机构投资业务对环境和社会方面的关注，加强关注性别平等，支持农业发展，为推进农业、农村和农民的发展创造动力。

2. 持续提供专业技术支持，以协助改进子项目的基数水平。实施机构将进一步发挥资源优势，引导科研院所向子项目提供相关的技术支持，以更好地将良好的环境做法纳入其建议，以促进子项目的环境和社会影响。

3. 持续实施培训，以提高实施 ESMS 的能力。对于实施机构和子项目来说，ESMS 是一个全新的领域，员工学习和独立应用于日常业务需要一些时间。实施机构应通过培训、会议、现场监督、研讨会，努力帮助子项目准确了解 ESMS 的运营流程、标准和管理和控制模式，提高其绿色发展的能力。同时，实施机构也将让自身进一步了解环境和社会风险，提高其履行环境和社会责任的意识和能力。

4. ESMS 非常实用，本项目从绿色融资体系安排、创新的绿色融资产品和商业模式到绿色融资的可持续发展等方面积累的经验，可以在更广泛的领域得到复制和扩大。

B. 下一步行动

5. 持续跟踪 ESMS 的实施情况，促进子项目的进展：实施机构将继续根据基金方案向符合条件的农业企业继续给与支持。并按照 ESMS 的实施步骤，继续跟踪、监控和报告所有子项目，并敦促子项目在活动中始终关注并实施 ESMS，使项目活动可持续。

6. 加强能力建设，特别是环境和社会专员，在未来的项目实施中，应加强对利益相关者的培训，特别是实施机构的员工、子项目的员工，以应用 ESMS 步骤来筛选、识别和子项目的投后管理，并确保 ESMS 在实施业务运作中的整合。这些努力将提高他们的业务执行能力，以及他们对 ESMS 的理解和管理能力。

7. 加强信息传播和培训：将继续努力使实施机构的员工、子项目的员工了解整个项目、ESMS、亚行的管理要求和年度计划。

附件一：能力建设活动

报告期：2021 年 7 月 1 日至 12 月 31 日

序号	类型	地点	时间	次数	培训主题	主要内容	参与人数	女性参与者人数	参与者
1	培训	信投集团	2021-11-19	1	ESMS 体系解读	ESMS 的体系内容、实施注意事项、对子项目的监督管理。	15	6	信投集团项目经理、环境与社会办公室的环境专员、社会专员
2		线上	2021-9-15	1	ESMS 体系知识介绍	ESMS 的主要原则、内容介绍，子项目需要执行的情况。	10	4	信投集团部分项目经理、环境专员、子项目负责人、技术人员

序号	类型	地点	时间	次数	培训主题	主要内容	参与人数	女性参与者人数	参与者
3		子项目	2021-8-18	1	水稻种植技术培训	水稻种植技术、秸秆炭化知识、技术等。	22	6	子项目片区负责人、种植部、质检部、供应部、生产保险部、总经办、销售部工作人员
4		子项目	2021-8-26	1	数字农业培训	数字农业概念、建设理念、规则等。	15	4	子项目总经办、销售部、种植部工作人员
5		子项目	2021-12-25		安全生产消防演练培训	安全生产知识、消防演练等内容	15	10	子项目全体员工

序号	类型	地点	时间	次数	培训主题	主要内容	参与人数	女性参与者人数	参与者
1	考察	安徽合肥	2021-7-22	1	全省供销社深化综合改革暨“三位一体”试点工作	省供销社深化改革	1	0	子项目企业负责人
2		安徽歙县	2021-8-7	1	黄山贡菊技术考察	与南京农业大学专家赴歙县考察黄山贡菊技术	6	2	子项目企业负责人、技术人员
3		安徽芜湖	2021-8-13	1	数字化智慧农场考察	赴中科感知公司考察数字农业技术	2	1	子项目企业负责人、销售负责人

序号	类型	地点	时间	次数	培训主题	主要内容	参与人数	女性参与者人数	参与者
4		安徽歙县	2021-8-22	1	黄山贡菊有机种植技术指导	对歙县贡菊技术进行考察指导	5	1	子项目负责人、南京农业大学教授
5		西藏	2021-9-9	1	农业技术考察	学习了解农业相关、机械设备、高品质蔬菜瓜果种植等技术	1	0	子项目负责人
6		重庆	2021-10-15	1	全国农业社会化服务工作座谈会暨西部片区典型交流活动	全国农业社会化服务工作座谈会暨西部片区典型交流活动	1	0	子项目负责人

序号	类型	地点	时间	次数	培训主题	主要内容	参与人数	女性参与者人数	参与者
7		南京	2021-10-24	1	基质肥料学习座谈	与南京农业大学农关于基质肥料的学习座谈	6	1	子项目负责人、销售、技术人员
8		杭州	2021-10-25	1	水稻精准播种生产线应用交流会	水稻精准播种生产线应用技术学习交流	6	1	子项目负责人、销售、技术人员
9		安徽马鞍山	2021-11-30	1	农业社会化服务在乡村振兴中的实践	农业社会化服务技术交流	1	0	子项目负责人

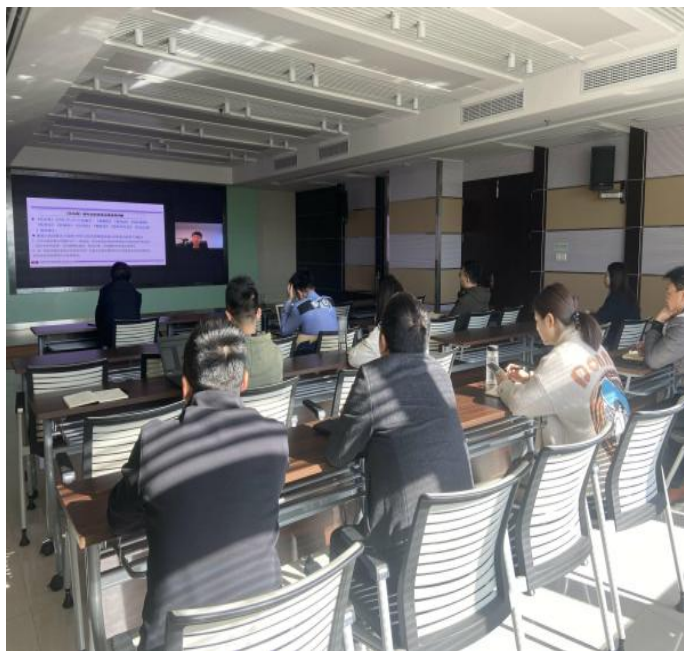
序号	类型	地点	时间	次数	培训主题	主要内容	参与人数	女性参与者人数	参与者
10		合肥		1	安徽秸秆暨畜禽养殖废弃物综合利用产业博览会	秸秆综合利用交流学习	3	1	子项目负责人、销售、技术人员



水稻种植技术培训



数字农业培训



ESMS 培训



安全生产培训

附件二：黟县农业农村水利局《黟县水稻侧深施肥示范片总结》

黟县农业农村水利局

黟县水稻侧深施肥示范片总结

根据农业农村部种植业管理司《关于做好2021年化肥减量增效工作的通知》（农农<肥水>〔2021〕3号）、《安徽省农业农村厅办公室关于做好2021年中央财政耕地质量保护与提升项目暨化肥减量增效工作的通知》（皖农办土函〔2021〕42号）及《安徽省化肥施用定额制指导意见（试行）的通知》（皖农土〔2020〕117号）的精神，我县制定了《2021年中央财政耕地质量保护与提升项目暨化肥减量增效试点县实施方案》，坚持以“藏粮于地、藏粮于技”和“创新、绿色、协调、开放、共享”发展理念为引领，按照“稳粮增收调结构，提质增效转方式”的总体要求，坚持“增产、经济、环保”施肥理念，以夯实工作基础，服务新型种植主体，扩大施用配方肥，推进水稻侧深施肥为重点，着力提高减肥增效成果，减少不合理化肥投入，促进粮食增产、农业增效、农民增收和生态环境保护取得了新成效。

一、工作成效

化肥减量增效工作是推进农业高质量发展的重大举措，是建设资源节约、环境友好、优质高效农业的重要抓手。2021年全县配方肥用量（折纯）2300吨，施用面积12.3万亩，水溶肥实物200吨，缓释肥实物200吨，占化肥施用量的81.07%，较上年提高5.17个百分点。建设了11个化肥减量技术服务示范片，累计示范面积21276.55亩，示范区配方肥到位率达到90%以上。化肥用量（折纯）减少到

2958吨，较上年减少3.02%。全县应用测土配方施肥技术21万亩，占农作物总面积的95%。通过玉米肥料利用率试验、水稻3414试验、水稻侧深施肥肥效对比试验数据分析，玉米测土配方施肥、缓释肥氮肥利用率分别达到41.18和43.14，水稻测土配方肥、机械施肥、缓释肥氮肥利用率分别达到41.09、43.41和43.94。带动全县化肥用量实现负增长。

突出主要作物、重点区域、关键环节，累计建设水稻侧深施肥示范面积21276.55亩的示范区（片），切实推动化肥减量增效。其中：水稻侧深施肥+缓释肥碧阳片区7693.21亩，水稻侧深施肥+配方肥柯村片区3501.21亩，水稻侧深施肥+配方肥美溪片区2391.25亩，水稻侧深施肥+配方肥宏潭片区1629.88亩，水稻侧深施肥+缓释肥宏村片区1463亩，水稻侧深施肥+配方肥渔亭西递片区598亩，合计水稻配方肥侧深施肥示范面积17276.55亩。油菜种肥同播+缓释肥柯村片区1590亩，油菜种肥同播+配方肥碧阳片区1200亩，油菜种肥同播+配方肥美溪片区210亩，合计油菜配方肥种肥同播示范面积3000亩。香榧有机肥替代+配方肥洪星片区500亩，香榧有机肥替代+配方肥宏潭片区500亩，合计香榧有机肥替代减肥增效示范面积1000亩。同时对示范片内9家农业新型经营主体9600亩开展化肥“定额制”试点，提高配方肥应用率，示范引导农民科学施肥。

二、工作措施

（一）加强组织领导。成立以政府分管领导任组长的推进落实领导小组，加强工作协调，明确人员分工，落实项目任务，成立技术指导组，开展技术咨询和指导服务，重点做好技术方案制定、技术培训、包片指导、模式攻关、绩效评价等技术支撑工作。

(二) 强化项目监管。实行月调度制度，按要求上报项目进度。

县农业农村水利局在关键时点组织开展检查，督促示范县抓好任务落实，对检查发现的问题及时整改。规范使用资金，严格按照资金管理要求，本着资金与任务相匹配的原则，加强资金监管，规范使用行为，严禁截留挪用和超范围支出，会计科目设置按财务规定执行。项目完成后及时进行总结、绩效自评和资金审计，将项目资料整理归档。

(三) 开展宣传培训。利用广播、电视、报刊、互联网等媒体，大力宣传水稻侧深施肥知识，增强农民科学用肥意识，营造良好社会氛围。结合新型职业农民培训工程、农村实用人才带头人素质提升计划，加强新型经营主体培训力度，着力提高种粮大户、家庭农场、专业合作社科学施肥技术水平。

三、典型案例分析

黟县有农生态农业有限公司通过水稻侧深施肥+缓释肥技术的应用，2021年，使用红四方配方肥（N-P2O5-K2O为26-8-15，缓释型），用量32.5kg/亩，随侧深施肥机械一次性施用，后期不追肥。较常年N用量11公斤/亩，减到8.45公斤/亩，减少2.55公斤/亩，减幅23.18%。P2O5用量3公斤/亩，减到2.6公斤/亩，减少0.4公斤/亩，减幅13.33%。同时应用水稻良种良法，采用“品种、育秧、整地、栽插”的统一科学调度，实现了成片化种植管理，方便了水稻病虫害的统防统治工作，为优质粮源的生产提供了有利保障。改变整地方式，即第一次浅水旋耕，使土壤中草种、落地谷发芽，一星期后二次旋耕整平，减少水土流失，杀灭已经发芽的草种和谷芽，降低杂草基数，达到减少或不用化学除草的目的。浅水勤灌、干湿交替方法应用改变大水漫灌的方法节约用水30%，改良土壤状况。通过以上科学措施的应用，增强水稻

的抗逆性，提高了水稻病虫害的抗性，减少农药使用量和喷施次数，往年农药一般喷施2-3次，21年只喷施一次，减少农药用量60-70%。

通过水稻侧深施肥+缓释肥等技术的应用，在减少N2.55公斤/亩，减少P2O5 0.4公斤/亩的情况下，水稻不减产，平均产量达到产年的500公斤/亩，同时每亩可节约农资和人工成本约每亩40元。真正做到了减少面污染源，保护环境，节约成本，提高稻米的品质，实现了农民增收、农业增效的目的。



附件三：农田 ESMS 实施活动检查统计表

报告期：2021 年 7 月 1 日至 12 月 31 日

序号	地点	时间	主题	检察人员
1	黟县碧山村	2021-8-28	检查黄山贡菊移栽现场,了解土壤改良技术实施情况。	信投集团项目办人员郭曼、社会专员江君瑜
2	黟县碧山村	2021-11-21	参与南京农业大学与子项目的土壤实践课,了解子项目现场水稻土剖面情况,现场检查技术合作情况。	信投集团环境专员范献光

3	黟县碧阳镇	2021-12. 23	对子项目《绿色食品管理体系内部检查程序》 《种植管理制度》实施情况进行抽查。	信投集团社会专员江君瑜
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现场检
查图片

附件四：子项目稻草秸秆炭化颗粒检测报告

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英斯贝克单号 : CNSHCJ20000325.P2
日期 : 2020年09月17日

来样分析报告

在此证明我们对以下样品进行品质检验并报告如下:

客户名称 : 鄞县有农生态农业有限公司
申报货物 : 生物质燃料来样(稻草秸秆炭化颗粒)
申报船名 : N/A
申报重量 : N/A
样品编号 : N/A
收到样品时间 : 2020年09月16日

化学分析

英斯贝克实验室根据GB国家标准对上述来样进行分析, 得出结果并报告如下:

项目	符号	结果	单位	采用标准
全水分	收到基 TM _{ar}	7.3	%	GB/T 211-2017
分析水分	空干基 M _{ad}	6.52	%	
灰分	收到基 A _{ar}	18.46	%	GB/T 212-2008
	空干基 A _{ad}	18.62	%	
	干基 A _d	19.92	%	
挥发份	收到基 V _{ar}	44.75	%	GB/T 212-2008
	空干基 V _{ad}	45.13	%	
	干基 V _d	48.28	%	
	干燥无灰基 V _{daf}	60.29	%	
硫	收到基 S _{ar}	0.20	%	GB/T 214-2007
	空干基 S _{ad}	0.20	%	
	干基 S _d	0.21	%	
氢	收到基 H _{ar}	4.05	%	GB/T 30733-2014
	空干基 H _{ad}	4.08	%	
	干基 H _d	4.36	%	
高位发热量	收到基 Q _{gr,ar}	4794	KCAL/KG	GB/T 213-2008
	空干基 Q _{gr,ad}	4834	KCAL/KG	
	干基 Q _{gr,d}	5172	KCAL/KG	
低位发热量	收到基 Q _{net,ar}	4555	KCAL/KG	
灰熔点指数	变形温度 DT	/	°C	GB/T 219-2008
	软化温度 ST	/	°C	
	半球温度 HT	/	°C	
	流动温度 FT	/	°C	

该报告仅反映了在上述来样分析的时间和测试地点内的分析测试结果。

仅代表上海英斯贝克商品检验有限公司

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No.1060926

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附件五：子项目《绿色食品管理体系内部检查程序》、《种植管理制度》

黔县有农生态农业有限公司 内部检查程序

一、目的

建立绿色食品管理体系内部检查程序，以确定绿色食品质量管理体系及生产是否符合绿色食品规范、相关法律法规、公司绿色食品生产管理体系的要求，并得到有效实施与保持。

二、范围

公司与绿色食品质量管理体系相关的所有文件系统，管理规程，硬件设施等。

三、责任

内部审核员有监督领导责任，质检部为主要检查责任，各相关部门负责协助。

四、内容

审核依据：绿色食品体系相关文件和相关法律法规。

审核间隔：不超过 12 个月的时间间隔。

质检部组织领导，内部检查员监督检查，对公司绿色质量管理体系进行内部检查，主要包括以下几方面内容：

1、对厂区周围的生产环境、车间的空气条件、防虫鼠鸟措施，以及厂房设施进行检查。

2、检查绿色食品生产相关的机械设备状况，确保绿色食品生产能够正常运行，并对设备的相关备案情况，及相关记录进行检查。

3、对生产、加工记录和标识与销售的检查；对绿色食品管理体系相关文件进行检查。

4、对仓库的环境、货物摆放情况进行检查，绿色食品与一般产品分仓或分区摆放，有明显的隔离措施。

5、对农机操作者、员工有破坏环境的行为和违反环保政策的行为进行定期检查。

填写内部检查报告，对各相关部门指出违反标准的内容，并提出修改意见，强制要求在规定时间内整改。保证绿色质量管理体系符合相关法律法规，向绿色认证机关提交内部检查记录和报告。

黔县有农生态农业有限公司

2021年9月15日



黟县有农生态农业有限公司 种植管理制度

为保证种植所产产品能达到优质、安全和无污染的要求，为社会各界提供充足的绿色营养食品，特制定本制度。

一、基本要求

1、坚决按照“规模发展、科学种植、标准化生产、产业化经营”的原则，积极推进绿色稻米生产建设。

2、公司建立健全严格的生产管理体系，每个区域有专门的负责人、工作人员及技术人员，并做到责任到人，分工明确。

3、绿色食品产地必须树立标识牌，划分隔离带，并标明范围以及种植品种和技术负责人。

4、所需的生产资料必须在农业投入品专供点采购，在技术人员的指导下使用。

5、所有的管理措施，必须严格按照水稻标准化生产操作规程进行，并在负责人和技术人员的指导监控下实施。

6、管理人员要认真填写“田间管理记录”，技术人员要认真做好各项档案管理工作，并做好详细记录。

7、严格遵守农药和肥料使用准则，保持内部和周围环境的卫生清洁，保证不受污染。

二、监督与检测

1、每年依托省内具有资质的环境检测机构和产品检验检测机构，对环境和产品进行一次检验检测。

2、主管部门要对使用的农业生产资料实行经常性监督检查。

3、主管部门要积极主动地配合区检测站和省绿办对环境和产品的抽查检测。

4、主管部门要经常性地对环境、保护情况及生产过程、投入品使用、生产资料保管、产品质量、市场及生产档案记录进行监督检查。

5、内部建立相互制约的监督机制和奖惩制度。责任人负总责，加强监督，建立奖惩制度，工作人员完成建设目标责任指标，并通过省绿色食品办公室的检查，给予表彰奖励；年度考核评为优秀的，职称晋升上给予优先照顾。不能完成建设目标责任指标的，年度考核不能评为优秀或称职的，扣发当年年度奖励工资。

三、农业投入品管理制度

1、严格执行绿色食品 NY/T393 农药使用准则和 NY/T394 肥料使用准则，质检部要定期公布并明示允许使用、禁用或限用农药、化肥等农业投入品目录，以及使用数量。

2、主管部门要经常检查农业投入品的使用情况，杜绝使用各种禁用农药和肥料。

3、使用后的肥料和农药包装袋、瓶、箱应集中回收，统一处理，防止造成环境二次污染。

黟县有农生态农业有限公司

2021年9月15日



附件六：《定潭村土地入股合同》范本

歙县农村土地承包经营权入股合同

合同编号：

甲方(入股方)： 洪雪飞

乙方(受让方)： 歙县定潭有农种植专业合作社

根据《中华人民共和国农村土地承包法》、《农村土地承包经营权流转管理办法》、《安徽省实施〈中华人民共和国农村土地承包法〉办法》等有关法律、法规和国家有关政策的规定，甲乙双方本着平等、自愿、有偿的原则，经双方协商一致，就土地承包经营权入股事宜，订立本合同。

一、入股土地基本情况及用途

甲方将其承包经营的位于深渡镇定潭村 夏村 组 1.25 亩土地(以实际测量面积为准)向乙方入股，从事农业生产经营。以上入股土地折合股份为 1.25 股(每亩为一股)。流转的土地承包经营权为甲方通过家庭承包方式取得的耕地，土地承包经营权证号为 341021101204120003J。

二、入股期限

入股期限为 8 年，自 2021 年 6 月 1 日起至 2029 年 12 月 31 日止。

三、股份分红与支付方式

合作社每年采取“保底+效益分红”方式，保底标准为每股每年 500 元，效益分红根据总收入减去经营成本，再减去土地入股保底金额后产生的余额作为利润。利润中的 75% 作为效益分红，是全部或部分进行效益分红，由理事会研究决定。支付方式为通过一卡通发放。

四、支付时间

自 2022 年 1 月 1 月起，每年 12 月底前完成核算分配并支付。2021 年 6 月 1 日至 2021 年 12 月 31 日，乙方需要对入股的土地进行土壤测方、土地平整治等，因未产生效益，按每亩 275 元支付。

五、交付土地的时间

甲方应于 2021 年 6 月 1 日之前将入股的土地清理为净地交付乙方。

六、权利和义务的特别约定

- 1、甲方应服从合作社的章程，按章程享受权利，履行应尽的义务。
- 2、甲方有权按照合同规定收取股权红利；按照合同约定的期限收回入股的土地。
- 3、甲方与发包方的土地承包关系不变，甲方继续履行原土地承包合同规定的权利和义务。
- 4、甲方有权监督乙方合理利用、保护入股土地，并要求乙方按约履行合同义务。
- 5、甲方应尊重乙方的生产经营自主权，不得干涉乙方依法进行正常的生产经营活动。
- 6、乙方有权要求甲方按合同的约定交付入股土地并要求甲方全面履行合同义务。
- 7、乙方在受让地块上具有使用权、收益权、生产经营权和产品处置权。
- 8、乙方应当依照合同规定按时足额向甲方支付股权红利。
- 9、乙方的生产经营活动应当符合法律、法规的规定；应当保持土地肥力，不得使其荒芜，不得改变土地用途，不得进行掠夺性经营，给土地造成永久性损害。

七、合同到期后地上附着物及相关设施的处理：

因生产管理需要进行土地平整，且经全体社员代表大会讨论通过，合同到期后土地按实际入股面积统一规划返还。

八、合同的解除或终止

有下列情况之一者，本合同可以解除或终止：

- 1、经当事人双方协商一致解除本合同；

- 2、订立的本合同所依据的国家政策发生重大变化的；
- 3、一方违约，使合同无法履行的；
- 4、乙方经营状况显著恶化，合作社解散的；
- 5、因不可抗力（重大自然灾害）使合同无法履行的；
- 6、合同期内，如因国家及农业基础设施占用或征用该土地的，本合同自动终止，甲乙双方均不负违约责任。

九、违约责任

1、甲乙双方在合同生效后应本着诚信的原则严格履行合同义务。因变更或解除合同使一方遭受损失的，除依法可免除责任外，应由责任方负责赔偿。

2、甲方非法干预乙方生产经营活动，擅自变更或解除合同，给乙方造成损失的，应予以赔偿。

十、其他约定

1、本合同订立后，双方应将合同报深渡镇人民政府备案；

2、本合同在履行过程中发生争议，双方协商解决。协商不成，可以请求村民委员会、深渡镇人民政府调解，不愿调解或调解不成的，可直接向有管辖权的人民法院提起诉讼。

3、本合同自双方签字后生效。未尽事宜，由双方共同协商补充，有关补充条款与本合同具有同等法律效力。

4、本合同一式肆份，双方各执一份，鉴证单位、深渡镇人民政府备案一份。

甲方（签字）：洪雪飞

2021年6月16日

鉴证单位：（签

鉴证人：（签



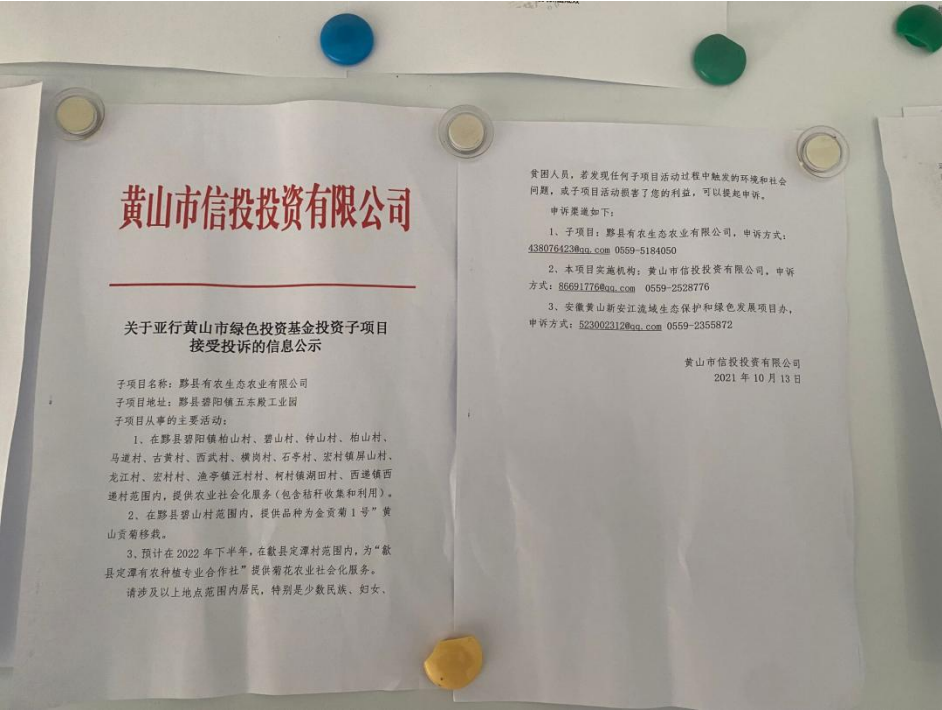
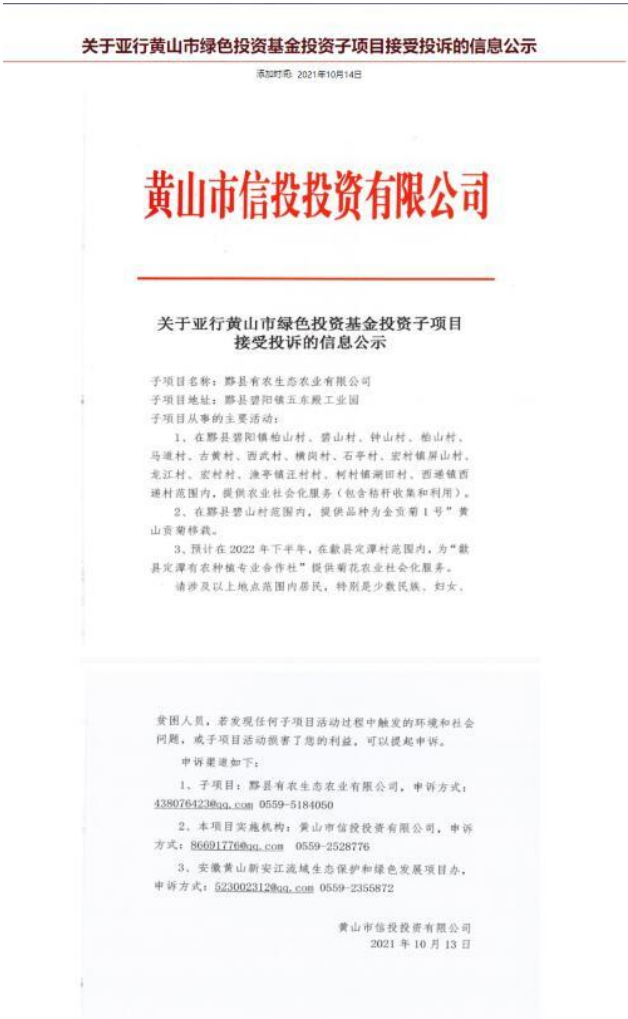
乙方（签字）：洪雪飞

2021年6月16日



2021年6月16日

附件七：信息披露实施情况截图



附件八：投诉记录

报告期：2021 年 7 月 1 日至 12 月 31 日

序号	投诉类型	范围	简要说明	名称	受影响人口	收到的日期					处理装置及结果				
						子项目	村民委员会	信投集团环境社会办公室	黄山市项目办	其他	子项目	村民委员会	信投集团环境社会办公室	黄山市项目办	其他
1	没有一个														