World Bank-financed

China Plastic Waste Reduction Project (Shaanxi)

Environmental and Social Management Framework (ESMF)

Foreign Loan Project Management Office of Shaanxi Province

November 2022

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Executive Summary

The China Plastic Waste Reduction Project (Shaanxi) (hereinafter, the "Project") is the second phase of the World Bank-financed program to tackle China's plastic wastes pollution. The Project will be implemented by Shaanxi Province. The project development objective is to provide information for plastic waste management at the national level, improve plastic waste management at the provincial level, and reduce plastic pollution in city-level solid waste in selected underserved areas.

The Project will cover 11 counties / districts in the Yellow River and Yangtze River basins in Shaanxi Province (including Baoji City). The Project's investment activities fall into 3 categories: 1) construction subprojects; 2) TA subprojects (including capacity building and topical studies, etc.); and 3) performance-based incentive financing mechanism (PBIFM) for mulch film management subprojects. The construction subprojects mainly include domestic waste collection facilities (e.g., village waste collection houses), transfer facilities, and terminal facilities (e.g., bulk waste dismantling centers), closure of existing landfills, etc.

The Shaanxi Project Steering Committee (PSC) led by the provincial development and reform commission, and finance department, and consisting of the ecology and environment department, housing and urban-rural development department, agriculture and rural affairs department, commerce department, etc. to solve major issues in the Project. The Shaanxi Project Management Office (PMO) will perform specific tasks. The county / district governments have established county / district Project Leading Groups (PLGs), PMOs and PIUs[1] to coordinate the implementation of the county / district subprojects. The county / district urban administration and law enforcement bureaus (or environmental sanitation centers thereunder) are responsible for the implementation of construction subprojects, and the Baoji City Solid Waste Management Center (SWMC) will implement the Baoji subproject. The Shaanxi PMO will implement TA subprojects in a unified manner; the county / district agriculture and rural affairs bureaus (ARABs) will ARABs will implement PBIFM for mulch film management subprojects.

At the project appraisal, the sites of most facilities were unfixed. Only the scope and locations of the Batch 1 subprojects have been fixed, and the counties / districts involved are Linwei District and Chengcheng County in Weinan City, Chencang District in Baoji City, and Baoji City. The Shaanxi PMO has conducted a detailed ESA on the Batch 1 subprojects as per the ESF and ESSs, and prepared E&S management documents for the Batch 1 subprojects

[1]The Baoji City Project Leading Group, PMO and PIU will be responsible for the Baoji subproject, and direct the project counties / districts (Chencang District, Weibin District, Jintai District and Fengxiang District) to implement their respective activities.

(including the EIA report, social audit report, SIA report, SEP, etc.). Since the sites, sizes and technical solutions of future subprojects have not been fixed, the Shaanxi PMO has prepared this ESMF, the SEP and the ESCP according to the ESF, to direct the E&S risks and impacts management of future subprojects together with applicable state laws and regulations.

This ESMF provides a set of management procedures and content requirements for the E&S risk management of different types of project activities. During implementation, all project activities will be subject to the requirements of this ESMF for identification, screening and classification, E&S impact assessment (ESA) document preparation, implementation monitoring and reporting, and stakeholder engagement. The key contents of this ESMF include:

A)E&S risks and impacts analysis and management procedures

- **Construction Subprojects:**

Construction subprojects include the construction of rural waste collection houses and urban waste sorting pavilions, construction and reconstruction of WTSs, landfill closure, construction waste recycling and disposal, waste sorting facilities, etc. **Potential environmental risks** include construction impacts (dust, noise, wastewater, waste, vegetation destruction, OHS, traffic safety, community disturbance, etc.), OHS risks of waste transfer / sorting / disposal workers at the operation stage, potential OHS risks for operators during bulk waste dismantling, exposure to hazardous waste, etc.; potential **social risks** include LAR risks, NIMBY risks, OHS risks, community health and safety risks, impacts on vulnerable groups, etc. In sum, E&S risks and impacts of construction subprojects include "High", "Substantial", "Moderate" and "Low" levels. Detailed ESA for each subproject will be conducted following the procedures and requirements set out in this ESMF at the implementation stage.

The E&S management procedure for construction subprojects is: 1) E&S impacts screening and classification; 2) E&S document preparation, 3) E&S document approval (including land use compliance approval); 4) project and ESCP implementation monitoring and reporting; and 5) project completion and evaluation, etc.

- **TA Subprojects:**

TA Subprojects include 20 topical studies and capacity building activities in 10 categories, and do not involve construction. TA subprojects will not have direct negative environmental risks and impacts themselves. Based on the ESSs, their own social risks include: 1) inadequate stakeholder engagement; 2) labor risks for managers and researchers, such as travel safety and safety risks during fieldwork (including COVID-19), failure to pay sufficient travel

subsidies, etc. In general, TA subprojects' E&S risks are "Moderate". However, suggestions included in certain research findings under TA subprojects, if adopted and implemented, may pose potential downstream E&S risks and impacts. Accordingly, attention should be paid to potential downstream impacts of TA subprojects, and appropriate suggestions included in research findings to direct the PIUs to implement E&S risk management. It should be noted that TA subprojects will not draft policies, plans or institutions for the Chinese government directly, but just give suggestions.

The E&S management procedure for TA subprojects is: 1) subproject screening and classification, determination of instruments for the ESA, and drafting of the ToRs (including stakeholder engagement and labor management arrangements); 2) Bank review of E&S contents in the ToRs, work plan and findings; 3) implementation and monitoring of TA and E&S management activities; and 4) E&S management performance evaluation at project completion, and issue of the Bank's non-objection opinion.

- **PBIFM for mulch film management:**

PBIFM for mulch film management will **focus on mulch film transfer from fields** to improve farmers' willingness and change their behavior, so that farmers deliver used mulch film to designated collection sites and mulch film enters regular solid waste disposal systems. Risks are social risks mainly, including inadequate stakeholder engagement and non-inclusion risks, and environmental risks are negligible.

The underlying social risks for PBIFM for waste mulch film will be mitigated and managed through an early, proactive, inclusive, and meaningful stakeholder engagement planning, which will also promote farmers' behavior change and further improve project sustainability. Community participation arrangements include the following steps: 1) Preparation stage—pilot village selection; 2) preparing village specific mulch film recovery programs; 3) implementation and verification of mulch film recovery; and 4) M&E on implementation performance.

B)Stakeholder Engagement Plan (SEP)

A separate SEP has been prepared for the Project, which analyzes needs and influences of project-affected parties, other interested parties (including vulnerable groups), specifies the responsibilities and resources of the PMOs and TA research agencies, and establishes an information disclosure and engagement plan, and a GRM. The Shaanxi PMO, county / district PMOs and PIUs will implement the SEP throughout the lifecycle of the Project.

C)Capacity building plan

This ESMF includes a capacity building plan covering multiple targets including the PMOs, PIUs, contractors, etc. to strengthen the E&S management performance of the Project.

D)Environmental and Social Commitment Plan (ESCP)

As part of the Legal Agreement, the Shaanxi PMO promises in the ESCP that it will comply with this ESMF, manage E&S risks and impacts of future subprojects (including potential downstream E&S risks of TA subprojects) properly, and submit progress reports to the Bank regularly to sum up the implementation of the ESCP, ESMF and SEF.

E)E&S risk management instruments

This ESMF provides a set of E&S management instruments and templates. When information of future subprojects is clear, these instruments and templates will provide practical guidance to the Shaanxi and local PMOs, PIUs and E&S consultants to manage E&S risks. These **E&S risk management instruments** include:

- Appendix 2 E&S Screening Form for Construction Subprojects
- Appendix 3 Guidelines for E&S Risks Classification
- Appendix 4 General E&S Impacts Management Measures
- Appendix 5 Basic E&S Elements of the ToRs for TA Subprojects
- Appendix 6 Outline of the EIA and EMP
- Appendix 7 Outline of the SIA and SMP
- Appendix 8 Resettlement Framework
- Appendix 9 Outline of the Social Audit Report
- Appendix 10 Outline of the Environmental Audit Report
- Appendix 11 LMP Template
- Appendix 12 Traffic Management Plan Template
- Appendix 13 EMDP Framework
- Appendix 14 Cultural Relics Chance Find Procedure
- Appendix 15 Outline for E&S Management Performance Evaluation

Acronyms

E&S	Environmental and Social
EIA	Environmental Impact Assessment
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
LA	Land Acquisition
HD	House Demolition
EHSG	World Bank's Environment, Health and Safety Guidelines
EMEF	Ethnic Minority Engagement Framework
EMDP	Ethnic Minority Development Plan
ESA	Environmental and Social Assessment
GIIP	Good International Industrial Practice
GAP	Gender Action Plan
GRM	Grievance Redress Mechanism
M&E	Monitoring and Evaluation
NIMBY	Not In My Back Yard
OHS	Occupational Health and Safety
PBIFM	Performance-Based Incentive Financing Mechanism
PIU	Project Implementation Unit
PMO	Project Management Office
PLG	Project Leading Group
RAP	Resettlement Action Plan
RF	Resettlement Framework
SAP	Social Action Plan
SIA	Social Impact Assessment
SEP	Stakeholder Engagement Plan
SESA	Strategic Environmental and Social Assessment
TA	Technical Assistance
ToRs	Terms of Reference
USD	US Dollar
WBG	World Bank Group

1 Project Description

1.1 Background

The China Plastic Waste Reduction Project (Shaanxi) (hereinafter, the "Project") is the second phase of the World Bank-financed China Plastic Waste Reduction Project. The Project will be implemented by Shaanxi Province, and will be submitted to the World Bank Board of Executive Directors for approval in March 2023. The China Plastic Waste Reduction Project (Phase 1) was approved by the World Bank Board of Executive Directors in May 2021, and was implemented by the Department of Resource Conservation and Environmental Protection of the National Development and Reform Commission, Ningbo City and Chongqing City. Based on the 14th Five-year Plan, the Project supports China's plastic pollution reduction, resource utilization, carbon neutrality and circular economy.

The project development objective is to provide information for plastic waste management at the national level, improve plastic waste management at the provincial level, and reduce plastic pollution in city-level solid waste in selected underserved areas. The Project has 3 components, as detailed below:

Component 1: **technical assistance for institutional strengthening and capacity building in plastic waste management**

- Project activity 1A: urban and rural integrated waste service pattern development
- Project activity 1B: consultation / knowledge exchange between provinces, the Ministry of Housing and Urban-Rural Development, and the National Development and Reform Commission
- Project activity 1C: institutional strengthening and capacity building

Component 2: **improving municipal solid waste management and agricultural plastic waste management in underserved areas**

- Project activity 2A: urban and rural waste management
- Project activity 2B: collection and treatment of agricultural plastic waste

Component 3: **project management, monitoring and evaluation**

The expected gross investment in the Project is about RMB 2.67 billion, including a Bank loan of $250 million, and the construction period is from July 2023 to 2029. According to the project objective, composition and selection criteria for project counties / districts, the Project will cover 11 counties / districts in the Yellow River and Yangtze River basins in Shaanxi Province (including Baoji City). See Table 1-1.

Table 1-1 Summary of the Project Counties / Districts

Region	Prefecture-level city	County / district
Guangzhong region (Yellow River basin)	Baoji	Jintai, Weibin, Chencang and Fengxiang Districts
	Xianyang	Jingyang County
	Weinan	Linwei District, Chengcheng County, Baishui County, Pucheng County
Southern Shaanxi region (Yangtze River basin)	Ankang	Hanbin District
	Hanzhong	Nanzheng District

Source: Shaanxi PMO

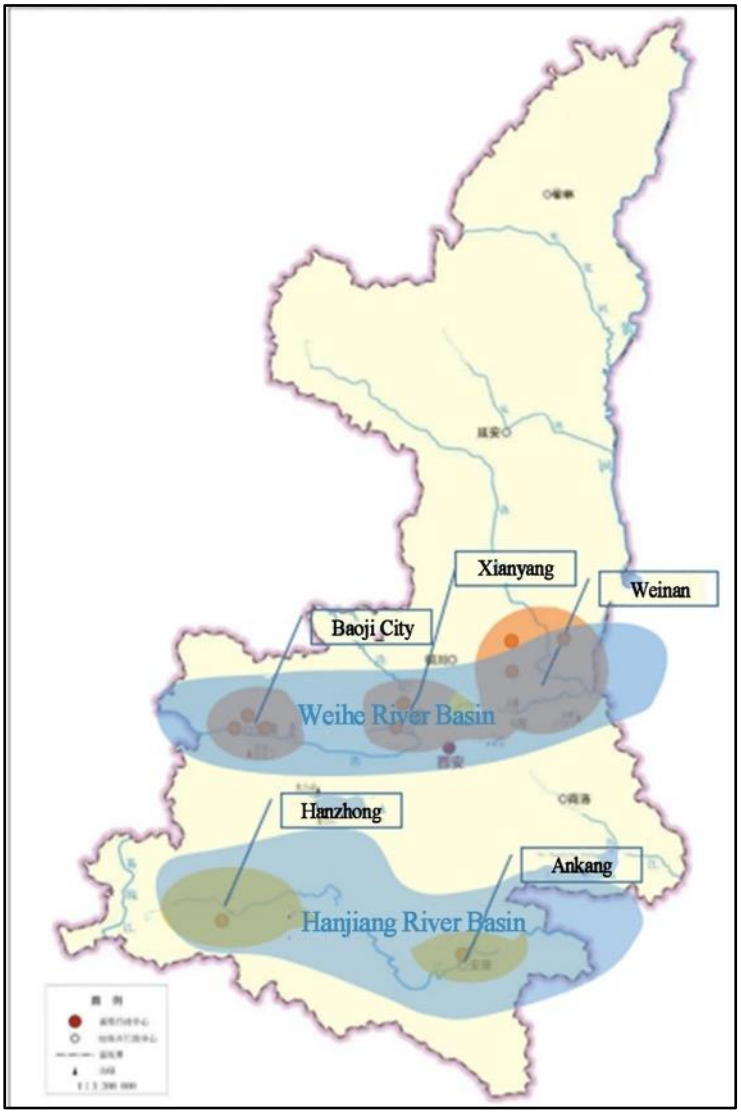

Figure 1-1 Location Map of the Project Counties / Districts

1.2 Overview of Project Activities

The Project's investment activities fall into 3 categories: construction subprojects, PBIFM for mulch film management subprojects and TA subprojects (including capacity building and topical studies).

At the project appraisal, the sites of most facilities were unfixed. Only the scope and locations of the Batch 1 subprojects have been fixed, and the counties / districts involved are Linwei District and Chengcheng County in Weinan City, Chencang District in Baoji City, and Baoji City. The Batch 1 subprojects include the construction of village and community waste collection sites, the construction and reconstruction of WTSs, the reconstruction of a sorting center, the closure of 4 landfills, etc.

The Foreign Loan Project Management Office of Shaanxi Province (hereafter as "Shaanxi PMO") has conducted a detailed environmental assessment and social assessment for the Batch 1 subprojects as per the ESF and ESSs, and other subsequent batch of construction subprojects, all the TA activities and waste mulch film management subprojects under Performance-Based Incentive Financing Mechanism (PBIFM) whose details and locations have not been determined are included in this ESMF.

1.2.1 Construction Subprojects

According to the list of proposed project activities, construction subprojects involve the construction and reconstruction of urban and rural domestic waste collection, transfer and terminal disposal facilities, etc., mainly including:

- **Front end collection and sorting facilities**: including the construction of rural waste collection houses and urban waste sorting pavilions, and the purchase of collection vehicles;
- **Domestic waste transfer facilities**: including construction and reconstruction WTSs, and the purchase of waste transfer trucks;
- **Terminal disposal**: including landfill closure, construction waste recycling and disposal, waste sorting facilities, Rural organic waste disposal facilities, etc.
- **Integrated management and other associated facilities**: including integrated management and education centers / bases, transfer truck parking and maintenance center, etc.

See Table 1-2 for details. The gross investment in construction subprojects is 1.74 billion yuan, covering 203 townships and serving a population of 7.165 million. See ***Appendix 1*** for detailed project activities and key facilities[2] (e.g., landfill closure, bulk waste dismantling center) to in the project counties / districts.

Table 1-2 Counties / Districts Involved in Construction Subprojects

Item	Scope of construction	County / district	Remarks

[2] With the deepening of design, construction subprojects may be further adjusted.

Item	Scope of construction	County / district	Remarks
Front end collection facilities	Construction of urban and rural waste collection sites and sorting pavilions	Counties / districts except Chengcheng County, Baishui County and Baoji City	
	Purchase of waste collection vehicles	Counties / districts except Linwei District, Pugcheng County, Baoji City, Weibin District and Nanzheng District	
Transfer facilities	Construction / reconstruction of transfer stations and purchase of transfer trucks	All county / districts	
Terminal disposal facilities	Landfill closure	Linwei District, Chengcheng County, Pugcheng County, Baishui County, Baoji City, FengxiangDistrict,Nanzheng District.	Involving the closure of 8 landfills
	Recyclable sorting center	Linwei District, Baoji City	
	Bulk waste dismantling center	Pugcheng County, Baishui County, Jingyang County,Pucheng County	
	Decoration waste recycling and disposal	Baoji City, Chencang District	
	Construction / reconstruction of kitchen waste disposal plants	Baoji City, Hanbin District	
	Rural organic waste disposal station	Jingyang County	
Integrated management and other associated facilities	Integrated management and education centers / bases	Baoji City, Jintai District, Fengxiang District, Chencang District, Nanzheng District, Jingyang County	
	Transfer truck parking and maintenance center	Weibin District, Chencang District, Jintai District	
	Kitchen / garden waste recycling	Chencang District	
Open dumps management	Waste transfer and site management	TBD through further engagement with the clients	

Source: Feasibility Study Report, August 2022

Although open dumps management is not included in the Feasibility Study Report (August 2022), it contributes greatly to the realization of the project objectives. Shaanxi PMO is still discussing it with the Bank the way to systematically tackle this issue, and there is a potential to identify proper activities to support open dumps management in the future. Accordingly, this ESMF also analyzes its E&S risks and impacts and proposes relevant management instruments to direct the PIUs to conduct E&S risk management.

1.2.2 TA Subprojects

For the convenience of E&S impacts screening, TA subprojects under the Project are classified as follows based on the Bank guidelines[3]:

- Type 1: supporting the preparation of future investment projects, such as feasibility study, design, E&S management documents and other activities with potential E&S risks;

[3] OESRC Advisory Note, Technical Assistance and the Environmental and Social Framework, May 21, 2019

- Type 2: supporting the formulation of policies, programs, plans, strategies or legal frameworks;
- Type 3: strengthening borrower capacity.

TA subprojects mainly include the study on integrated urban and rural domestic waste planning, Shaanxi smart sanitation IT system, source reduction of domestic waste in remote areas, and selection and application of technical routes for local disposal, study on the integration mode for rural waste disposal and recycling systems, capacity building, international exchange and training, etc., with 20 activities in 10 categories in total, in which 16 belong to Type 2 and four to Type 3. TA subprojects do not involve construction themselves, and do not have direct E&S risks and impacts. However, research findings of some TA subprojects will give suggestions, which, if adopted and implemented, may pose potential indirect E&S impacts.

See Table 1-3.

Table 1-3 Summary of TA Subprojects

No.	Subproject	Scope	TA type	Investment (0,000 yuan)
1	Establishing an exchange mechanism on urban and rural plastic waste reduction between the central, provincial and municipal levels	Attending roundtables held by the Bank, National Development and Reform Commission, Ministry of Housing and Urban-Rural Development, Ministry of Agriculture, etc. to make exchanges on urban and rural plastic waste reduction; learning advanced experience from Ningbo and Chongqing, and compiling cases of plastic waste reduction, and relevant policies and information for reference	III	500
2	Study on integrated urban and rural domestic waste planning	**1)Study on integrated urban and rural domestic waste management planning**: studying integrated urban and rural waste management plans suited to different areas of Shaanxi Province, including goals, routes, timing, duties, etc. for optimal planning to realize comprehensive coverage;	II	800
		2)Local waste management standard study: studying the framework of local standards for urban and rural domestic waste collection—transfer—disposal based on local conditions;	II	
		3)Study on regional waste management layout and facility integration: studying waste management division by basin, management mechanism and organizational structure, facility sharing, and waste co-management, etc.;	II	
		4)Study on rural waste disposal funding and cost recovery mechanism: raising funds for rural waste disposal through government, bank and bond financing at the government level, and through charging and collective asset operation within village collectives, thereby solving the fund shortage problem; preparing a research report;	II	
		5)Study on market operation mechanism and government-led mode for rural waste disposal services: studying and optimizing the mechanism and mode to provide experience for other areas;	II	
		6)Implementation plan for rural domestic waste classified management: investigating rural residents' satisfaction with waste disposal and waste sorting behavior, and proposing an implementation plan to promote source reduction and recycling;	II	
		7)Following-up monitoring on plastic component and output of domestic waste: studying the analysis method of plastic component and output of urban and rural domestic waste, and developing a follow-up monitoring plan to capture accurate data;	II	
		8)Study on recyclable plastic recycling improvement and supporting policies: studying efficient and classified recovery, refined sorting and other techniques, as well as supporting policies and regulatory requirements on plastic waste recycling to improve the efficient recycling level of recyclable plastics	II	
3	Shaanxi smart sanitation IT system	Formulating a provincial standard and a provincial plan for smart sanitation IT system building, and establishing a provincial smart sanitation IT management platform to realize the real-time feedback and analysis of basic data on plastic waste, optimize facility layout and operation, and improve waste management efficiency	II	1000
4	Source reduction of domestic waste in remote areas, and	Studying advanced modes of local disposal of rural domestic waste in China, conducting trials on source reduction and local disposal of domestic waste in remote areas of Shaanxi Province, and preparing a	II	500

No.	Subproject	Scope	TA type	Investment (0,000 yuan)
	selection and application of technical routes for local disposal	research report for reference, thereby reducing the amount of waste transferred out of villages, reducing waste disposal costs, and improving the sustainability of rural domestic waste disposal		
5	Collaborative mechanism for urban and rural plastic pollution prevention and control	Establishing a collaborative mechanism for plastic pollution control from source reduction to terminal absorption, and establishing a routine joint conference mechanism to strengthen communication between competent authorities and summarize progress timely	III	400
6	Study on the integration mode for rural waste disposal and recycling systems	Exploring the integration of rural environmental sanitation and renewable resource systems in mechanisms, staff, logistics, facilities and platforms, and preparing a pilot program	II	150
7	Residual mulch film M&E and recording	1)**Residual film M&E**: setting up a residual film monitoring site per 10,000 mu to monitor and evaluate ranges and modes of use, suitable crops, types used, recovery methods, residue, etc., and establishing a database and a recycling monitoring system	II	1640
		2)**Mulch film use record information system**: establishing a provincial data management platform on mulch film use and recovery	II	
		3)**Thickened mulch film demonstration**: conducting trials in 3 counties / districts, with a pilot area of not less than 2,000 mu per county / district, and extending the application of 0.015 mm or above thickened high-strength mulch film to reduce use costs and ensure the recoverability of mulch film	II	
8	Implementation program for county / district mulch film recycling	Preparing a mulch film recovery program for each county / district, including recovery subsidization, and mulch film recovery and disposal system building	II	700
9	Carbon emissions of rural waste disposal and emission reduction strategy	Studying resource and energy consumption, and GHG emissions of waste disposal, and designing different waste disposal scenarios to study regulatory measures for low-carbon domestic waste disposal; analyzing the carbon reduction effect of the Project to provide a basis for decision-making on effective low-carbon urban and rural waste management	II	350
10	Publicity	1)Conducting publicity on county / district rural domestic waste sorting and recycling by means of video, explanation, field visit, simulated game, training, broadcast and brochure, so that residents are aware of the whole process of domestic waste from generation, collection, transfer to terminal disposal, participate in waste sorting more actively, and develop the habit of conserving resources	III	1400
		2)Preparing the Action Plan for Publicity and Education on Mulch Film Reduction of Shaanxi Province (2024-2029), and conducting publicity and education by means of slogan, brochure, meeting, door-to-door explanation, training, etc.	III	

Source: Feasibility Study Report

1.2.3 Waste Mulch Film Management Subproject under PBIFM

Through consultation with competent authorities (e.g., ARABs), the PBIFM will be established to provide an incentive to enhance and change farmers' willingness and behavior to use thicker mulch film and collect and transport the used mulch to designated areas. The incentive will benefit farmers/farmers' associations/enterprises as follows: (a) the performance-based incentive financing mechanism will be offered against verified utilization of standard/thicker ground mulch by farmers and cooperatives; (b) the performance-based incentive financing mechanism will be offered against verified used mulch collected from farmland that is placed at designated collection points (from where the mulch will be transported for safe handling and treatment as part of the MSWM system).

As part of a pilot approach to increase plastic mulch collection and treatment, this subproject will focus on ground mulch and reflective film – the two types of agriculture film constitute the largest leakage to the environment and support activities in seven counties/districts of Shaanxi that include: (a) agricultural mulch collection equipment and facilities, temporary storage and transfer facilities, and long-haul transfer equipment; and (b) the PBIFM will offer financing to incentivize farmers/cooperatives/enterprises to shift to thicker agricultural mulch and then collect and transport the used mulch to designated outlets for further treatment.

Based on the preliminary design, PBIFM for mulch film management **will focus on mulch film transfer from fields**, and establish a management mechanism based on agencies responsible, management procedures, fund use and regulation, etc. There are two main modes: 1) manual picking + terminal disposal; and 2) mechanical picking + terminal disposal. In fact, in whichever mode, the core issue is to make farmers / cooperatives willing to transfer used mulch film from fields to domestic waste collection sites for integration into rural domestic waste management systems, and effective and reliable disposal. Therefore, PBIFM for mulch film management will focus on the following aspects:

- Causing farmers to use standard / thickened mulch film;
- Improving farmers' willingness and changing their behavior, so that farmers deliver used mulch film to designated collection sites and mulch film enters regular solid waste disposal systems.

See Figure 1-2.

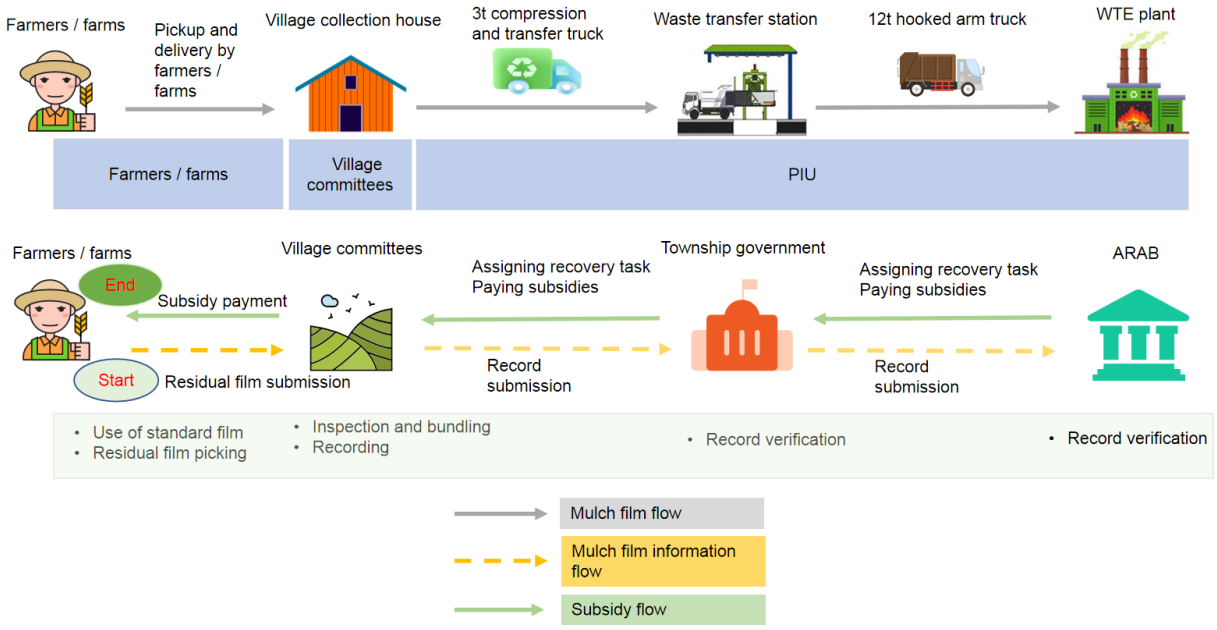

Figure 1-2 PBIFM for Mulch Film Management Flowchart

1.3 Implementation Arrangements

The Project has a construction period of 6 years and will be implemented in batches from July 2023. The Batch 1 subprojects will be implemented within 18 months, and E&S management documents will be prepared for future subprojects according to the principles and procedures specified in this ESMF.

The Shaanxi Provincial Government has made arrangements for the PIUs:

- **Provincial Steering Committee and Shaanxi PMO**

The Shaanxi Project Leading Group (provincial steering committee) has been established[4] (PLG) at the provincial development and reform commission to solve major issues in project construction. The Shaanxi PMO thereunder is responsible for project planning, guidance, coordination, implementation, management and supervision.

- **County / district PLGs and PMOs**

The county / district governments have established county / district PLGs[5] to

[4]The Provincial Steering Committee consists of the provincial development and reform commission, finance department, ecology and environment department, housing and urban-rural development department, agriculture and rural affairs department, commerce department, rural revitalization bureau, and federation of supply and marketing cooperatives, and the participating prefecture-level cities (Baoji, Xianyang, Weinan, Yulin, Hanzhong and Ankang).

[5]The leading group of each district usually consists of the deputy district head in charge of environmental sanitation, development and reform bureau, finance bureau, ecology and environment bureau, housing and urban-rural development bureau, agriculture and rural affairs bureau, and urban administration and law enforcement bureau, township governments, etc.

coordinate the implementation of the county / district subprojects. The county / district PMOs [6] thereunder are responsible for subproject planning, guidance, coordination, implementation, management and supervision.

- **PIUs**

The county / district governments have appointed PIUs to implement the county / district subprojects. The Shaanxi PMO will be generally responsible for capacity building and policy research, including bidding, procurement and implementation management; the county / district PIUs will conduct bidding, procurement, construction and reimbursement in accordance with the applicable procedures of China and the Bank under the leadership of the Shaanxi PMO and county / district PMOs, including ESA, M&E and reporting.

See Figure 1-3. The overall implementation arrangements are as follows:

- The county / district and municipal (e.g., Baoji City) environmental sanitation authorities will implement construction subprojects;
- The Shaanxi PMO will implement TA subprojects in a unified manner;
- The county / district ARABs will implement PBIFM mulch film management subprojects.

The social audit and social impact assessment showed that project participating agencies (including PMOs and PIUs) follows China's laws and regulations to management environmental and social affairs for investment project, mainly resting on external consultant for environmental and social management. There is no designated in-house full time E&S specialist within project participating agencies. The project participating agencies has adopted comprehensive labor management systems, providing clear document guidelines and procedures for managing labor and working conditions of direct workers. However, there is no dedicated division or personnel to manage workers' occupational health and safety (OHS), which is used to be part of roles of the human resources division within project participating agencies.

Although Shaanxi PMO have experienced in several projects that were financed by the World Bank, it is the first time for Shaanxi PMO and the other agencies to implement the World Bank Environmental and Social Framework (ESF). The project activities will involve very broader environmental and social issues. Managing environmental and social impacts

[6] The Baoji City Project Leading Group, PMO and PIU will be responsible for the Baoji subproject, and direct the project counties / districts (Chencang District, Weibin District, Jintai District and Fengxiang District) to implement their respective activities.

and risks of the project requires dedicated human resources with appropriate technical expertise and extensive on-the-ground experiences. All project participating agencies' environmental and social capacity needs to be further enhanced by implementing systematic capacity training programs.

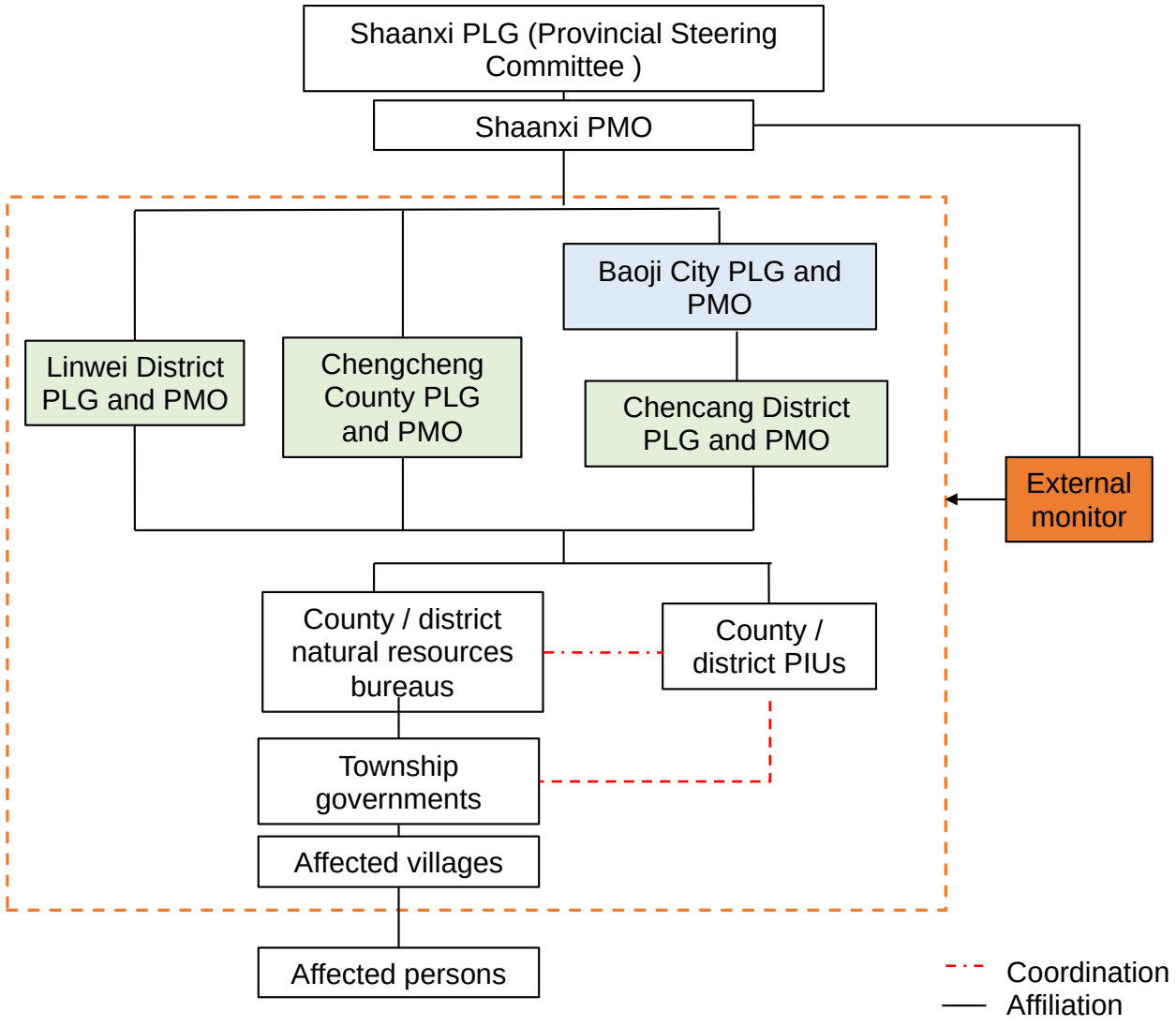

Figure 1-3 Institutional Arrangements

1.4 Purpose and Application Scope

Since the Project is still at the conceptual design and feasibility study stage, details (e.g., sites, sizes and technical solutions) for all project activities are still unclear. The purpose of this ESMF is to set up a framework for E&S risks and impacts management during the implementation of the Project with specific E&S impacts assessment procedures and technical guidance.

This ESMF will apply to all project activities under the Project (for the Batch 1 subprojects (including Linwei District, Chengcheng County, Chencang District and Baoji City), separate E&S management documents).

1.5 Methods of Preparation

This ESMF has been prepared in accordance with the Bank ESF and ESSs, and China's applicable laws and regulations, and based on the scope of the Project using the following methods:

1)Data collection: implementation plan of project activities, background data of the project area, applicable E&S laws and regulations, etc.;

2)Fieldwork: visiting pilot areas to learn local E&S conditions, project scope and implementation plan by means of interview, FGD, questionnaire survey, etc.;

3)Analysis and evaluation: analyzing the Project's overall E&S risks and impacts, developing management procedures, and preparing this ESMF by means of literature collection and review, online interview, seminar, etc.

In the whole process of any project activity, potential E&S risks and impacts will be screened and assessed, mitigation measures, E&S management documents prepared, stakeholder engagement conducted, and E&S management performance monitored and report in compliance with this ESMF.

2 Environmental and Social Profiles

2.1 Environmental quality baseline

2.1.1 Geographical location

Shaanxi Province is located in the northwest inland hinterland between 105°29'~111°15' East longitude and 31°42'~39°35' North latitude, east across the Yellow River from Shanxi, west with Ningxia and Gansu, south with Sichuan and Chongqing, north with Inner Mongolia, southeast with Henan and Hubei. The administrative division of Shaanxi Province is shown in Figure 2-1. According to the topography, Shaanxi Province is divided into three regions, namely the Loess Plateau in northern Shaanxi, the Guanzhong Plain and the Qinba Mountains in southern Shaanxi, with an overall narrow north-south character.

The project involves 11 counties in 5 municipalities, including:

- Baoji City (Guanzhong): Jintai, Chencang, Weibin and Fengxiang Districts;
- Xianyang City (Guanzhong): Jingyang County;
- Weinan City (Guanzhong): Linwei District, Chengcheng County, Baishui County and Pucheng County;
- Hanzhong City (Southern Shaanxi): Nanzheng District;
- Ankang City (Southern Shaanxi): Hanbin District.

The location map of the Project is shown in Figure 2-2.

Figure 2-1 Geographic Location of Shaanxi Province in China

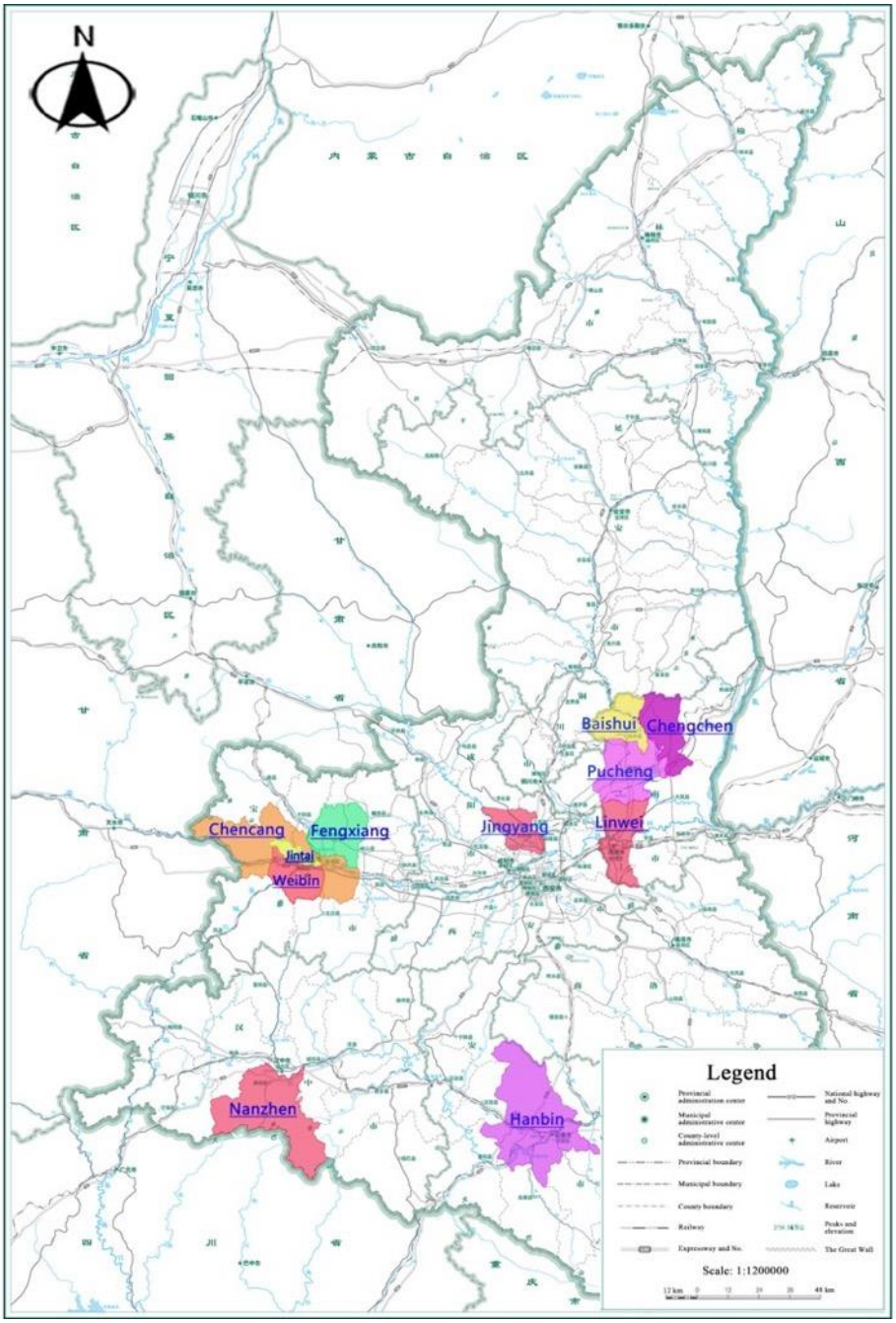

Figure 2-2 Location map of the project area

2.1.2 Climate and weather

Shaanxi Province spans three climatic zones, with large differences in climate between the north and the south. The Qinling Mountains are the climatic dividing line between the north and the south of China, with northern subtropical climate in southern Shaanxi, warm temperate climate in Guanzhong and most of northern Shaanxi, and moderate temperate climate along the Great Wall in northern Shaanxi. General climatic characteristics of Shaanxi Province: Warm and dry spring with low

precipitation, rapid and erratic warming of temperatures and sandy weather; Hot and rainy summers with occasional droughts; Cooler, wetter autumn with a rapid drop in temperature; Cold and dry winter with low temperatures and sparse rain and snow. The climatic characteristics of the project area are shown in Table 2-1.

Table 2-1 Climatic and Meteorological Characteristics of the Project Area

Item Proposed site	Climatic characteristics	Meteorological parameters				
		Annual average temperature (ºC)	Major Wind direction	Average wind speed over years (m/s)	Average annual rainfall (mm)	Frost-free period (Day)
Jintai District, Baoji City	It has a warm temperate semi-humid climate in the continental monsoonal zone. Cold, warm, dry and wet seasons, long winters and summers, short springs and autumns	12.9	NE	1.2	666.1	214
Chenchang District, Baoji City	Mid-latitude continental monsoon zone with a warm temperate semi-humid, semi-arid climate	12.8	NE	1.2	701	224
Weibin District, Baoji City	It has a warm temperate semi-humid climate in the continental monsoonal zone. Cold, warm, dry and wet seasons, long winters and summers, short springs and autumns	13.0	ENE	1.2	670	217
Fengxiang District, Baoji City	Warm temperate continental monsoon climate. Semi-humid and semi-arid. Four distinct seasons throughout the year, with long winters and summers but short springs and autumns	11.4	NE	1.2	625	209
Jingyang County, Xianyang City	warm temperate continental monsoon climate with warm and cold, dry and wet seasons	13.0	NE	1.9	548.7	213
Linwei District, Weinan City	Sub-temperate continental semi-arid climate. It is characterised by four distinct seasons, with a dry spring and little rain, a hot and rainy summer, a cool and rainy autumn and a cold and snowy winter.	13.8	ENE	1.3	569.4	216
Chengcheng County, Weinan City	Warm temperate semi-humid climate of the Guanzhong Plain. The climate is highly variable from year to year and is generally characterised by drought and low rainfall, abundant sunshine and large diurnal temperature differences	12.6	ENE	2.7	550	204
Pucheng County,	Warm temperate continental semi-arid monsoon climate. Warm	13.7	NE	3.4	519.9	218

Item Proposed site	Climatic characteristics	Meteorological parameters				
		Annual average temperature (ºC)	Major Wind direction	Average wind speed over years (m/s)	Average annual rainfall (mm)	Frost-free period (Day)
Weinan City	spring, hot summer, cool autumn and cold winter, with four distinct seasons, plenty of sunshine and low rainfall					
Baishui County Weinan City	Warm temperate continental monsoon climate. Cold, long, dry and windy winters; Rapid warming and dryness in spring, with more cold air activity; High summer temperatures, high humidity and showery precipitation; Autumn cools quickly and is rainy and wet	11.8	NE	2.4	557	207
Nanzheng District, Hanzhong City	Northern subtropical humid monsoon climate zone. The climate is characterized by cold winters, hot summers, warm, humid, hot and rainy seasons, and four distinct seasons.	15.4	E	1.2	850.1	237
Hanbin District, Ankang City	North subtropical continental monsoon climate. Humid and mild climate with four distinct seasons, abundant rainfall and long frost-free periods	16.16	NE	1.37	1050	253

2.1.3 Topography and landform

Shaanxi Province is high in the north and south and low in the middle, with a variety of terrain including plateaus, mountains, plains and basins. The northern mountains and the Qinling Mountains divide Shaanxi into three natural regions: The northern part is the Loess Plateau area in northern Shaanxi at an altitude of 900 to 1900m, accounting for about 40% of the province's land area; The central part is the Guanzhong Plain area at the altitude of 460-850m , accounting for about 24% of the province's land area; The south part is the Qinba mountains in southern Shaanxi at an altitude of 1000-3000m, accounting for about 36% of the province's land area. The topographical features of the area where the project is located are shown in Table 2-2 and the topographical map is shown in Figure 2-3.

Table 2-2 Topographic Characteristics of the Project Area

Project area	Geomorphic types	Geography
Jintai District, Baoji City	River floodplains, river alluvial terraces, loess plateaus, erosion gullies	Jintai District is surrounded by plains and mountains to the west, south and north. The terrain is high in the north and low in the south, high in the west and low in the east, with an altitude of 840~556.2m in the whole area

Project area	Geomorphic types	Geography
Chenchang District, Baoji City	The northern Qinling Mountains in the south and the Long Shan Mountains in the west, the Weihe River and Qianhe River valley plains and loess plateau in the east, the hilly and gully areas	Chenchang District is surrounded by mountains to the west, south and north, with a low central depression opening up to the east and a high west and low east. The terrain is a mixture of mountains, rivers and plateaus, with 80.2% of the mountains and 19.8% of the plains. An altitude of 1200~2706m throughout the region
Weibin District, Baoji City	The Qinling Mountains in the south, the Weihe River terraces in the north and the slopes of the low mountain remnants in the center	Weibin District is high in the south and low in the north, with an altitude of 561~2774m throughout the district
Fengxiang District, Baoji City	Piedmont proluvial plain, loess plateau, Qianhe River terraces	Topography of the Fengxiang District: Mountains in the north, plateau in the south and river valley in the west. Hilly mountains in the north with an altitude of 1200-1600m; Plains in the south with an altitude of 649-968m; Qianhe River terrace in the west with an altitude of 588-750m
Jingyang County, Xianyang City	Bedrock mountains, loess plateaus and proluvial plains	The topography of Jingyang County is high in the northwest and low in the southeast. It is 37km long from east to west and 27km wide from north to south, with a total area of 780km^2 and an altitude of 361~1614m above sea level throughout the county
Linwei District, Weinan City	Qinling Mountains, hills and gullies, loess plateau, Weihe River Plain	Linwei District is located in the eastern part of the Weihe River Plain, with a terraced rectangular topography, high in the south and low in the north, and an altitude of 330~2449m throughout the district.
Chengcheng County, Weinan City	Low and middle height mountains, piedmont proluvial apron, loess plateaus and river valleys	Chengcheng County is a part of the loess plateau in the north of Wei, with a narrow north-south, high north and low south, and a stepped distribution, with an altitude of 362~1272m, average altitude 684.6m.
Pucheng County, Weinan City	Northern Plains, central plateau, proluvial apron, eastern river valley	Pucheng County is located at the junction of the Loess Plateau and the Guanzhong Plain in northern Shaanxi. The terrain is mainly plateau, high in the northwest and low in the southeast. An altitude of 370~1200m throughout the county
Baishui County Weinan City	Middle and low height mountains, loess beam plateaus, loess plateaus, loess valleys	Baishui County belongs to the Loess Plateau gully area. The gullies cover 51.8% of the county's area. The topography is high in the northwest and low in the southeast, with the highest altitude in the west of 1453.3m and the lowest altitude in the southeast by the Luo River of 446m
Nanzheng District, Hanzhong City	Plains, low hills, middle-height mountain areas	Nanzheng District is part of the Qinba Mountains in southern Shaanxi. The Han River surrounds the north-east and the terrain is high in the south and low in the north, with a stepped distribution. An altitude of 484~2468m throughout the region
Hanbin District,	Wide valley basin, low-height mountain and middle-height	Hanbin District is a hilly and gully area in the Qinba Mountains in southern Shaanxi.

Project area	Geomorphic types	Geography
Ankang City	mountain	Bounded by the Moon River, it is in the Qinling Mountains to the north and along the remainder of the Bashan Mountains to the south. The terrain is high from north to south and low in the middle, with an altitude of 216~2141m throughout the region

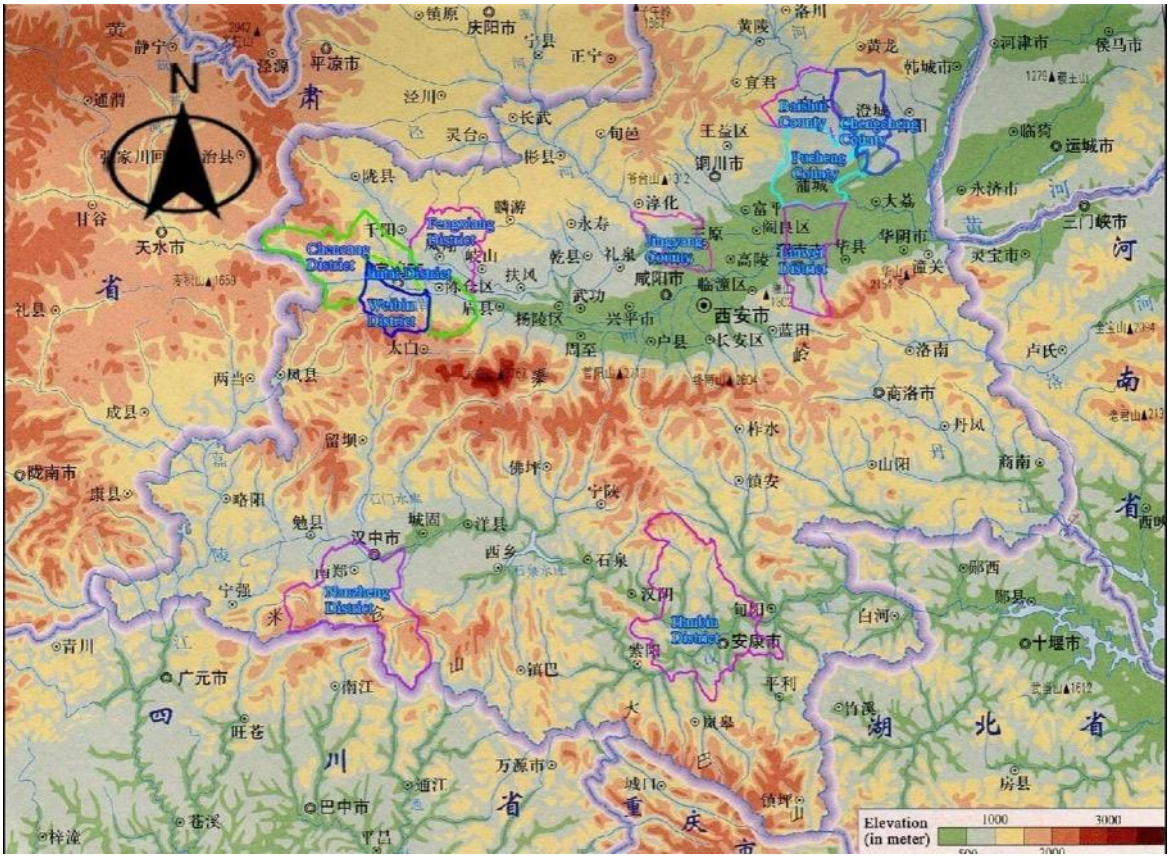

Figure 2-3 Topographic Map of the Project Area

2.1.4 Geology

Shaanxi Province spans three tectonic units: To the north it belongs to the Middle Dynasties Quasi-Terrane, to the south to the Yangtse Terrane and to the central part to the Qinling Fold System. The geological features of the area where the project is located are shown in Table 2-3 below, and the map of geological hazard prone areas is shown in Figure 2-4. The requirements for siting projects are set out in this framework, and subprojects are to be sited to avoid areas of high geological hazard susceptibility.

Table 2-3 Geological Characteristics of the Project Area

Project area	Geological feature
Jintai District, Baoji City	Jintai District is part of the Weihe River fault subsidence zone. The Weihe River fault subsidence is in the transition zone between the Qinling fold zone and the Ordos platform syneclise. This narrow east-west zone, covered by Quaternary deposits,

Project area	Geological feature
	forms the Weihe River Plain and the asymmetrical loess plateaus on either side of it. The main geological hazards are collapse, landslides and debris flows
Chenchang District, Baoji City	The main latitudinal tectonic system of the Qinling Mountains within the Chenchang District; The Qi, Lu and He mountain-formation system; The Longxi spin-torsional tectonic system; Five tectonic systems, including north-westerly and north-easterly tectonic traces of unknown systematic affiliation
Weibin District, Baoji City	It is divided into two major tectonic units, the southern margin of the Ordos platform syneclise of the Middle Dynasties quasi-terranean platform in the northeast and the Long Shan fold bundle of the Jiali fold zone in the Northern Qinling Mountains in the southwest.
Fengxiang District, Baoji City	The northern mountains of the Fengxiang District are of gently dipping northward monocline structure; Quaternary cover mainly in the southern loess plateaus; In the western part of the Fengjiashan reservoir area, there are volcanic rocks of the mesoproterozoic erathem bear's ear group, quartz sandstones of the Gao Shanhe Formation and dolomites of the Longjiaoyuan Formation, etc.
Jingyang County, Xianyang City	Jingyang County is located at the northern edge of the Guanzhong graben and the contact with the Ordos syneclise, with east-west trending fracture structures and north-east trending folds and faults in the geological structure
Linwei District, Weinan City	The southern part of the Qinling Jiali, the northern part of the eastern latitudinal tectonic zone of the Qinling Yuantai argillic fracture zone on the southern side of the North China Plateau; Northern part of the folded area of the northern Shaanxi basin belonging to the Ordos Plateau; In the center is the Weihe River stepped fault subsidence of the Fenwei graben. The geotectonic skeleton of a north-south uplift and a central bend has been formed
Chengcheng County, Weinan City	The geology of Chengcheng County is generally a monoclinic structure, trending north-east-east and north-west, with a dip of 3-7°.
Pucheng County, Weinan City	Pucheng County is located in the eastern flank of the Qilian, Luliang and Helan Mountains tectonic forearc and the eastern shield spreading area, the northern mountainous region is on the southern edge of the Ordos platform syneclise
Baishui County Weinan City	Baishui County is located in the transition zone between the Loess Plateau in the north of Wei and the Loess Plateau in the north of Shaanxi Province, with the western and northern part of the county covered with rocky mountains and the central and southern part of the county covered with Loess Plateau and Plateau, with thick loess cover and gullies.
Nanzheng District, Hanzhong City	The area of Nanzheng District straddles the northern edge of the Yangzi Quasi-Terrane, which is bounded to the south by Mesozoic terrestrial strata and the Sichuan platform syneclise. It consists of three sub-tier tectonic units, including the Mi (Cang Shan) Hannan platform convexity, the Ning (Qiang) Zhen (Ba) platform depression and the Hanzhong New Fault Depression.
Hanbin District, Ankang City	Hanbin District is located in the Qinba Mountains, with steep slopes and deep valleys, complex geological formations, deep and large fractures, broken rocks, extensive loose accumulation layers, and a fragile geological and natural ecological environment. Geological hazards such as landslides, collapse and debris flows are mainly developed

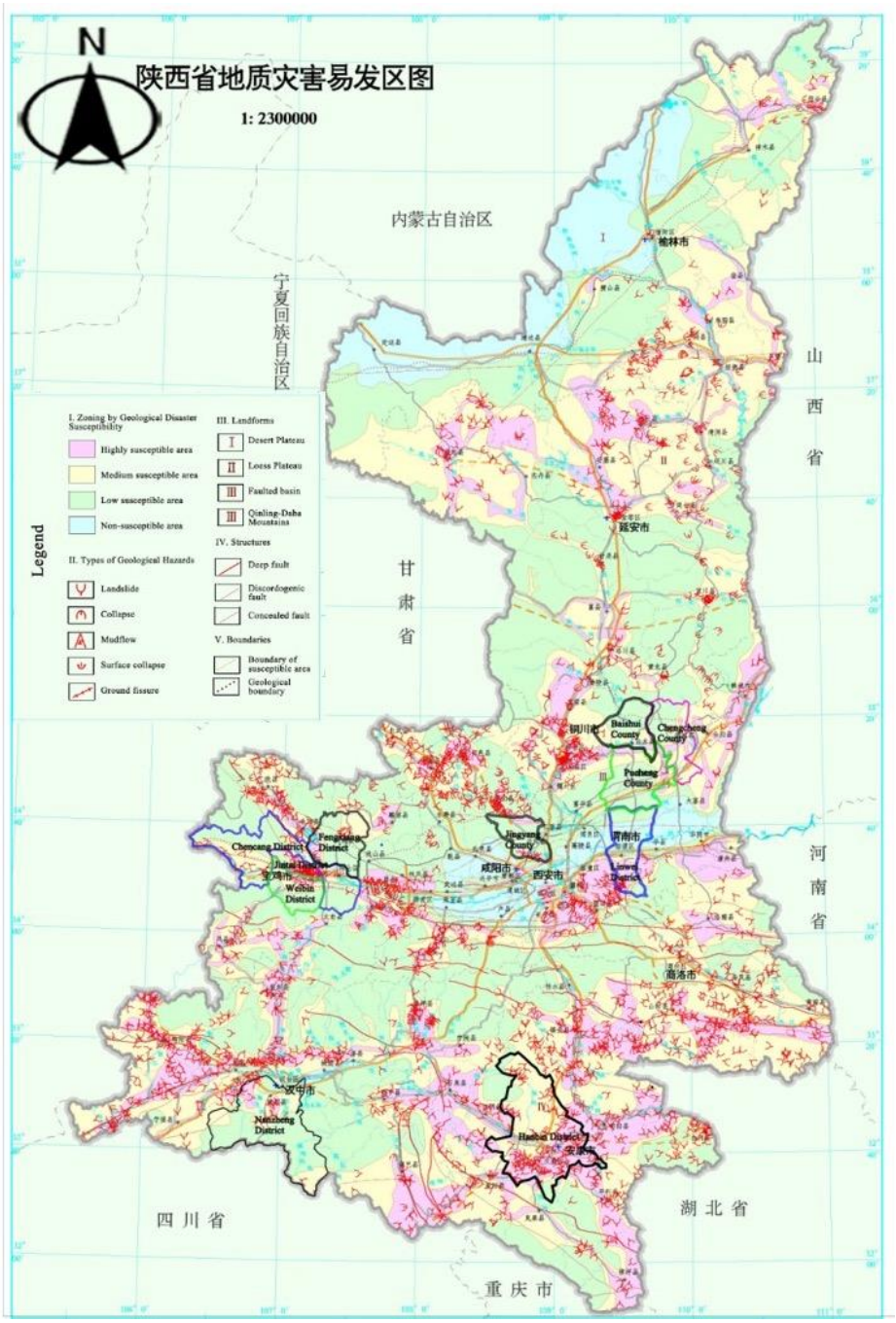

Figure 2-4 Geological Disaster-prone Zone in the Project Area

2.1.5 Hydrology

The rivers of Shaanxi province are bounded by the Qinling Mountains and are divided into two major water systems, the Yellow River and the Yangtze River. The watershed of the Yellow River system covers 63% of the province's total area, and the watershed of the Yangtze River system covers 35% of the province's total area. The main rivers in the province are the Kuyehe River, the Wudinghe River, the Yanhe River, the Beiluohe River, the Weihe River, the Jinghe River, the Jialing River, the Han River, the Dan River, etc. The main lake is the Hongyinnao in Shenmu.

The Weihe River is the largest tributary of the Yellow River, originating in Weiyuan County, Gansu Province, and merging into the Yellow River at Tongguan County, Weinan City. The Weihe River has a total length of 818km and a basin area of 134,766km^2, of which 502.4km is in Shaanxi, with a basin area of 67,108km^2, accounting for 50% of the total area of the Yellow River basin in Shaanxi. The average annual runoff of the whole river is 10.37 billion m^3. The Beiluohe River is a first-class tributary of the Weihe River, 680.3km long, the longest river in Shaanxi Province. The Qianhe River is a left bank tributary of the Weihe River, located in the western part of Guanzhong, originating from the Liupan Mountains in Gansu and injecting into the Wei River at Fengjiazui in the Chenchang District. 129km of river length in the province; The Jinghe River is a left bank tributary of the Weihe River, entering Shaanxi from Mazhai Township in Changwu to join the Weihe River at Chenjiatan in Gaoling, and is 272km long in the province.

The Han River, the largest tributary of the Yangtze River, originates in Ningqiang County, Hanzhong City, and is often referred to as the "River, Huai River and Han River" alongside the Yangtze, Huai River and Yellow River. The average annual runoff of the river is 27.3 billion m^3, the total length of the Han River is 1,528 km, with a basin area of 151,100 km^2, the length of the river in the province is 652 km, and the basin area in the province is 62,800 km^2.

The waterways within the service area of the project are shown in Table 2-4 and Figure 2-5.

Table 2-4 Main Rivers in the Project Counties / Districts

Main Stream	Primary tributary	Secondary tributary	Districts and counties involved in this project
Yellow River	Weihe River	/	Chencang District, Weibin District, Jintai District, Baoji City, Linwei District, Weinan City
		Qianhe River	Fengxiang District and Chencang District, Baoji City
		Jinghe River	Jingyang County, Xianyang City
		Beiluohe River	Baishui County, Chengcheng County and Pucheng County, Weinan City
Yangtze River	Han River	/	Nanzheng District, Hanzhong City, Hanbin District, Ankang City

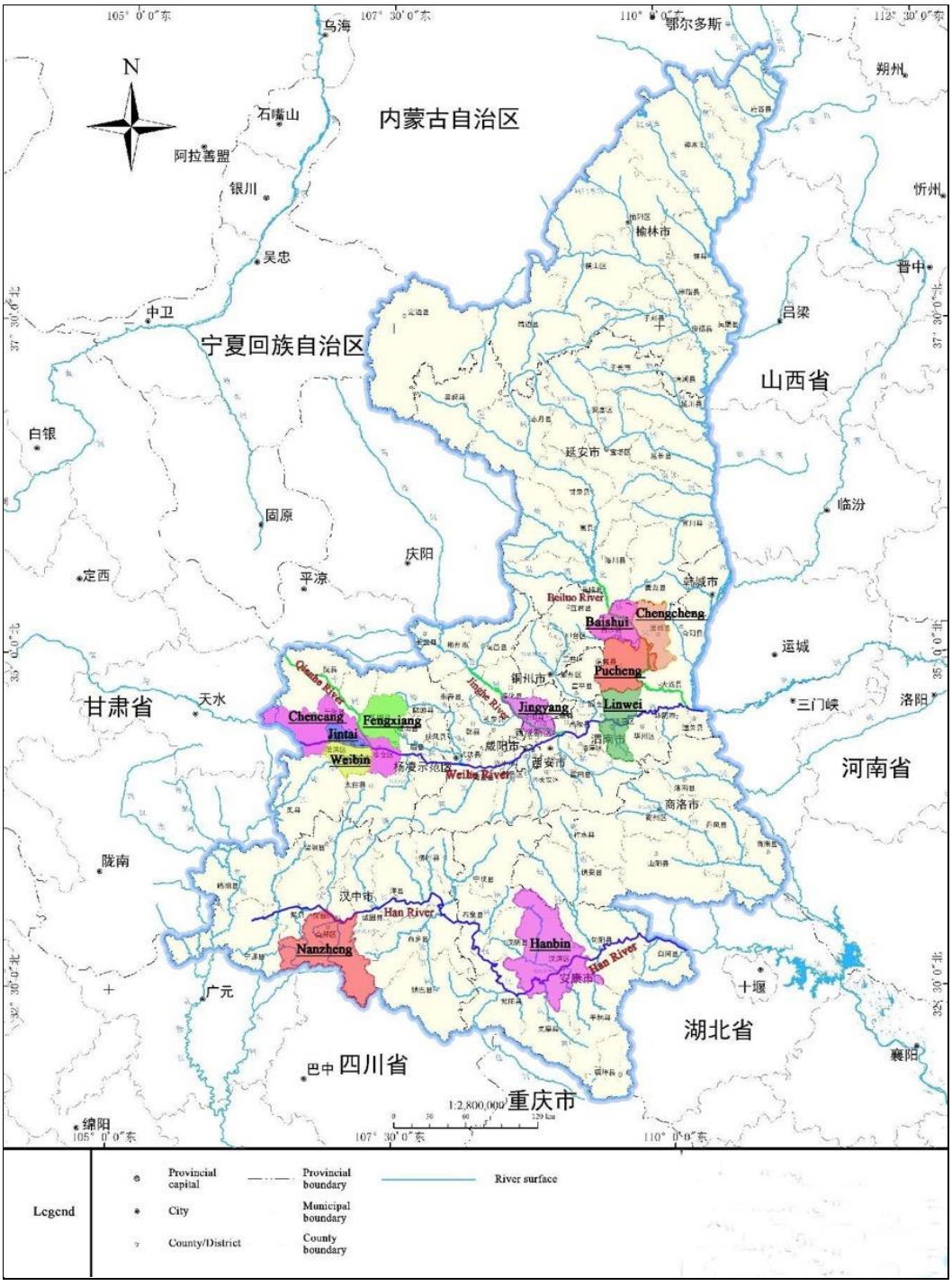

Figure 2-5 River Systems in the Project Area

2.1.6 Ecological status

Shaanxi Province is rich in ecosystem types, mainly including forest ecosystems, grassland ecosystems, wetland ecosystems, farmland ecosystems, desert ecosystems and other ecosystems. The project mainly serves the central urban and rural areas. The project area has been developed by humans over a long period of time and the ecosystems are predominantly urban and agro-ecosystems with no natural habitats

or important habitat distribution, but may involve altered habitats with important biodiversity values. Site selection requirements for the project are set out in the framework, with sites to be selected to avoid natural habitats and important habitats and altered habitats with significant biodiversity value.

The Qinling Mountains are the climatic dividing line between the north and the south of China and an important ecological security barrier, with many functions such as regulating climate, preserving soil and water, concealing water and maintaining biodiversity, etc. They are the spiritual and natural markers of Chinese civilisation and Chinese geography, and have an important position in China's natural ecological environment.

In order to protect the ecological environment of the Qinling Mountains, the General Office of the Shaanxi Provincial People's Government formulated the *Master Plan for Ecological and Environmental Protection of the Qinling Mountains in Shaanxi Province* (hereinafter referred to as the *Master Plan*) on July 11, 2020. Pointing out that: The protection area of the Qinling Mountains in Shaanxi Province is the area bounded by the provincial boundary from east to west and the slope bottom of the Qinling Mountains from north to south, located at 105°29'18"-111°01'54" east longitude and 32°28'53"-34°32'23" north latitude, with a total area of 58,200km^2.

The *Master Plan* states that: The Qinling Mountains are divided into core conservation areas, key conservation areas and general conservation areas. The core conservation areas mainly include areas above 2,000m in altitude, within 1,000m on both sides of main ridges, within 500m on both sides of main branch veins; habitats of endangered rare wild animals in general control zones of national parks and nature conservation areas, and centralized areas for holistic and systematic protection in other key ecological function zones, except urban development boundary areas identified in the land space plan. Key conservation areas include areas between 1,500m and 2,000m in altitude, general control zones of national parks and nature conservation areas, Class 2 conservation areas of drinking water resources, key function zones of state- and province-level scenic zones, geological parks, forest parks, wetland parks and other natural parks, botanical gardens, water resources scenic zones; aquatic germplasm resources conservation areas, original wild plant habitat conservation areas, key habitats of wild lives, state-owned natural forest areas, key wetlands, key large and medium reservoirs, natural lakes; key cultural relics under state and provincial protection, except urban development boundary areas identified in the land space plan. General conservation areas refer to areas other than core and key conservation areas.

The protection requirements are as follows: activities unrelated to ecological conservation and scientific research are not allowed in core protected areas;

Development and construction activities that are incompatible with their conservation function are not allowed in key protected areas; real estate development, hydropower station construction, construction, expansion or nonlocal reconstruction of religious places, exploration, mineral resource development and quarrying are prohibited according to law, and the industry admission list policy for key conservation areas is implemented strictly. Production, living and construction activities in protected areas in general shall strictly enforce the provisions of laws and regulations.

According to Article 57 of the Regulations on Ecological Protection of the Qinling Mountains in Shaanxi Province issued in December 2019, township governments within the Qinling Mountains should construct or improve harmful domestic waste disposal facilities.

According to the stacked map analysis (see Figure 2-6), the project site in Jintai District and Fengxiang District of Baoji City, Chengcheng County, Baishui County and Pucheng County of Weinan City, Jingyang County of Xianyang City, and Nanzheng District of Hanzhong City do not involve the Qinling Mountains. Parts of Chenchang District, Weibin District, Linwei District and Hanbin District are involved in the protection of the Qinling Mountains. The site selection requirements for the project are set out in the framework, the core and key conservation areas of the Qinling Mountains need to be avoided in site selection (The Project's existing facilities are not within the core and key conservation areas. According to the Master Plan for Ecological and Environmental Protection of the Qinling Mountains in Shaanxi Province, core and key conservation areas should not be used for real estate development, production and construction activities, so there is no existing facility in them.), and the applicable laws and policies should be complied with in site selection in ordinary conservation areas of the Qinling Mountains.

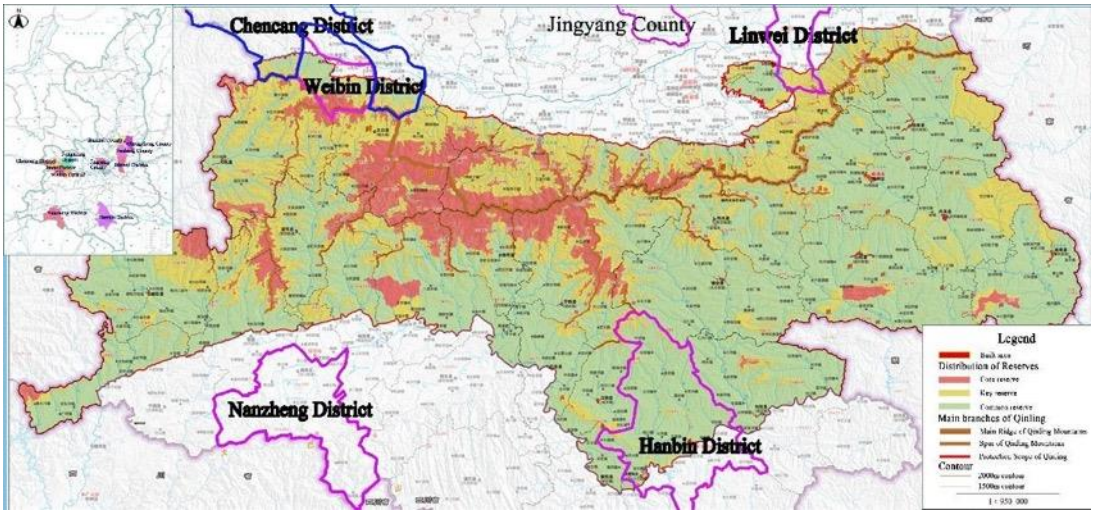

Figure 2-6 Map of the location of the project area relative to the Qinling Ecological Protection Planning Area

1) Animal and plant

After a preliminary site survey, the existing vegetation in the project area is mainly artificially planted green vegetation, mainly street trees, fruit trees, green irrigation and grass and roadside green belts, weeds such as white sheep grass, bermudagrass, ryegrass, artemisia, reeds, etc., with a single species and no distribution of rare and protected plant and animal species.

With a long history of farming and frequent human activities in the project area, large wildlife has been extinct. Common wildlife includes general birds and insects, with general birds mainly being sparrows and insects mainly being field insects, such as crickets and ladybirds.

2) Soil

Shaanxi province has a wide variety of soil types, with 21 soil classes, 149 soil genera and over 400 soil species in the province. The main soil types are Lou, cinnamon soil, Heilu soil, yellow spongy soils, brown soil, yellow brown soil, yellow brown soil, chestnut soil, aeolian sandy soil, rice soil, moisture soil and saline soil, etc. The zonality of the horizontal distribution of the soil is very obvious, from north to south in the order of: a) aeolian sandy soil, chestnut soil zone along the Great Wall; (b) The Heilu soil belt of the Loess Plateau; c) The cinnamon soil belt of the Guanzhong Basin; d) Yellow- brown soil and yellow cinnamon soil zone in the Qinba Mountains. The soil types involved in the area where the project is located are shown in Table 2-5 below and the soil type map is shown in Figure 2-7.

Table 2-5 Soil and Vegetation Types in the Project Area

Project area	Soil type
Jintai District, Baoji City	Mainly Lou and cinnamon soil
Chenchang District, Baoji City	There are 11 soil types, 24 subtypes, 63 soil genera and 142 soil species in the territory. Mainly (soil + Lou), Heilu soil, cinnamon soil, brown soil, northern rice soil, yellow spongy soils, mountain meadow soil, etc.
Weibin District, Baoji City	There are 9 soil types, 22 sub-types, 44 soil genus and 74 soil species. Mainly brown soil, rice soil, cinnamon soil, and meadow soil
Fengxiang District, Baoji City	There are 8 soil types, 20 subtypes, 46 soil genera and 129 soil species in the territory. Mainly (soil + Lou) soil, cinnamon soil and etc.
Jingyang County, Xianyang City	Mainly composed of moisture soil, Lou soil and cinnamon soil
Linwei District, Weinan City	There are 12 soil types, 24 soil genera and 77 soil species in the territory. Mainly (soil + Lou) soil, moisture soil, cinnamon soil and etc.
Chengcheng County, Weinan City	There are 7 soil types, 9 subtypes, 16 genera and 40 soil species. Mainly cinnamon soil, (soil+Lou) soil and yellow spongy soils
Pucheng County, Weinan City	Mainly spongy soils and Lou soil

Project area	Soil type
Baishui County Weinan City	Mainly spongy soils
Nanzheng District, Hanzhong City	There are 5 soil types, 14 subtypes, 37 soil genera and 106 soil species in the territory. It mainly includes blood rice soil, yellow brown soil, etc.
Hanbin District, Ankang City	Mainly blood rice soil and yellow brown soil

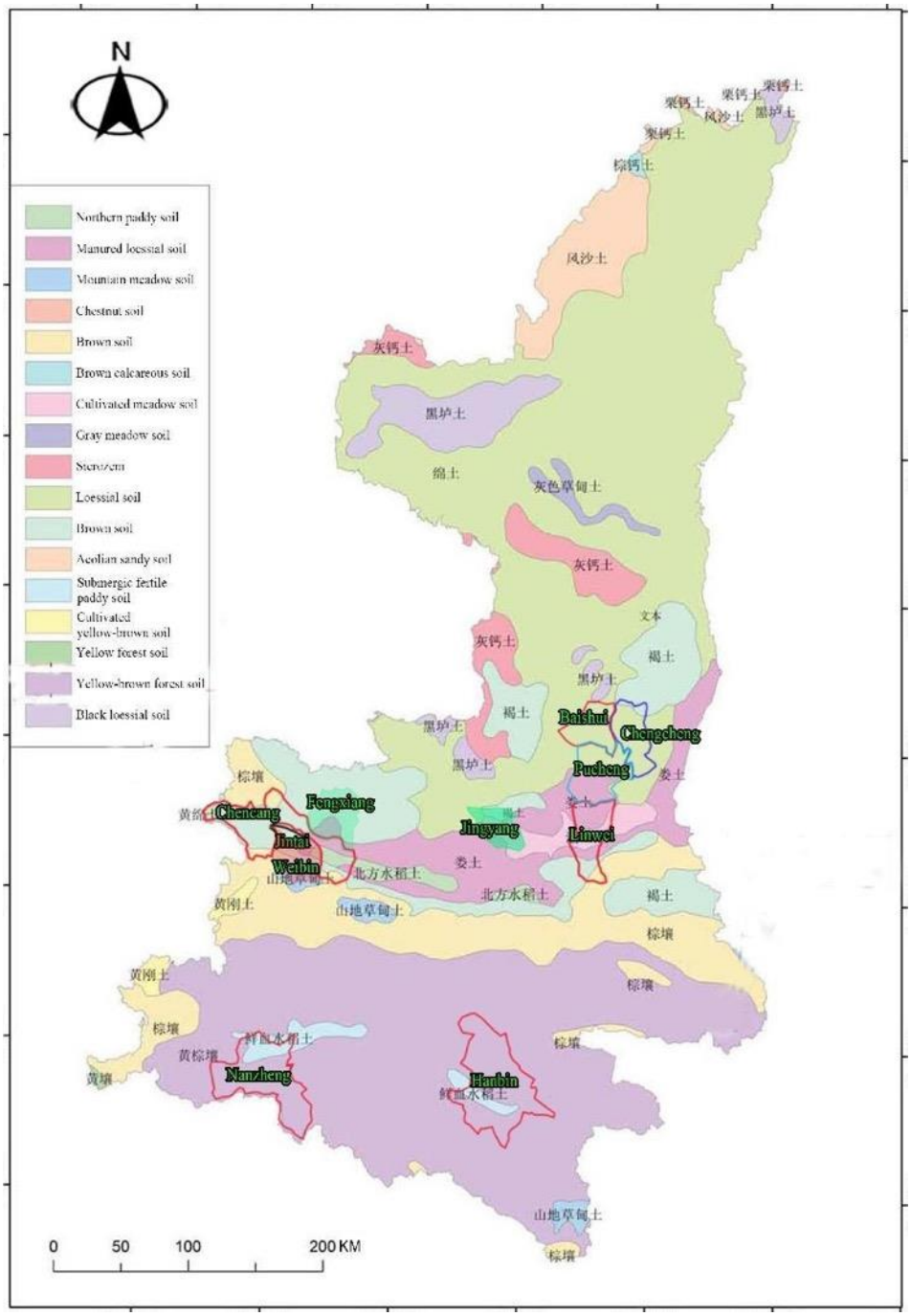

Figure 2-7 Soil Type Map of the Project Area

3) Water and soil loss

According to the *Notice of the General Office of the Ministry of Water Resources on the Issuance of the <Results of the Review and Delineation of the National Key Soil and Water Erosion Prevention Areas and Key Treatment Areas of the National Soil and Water Conservation Plan>* (SLBBGTBSB No. 188 [2013]), Chencang District of Baoji City belongs to the national key soil and water erosion prevention area of ZiwuLing-Liupan Mountain.

According to the Announcement of the *Shaanxi Province People's Government on <Demarcation of Key Soil Erosion Control Areas>* (SZF [1999] No. 6), "some townships in Baoji City and Linwei District of Weinan City, etc. belong to the Key Control Area at the northern foot of the Qinling Mountains; the coalfield development areas in Chengcheng County, Baishui County, Pucheng County and other counties (cities) belong to the Weibei Black Belt Supervision Area. Most of the townships in Fengxiang District, Chengcheng County, Pucheng County and Baishui County belong to the Weibei Plateau Gully Key Management Area; The gold mine development concentration area in Linwei District of Weinan City belongs to the supervision area of the Golden Triangle in the east of Qinling Mountains; Some townships in Ankang City and Nanzheng District are part of the Qinba Mountains Key Management Area". The location of the project area in relation to the key soil erosion control zones in Shaanxi Province is shown in Figure 2-8.

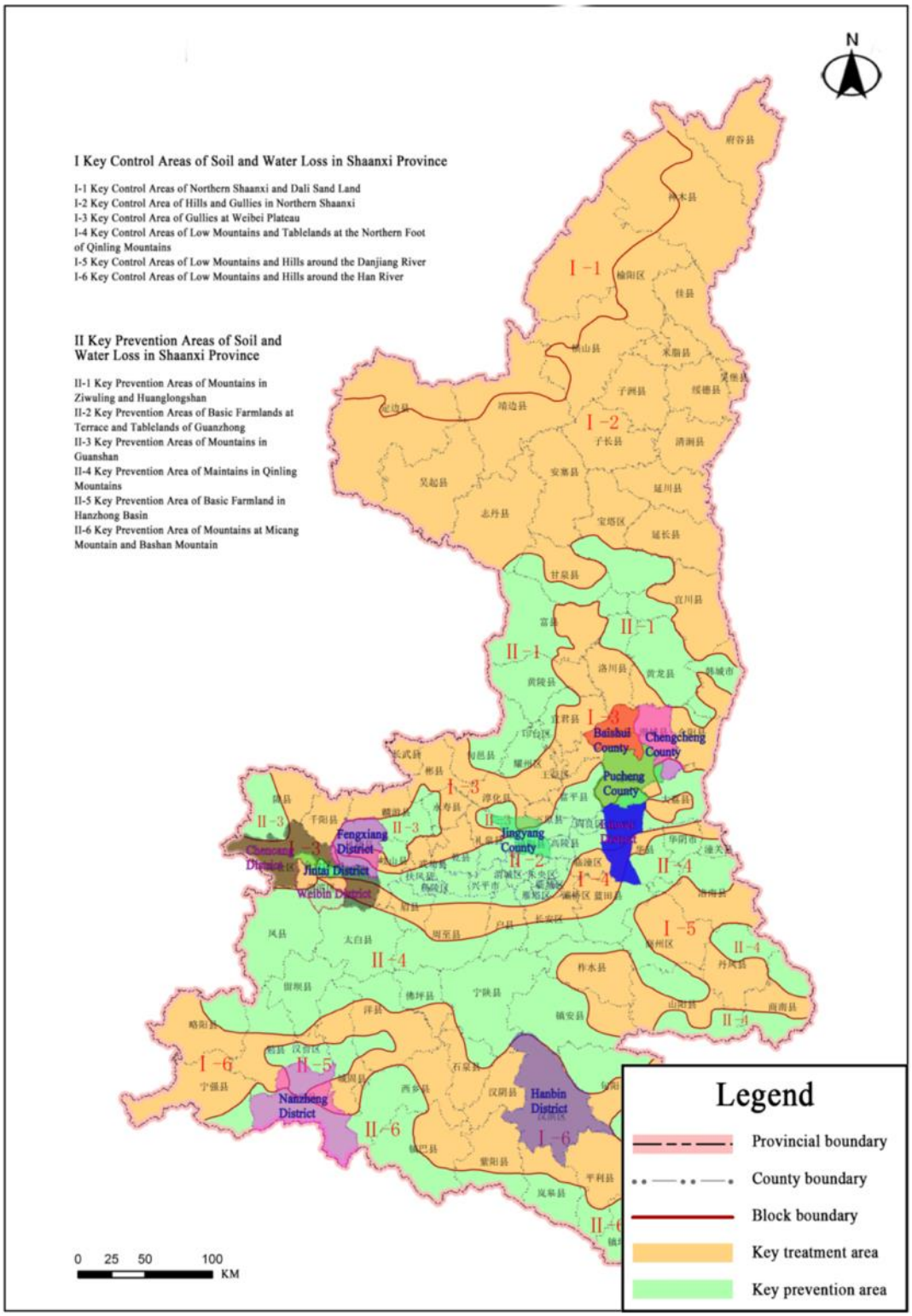

Figure 2-8 Key Water Loss and Soil Erosion Control Zones in the Project Area and Shaanxi Province

According to the *Soil Erosion Classification and Grading Standard* (SL190-2007), the project area belongs to the "Northwest Loess Plateau Area", where hydraulic erosion is the main factor and the allowable loss of soil erosion is 1,000t/km^2·a. A

map of the location of the project in relation to the soil erosion classification in Shaanxi Province is shown in Figure 2-9.

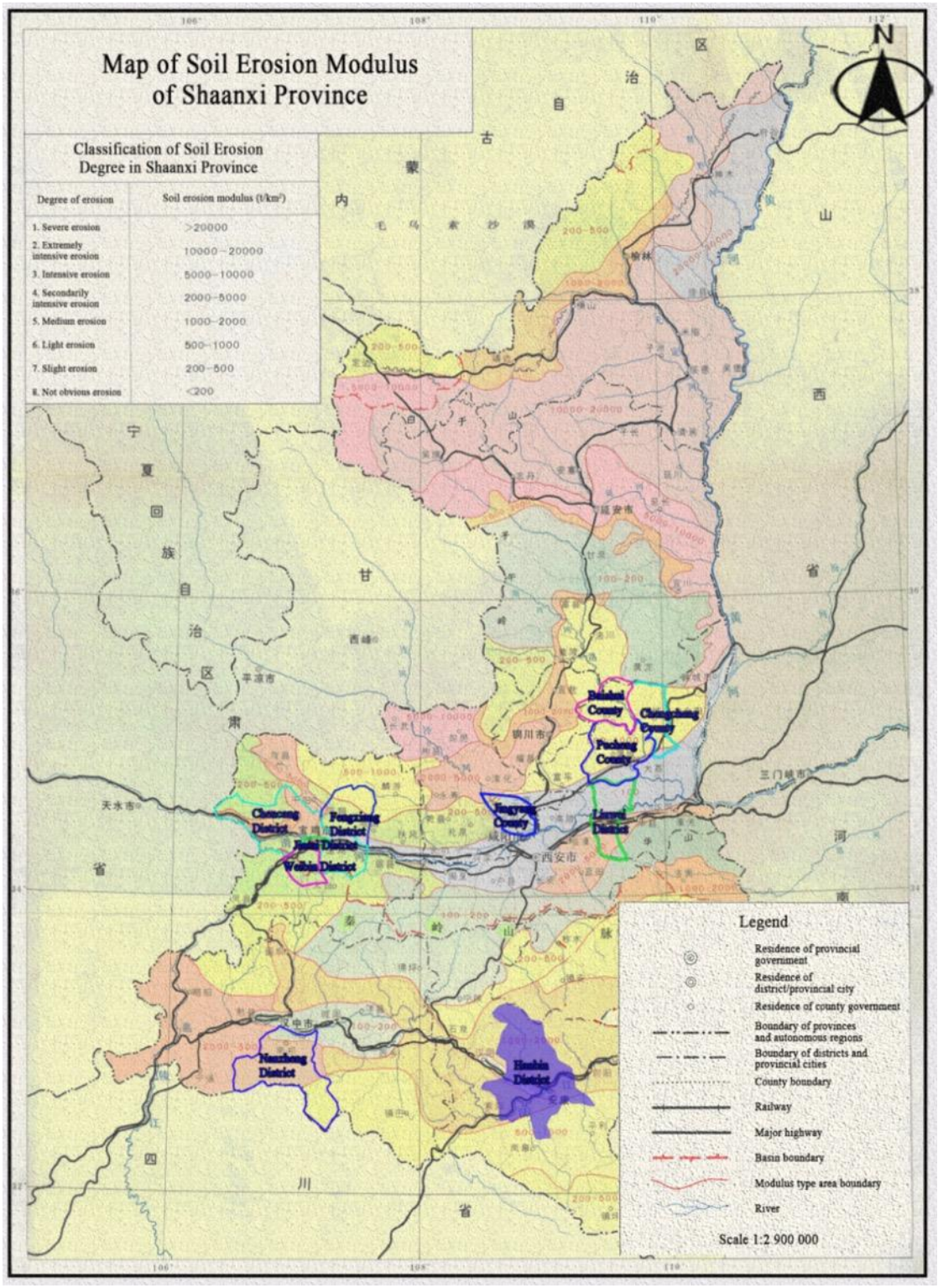

Figure 2-9 Soil Erosion Grading in the Project Area and Shaanxi Province

2.2 Socio-Economic Baseline

2.2.1 Socio-economic profile of Shaanxi Province

Shaanxi Province, known as Shaanxi or Qin, is located in the hinterland of mainland China and has been the capital of emperors since ancient times, with five of the nine great unified dynasties having their capitals in Xi'an (Xianyang). Shaanxi province has a total area of 205,800 square kilometers and a resident population of 39.54 million by the end of 2021, with 10 prefecture-level cities (of which Xi'an, the provincial capital, is a sub-provincial city), 31 municipal districts, 7 county-level cities and 69 counties under its jurisdiction.

Shaanxi's annual gross domestic product in 2021 was RMB 2,980.098 billion, an increase of 6.5% over the previous year. Among them, the added value of the primary industry was RMB 240.939 billion, up 6.3%, accounting for 8.1% of the GDP; The secondary industry was RMB 1,380.252 billion, up 5.6%, accounting for 46.3%; The tertiary industry was RMB 1,358.907 billion, up 7.3%, accounting for 45.6%.

By the end of 2021, the province's resident population will be 39.54 million, 10,000 less than the previous year. Among them, 20.18 million are male, accounting for 51%; 19.36 million women, accounting for 49%. The urban population is 25.16 million, accounting for 63.63%; The rural population is 14.38 million, accounting for 36.37%. The annual per capita disposable income of residents was RMB 28,568, an increase of RMB 2,342 or 8.9% over the previous year. The annual per capita disposable income of urban residents was RMB 40,713, an increase of RMB 2,845 or 7.5% over the previous year; The annual per capita disposable income of rural residents was RMB 14,745, an increase of RMB 1,429 or 10.7% over the previous year. [7]

According to the *China Statistical Yearbook 2021,* Shaanxi Province is one of the least-developed provinces with per capita disposable income of rural residents in 2020 (RMB 13,316 per capita) at 77.7% of the national average, ranking the 27th among the 34 administrative provinces and autonomous regions in the PRC. The imbalance of urban and rural development was another prominent feature of

[7]Data Source: *Statistical Bulletin on National Economic and Social Development of Shaanxi Province in 2021*

Shaanxi, its per capita disposable income for rural residents was only RMB 13,316 compared to CNY 37,868 for urban residents in 2020[8].

2.2.2 Socio-economic profile of the project area counties

The construction of this project involves 11 districts and counties in 6 cities, including Linwei District, Chengcheng County, Baishui County and Pucheng County in Weinan City, Chencang District, Jintai District, Weibin District and Fengxiang District in Baoji City, Jingyang County in Xianyang City, Nanzheng District in Hanzhong City and Hanbin District in Ankang City. The 11 project counties are under the jurisdiction of 157 streets/towns and 2,426 communities/villages, with a total land area of 16,394 square kilometers.

1) Population and economic situation

By 2021, the total resident population of the 11 districts and counties will be 5,545,000, of which: 2.80 million males and 2.745 million females, representing 50.5% and 49.5% of the total population respectively; The urban population is 3.017 million and the rural population is 2.298 million accounting for 54.4% and 45.6% of the total population respectively.

In 2021, the combined gross regional product of the 11 districts and counties will be RMB 305.195 billion, with a value-added structure of 12.3:43.9:43.8 for the primary, secondary and tertiary industries. Based on the resident population of the 11 districts and counties, the per capita gross regional product was RMB 55,037. The disposable income of urban residents ranged from RMB 30,908 to RMB 41,433, while the disposable income of rural residents ranged from RMB 12,362 to 17,602. According to the survey, the income of rural residents in the project area mainly comes from non-agricultural income such as working outside the home.

2) Low income group

There are about 145 million low-income residents in Shaanxi Province in 2021, accounting for 3.67%, which is slightly higher than the national average (3.18%)[9].

According to statistics, there are 121,443 (or 2.19% of total population) low-income people in 11 districts and counties. Based on the field survey and analysis of relevant documents, the main reasons for the low income of low-income

[8] National Bureau of Statistics, PRC. *China Statistical Yearbook 2021*. Beijing.
[9] *Statistical Bulletin on National Economic and Social Development of Shaanxi Province in 2021*

households are: illness, lack of labour, widow and orphaned elderly, lack of skills, etc. Each district and county government has a policy of underwriting for low-income families. According to the actual situation of low-income families, the governments of each district and county pay monthly subsidies to low-income families (e.g. in 2021, the minimum payment standard for rural low-income insurance in Weinan City (Linwei District) is RMB 203 /person/month, and the minimum payment standard for low-income insurance in Baoji City (Chencang District) is RMB 311 /person/month), which can protect the basic livelihood of low-income families.

3) Ethnic Minority Situation

Shaanxi Province is a province of scattered ethnic minorities, with a total of 54 ethnic minorities and a resident population of 190,000, mainly Hui, spread throughout the province, of which the urban population accounts for 80%.

According to the survey statistics, the population of ethnic minorities in the 11 districts and counties is 28,000, accounting for 0.5% of the total population. The majority of the ethnic minority population is the Hui population, accounting for more than 90% of the population, while other ethnic groups also include Manchu and Mongolian. According to initial screening by the social audit agency, in the counties / districts involved in the Batch 1 subprojects, the villages / communities served by front end waste collection facilities, and the sites of all newly constructed facilities under the Project (e.g., construction waste disposal plants, sorting centers, WTSs) do not involve communities or villages inhabited by ethnic minorities. In the social audit of future batches and TA activities, further screening will be carried out to see if villages / communities served by front end waste collection facilities and downstream impacts of TA activities involve communities or villages inhabited by ethnic minorities.

The specific socio-economic situation of each district and county is shown in Tables 2-6.

Table 2-6 Socioeconomic Profile of the Project Counties / Districts

Project County	Unit	Chengcheng	Linwei	Chencang	Jintai	Weibin	Fengxiang	Baishui	Pucheng	Nanzheng	Hanbin	Jingyang	Total
Street / Town / District	Pcs	10	20	15	11	8	12	8	17	20	27	9	157
Permanent resident population	Ten thousand people	30.03	72.38	47.1	46.1	53.8	38.6	22.38	76.46	46.39	89.12	32.17	554.53
Urban population	Ten thousand people	14.27	40.23	24.05	40.39	47.28	17.59	10.75	27.35	21.92	51.41	6.45	301.69
Rural population	Ten thousand people	15.76	32.15	23.05	5.71	6.52	21.01	11.63	49.11	24.47	37.71	25.72	252.84
Female population	Ten thousand people	15.07	36.21	23.08	22.87	27.38	19.03	11.01	37.53	22.59	43.68	16.05	274.5
Population of ethnic minorities	Ten thousand people	1228	1508	943	5600	4336	422	490	466	626	12681	227	28527
Low-income groups	Person	13834	23727	14393	5175	2397	11988	13535	9189	11352	5936	9917	121443
Per capita income of urban residents	RMB	36602	39614	38061	40501	41433	38147	35363	37130	37648	30918	30908	37479
Disposable income of rural residents	RMB	14225	15470	15801	17620	17474	15887	13709	15366	13413	12362	13182	14561
Regional GDP	RMB 100 million	113.72	361.01	241.37	400.27	587.8	264.3	93.68	226	239.75	407.27	116.78	3051.95

Data Source: Statistical bulletin on socio-economic development in the project counties and districts for 2021 and information provided by the project office in each county (district).

2.2.3 Arable land and agricultural film use in the project counties

The 11 project counties are located in the Guanzhong and southern Shaanxi regions, with complex and varied terrain. The Guanzhong region is a plain formed by the alluvial deposits of the lower reaches of the Wei, Jing and Luo rivers, while the southern part is a mountainous region with strong tectonic upward movement. The 11 districts and counties have a total arable land area of 6,978,000 million mu, with 2.76 mu of arable land per person in rural areas, with the largest amount of arable land per person in Baishui County (6.19 mu/person) and the smallest in Weibin District (0.94 mu/person).

The total area and county used in the 11 districts and counties was 980,000 mu for greenhouse film, 985,000 mu for mulch and 167,000 mu for reflective film. According to the survey, the recycling rate of shed film reached over 94% due to the high value of shed film recycle and the ease of picking it up. The rates of mulch and reflective film leaving the field are high, around 70% or more; However, because of the low recycling value, mulch and reflective film are not collected and disposed of effectively after they leave the field. Most villagers discard their mulch and reflective film in ditches, pile them up randomly in open spaces or burn them directly, causing a certain impact on the rural environment.

Table 2-7 Survey on Cultivated Land and Mulch Film Use in the Project Area

Project County	Arable land	Area of land with reflective film	Area of land with mulch	Area of land with greenhouse film
	10,000mu	10,000mu	10,000mu	10,000mu
Chengcheng	90	10	2.1	0.6
Linwei	105	0.5	12.0	40.1
Chencang	51.2	0	3.5	3.8
Jintai	13.5	0.02	0.3	0.3
Weibin	6.11	0	0.0	0.0
Fengxiang	75.56	4.3	0.8	0.7
Baishui	72	2.0	5.0	3.7
Pucheng	120.2	0	29.0	26.8
Nanzheng	59.07	0	11.4	1.2
Hanbin	64.2	0	15.0	1.3
Jingyang	40.96	0	19.5	19.5
Total	697.8	16.7	98.5	98.1

Data Source: Agricultural and Rural Affairs Bureau of each district and county, 2021

2.2.4 Profiles of Waste Pickers

According to surveys carried out during the Project preparation, the formal sanitary landfills are usually fenced and well managed, where there are no waste pickers. The eleven landfills (to be closed or upgraded) under the project are formal landfills, which are fenced to restrict waste pricker's access for safety reasons.

For township non-sanitary waste dumps, a small number of villagers pick waste. There are one or two waste pickers in such non-sanitary waste dumps, but the waste pickers mostly do not live on waste picking. It is reported that there are about 36 township non-sanitary waste dumps in project area, and about 50 waste pickers in total who are occasionally picking waste. With the improvement of waste systems, waste will not be transferred to such dumps, thereby potentially affecting the income of these waste pickers to some extent. These waste pickers are usually poorly educated and unskilled, and relatively difficult to enjoy development opportunities generated by the Project.

2.3 Current Status of Environmental Quality

2.3.1 Current status of atmospheric environmental quality

According to the province's ambient air quality status from January to December 2021 released by the Office of Shaanxi Province Environmental Protection Department in the Environmental *Protection Express* on January 13, 2022, the number of days with good ambient air in the province in 2021 was 290.5 days, with an achievement rate of 79.59%. The ambient air quality of the area covered by the project is shown in Table 2-8.

Table 2-8 Air Environment Quality Statistics of the Project Counties / Districts in 2021

Project Area	Pollutants						Up to standard Condition
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	O_3	
	Annual average mass concentration (mg/m^3)	Annual average mass concentration (mg/m^3)	Annual average mass concentration (mg/m^3)	Annual average Mass concentration (ug/m^3)	24-hour mean 95th percentile (mg/m^3)	90th percentile of daily maximum 8-hour sliding average (ug/m^3)	
Baoji City							
Jintai District	70	**41**	6	30	1	137	Not up to standard
Chencang District	**82**	**44**	16	32	1.6	149	Not up to standard
Weibin District	58	35	5	25	1	137	Up to standard
Fengxiang District	64	32	9	20	1.1	148	Up to standard
Xianyang City							
Jingyang County	**80**	**43**	7	40	1.5	149	Not up to standard
Weinan City							

Linwei District	**83**	**43**	12	35	1.4	**161**	Not up to standard
Chengcheng County	69	33	14	15	1.4	**170**	Not up to standard
Pucheng County	**84**	36	13	23	1.6	160	Not up to standard
Baishui County	60	28	15	18	1.2	**168**	Not up to standard
Hanzhong City							
Nanzheng District	57	**36**	7	23	1.7	116	Not up to standard
Ankang City							
Hanbin District	51	30	11	20	1.2	118	Up to standard
Standard value	**70**	**35**	**60**	**40**	**4**	**160**	**/**

As can be seen from Table 2-6, ① the annual average mass concentrations of PM_{10} in Chenchang District, Jingyang County, Linwei District and Pucheng County cannot meet the requirements of the secondary standards in the *Ambient Air Quality Standards* (GB3095-2012). ②The annual average mass concentration of $PM_{2.5}$ in Jintai District, Chencang District, Jingyang County, Nanzheng District and Linwei District cannot meet the requirements of the secondary standards in the *Ambient Air Quality Standards* (GB3095-2012). ④ The 90th percentile of the maximum 8-hour sliding average of O_3 days in Linwei District, Chengcheng County and Baishui County did not meet the requirements of the secondary standards in the *Ambient Air Quality Standards* (GB3095-2012). ③ All other factors in the project area meet the requirements of the secondary standards in the *Ambient Air Quality Standards* (GB3095-2012).

Main reasons for non-compliance with the 90th percentile annual mean mass concentrations of PM_{10}, $PM_{2.5}$ and the maximum 8-hour daily sliding average of O_3 in the project area: With economic development, industrial enterprises and motor vehicles are increasing year by year, resulting in an increase in pollutant emissions from industrial enterprises, dust from construction sites, road dust, motor vehicle exhaust and biomass burning in the region.

2.3.2 Current status of surface water quality

According to the Status of Environmental Quality in Shaanxi Province in 2021, in 2020, the overall water quality of rivers in Shaanxi Province is excellent, with the proportion of Category Ⅰ to Ⅲ water quality sections being 90.0%, an increase of 7.2 percentage points over the previous year; The proportion of IV to V water quality sections was 7.2%, a decrease of 6.1 percentage points from the previous year; The proportion of poor V water quality sections was 2.8%, down 1.1 percentage points from the previous year. Of the 50 national examination sections,

48 met the assessment target for 2020, 2 exceeded the assessment target, and the proportion of excellent national examination sections Ⅰ~Ⅲ was 92.0%, better than the national annual assessment target by 20.0 percentage points; No inferior V sections, meeting the annual assessment targets for water environment quality.

The water quality in the middle and lower reaches of the Yellow River (Shaanxi section) is generally good and has improved compared to the previous year; Good water quality in the Yan River in northern Shaanxi Province, with an improvement in water quality compared to the previous year, and excellent water quality in the Wuding River, with no significant change in water quality compared to the previous year; Good water quality in the main stream of the Weihe River in Guanzhong, with a decline in water quality compared to the previous year, and generally good water quality in the Weihe River tributaries, with an improvement in water quality compared to the previous year. The water quality of the Han River, Dan River and Jialing River in southern Shaanxi is excellent, with no significant change in water quality compared to the previous year. A map of the water quality status of the main rivers in the project area in 2021 is shown in Figure 2-10.

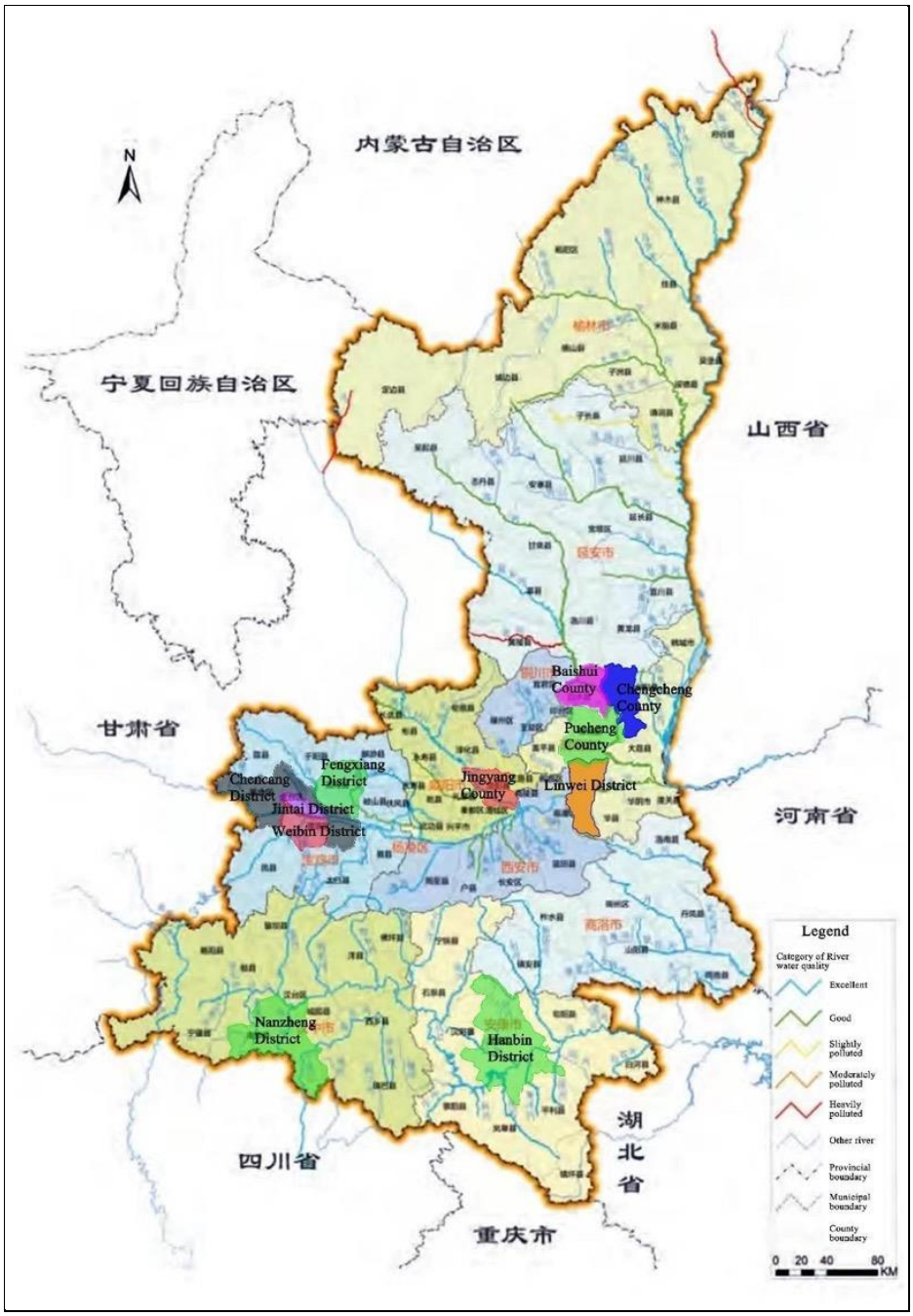

Figure 2-10 Water Quality Data of Key Rivers in the Project Area in 2021

2.3.3 Current groundwater environment quality status

With the development of urban scale and industrial construction, it has caused serious pollution to rivers and groundwater, resulting in a continuous decline in groundwater quality. The province's annual groundwater quality was evaluated and the main chemical components in groundwater in Shaanxi Province that exceeded the standard were total hardness, total dissolved solids, sulfate, nitrate, nitrite, ammonia nitrogen, chloride and fluoride. Subterranean water quality pollution is more serious than pressurized water, and the main pollution areas are located in the

urban areas of Baoji, Xianyang, Xi'an, Weinan and other dense areas of human activity in the periphery.

2.3.4 Current status of sound quality

According to the *Environmental Quality Status of Shaanxi Province in 2021*, it is known that:

1) Regional ambient noise: The regional environmental noise equivalent sound levels in the 10 municipalities and Yangling Demonstration Zone ranged from 51.0 to 59.5dB, with an average of 55.0dB, and the regional sound environment quality in the five cities of Tongchuan, Baoji, Hanzhong, Yulin and Ankang was Grade 2 (better); The regional sound environment quality in five cities - Xi'an, Xianyang, Weinan, Yan'an and Shangluo - is Level 3 (fair). Compared with the previous year, the average equivalent sound level of regional environmental noise decreased by 1.2dB and the sound environment quality level increased by one level.

2) Functional area noise: The noise compliance rate for various functional areas in the 10 municipalities was 94.8% for daytime and 82.8% for nighttime. Compared with the previous year, the daytime compliance rate for Class 0[10] areas decreased by 16.1% and increased by 17.9% at night; A decrease of 5.2% in daytime compliance rate and an increase of 11.7% at night in Class 1[11] areas; An increase of 1.1% in the daytime and 12.0% in the nighttime compliance rate in Class 2[12] areas; An increase of 12.6% in the daytime and 17.0% in the nighttime compliance rate in Class 3[13] areas; The daytime compliance rate for Class 4a[14] areas remained unchanged from the previous year at 100%, with a 5.4% decrease at night; The daytime and nighttime compliance rate for Class 4b[15] areas remained unchanged from the previous year, at 100%. Overall, the sound quality is better during the day than at night.

3) Road traffic noise: Ten municipalities carried out road traffic noise monitoring, monitoring 429 road sections, a total length of 883.7km, the average equivalent sound level between 62.5 ~ 69.4dB[16], an average of 67.1dB, compared with the previous year, the average equivalent sound level decreased by 0.6dB, the sound environment quality level of one (good), the province's road traffic sound environment quality remains stable.

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[10] Class 0 areas: areas requiring extra quietness, such as recuperation areas;
[11] Class 1 areas: areas to be kept quiet, used for residence, health, culture, education, scientific research and administration mainly.
[12] Class 2 areas: areas requiring residential quietness, used for commerce, finance and trade mainly, or mixed residential, commercial and industrial areas.
[13] Class 3 areas: areas used for industrial production, storage and logistics mainly, where the surrounding environment should be protected from serious impacts from industrial noise.
[14] Class 4a areas include expressways, Class 1 / 2 highways, urban driveways, urban primary and secondary trunk roads, urban rail traffic (aboveground), and areas along inland waterways.
[15] Class 4b areas: areas along trunk railways.
[16] Equivalent sound level limits of ambient noise in Class 4a areas: daytime: 70dB, night: 55dB; Equivalent sound level limits of ambient noise in Class 4b areas: daytime: 70dB, night: 60dB.

2.4 Domestic waste management in project areas and counties

In order to establish a system for classifying household waste for disposal, collection, transportation and treatment, and to improve the level of household waste reduction, resourcefulness and harmlessness, Shaanxi Province has promulgated and implemented the *Implementation Plan for the Household Waste Classification System in Shaanxi Province* (SFGHZ[2017] No. 1608), the *Regulations on the Prevention and Control of Solid Waste Pollution in Shaanxi Province (amended in 2019)*, the *Shaanxi Provincial Urban Household Waste Classification and Treatment Facilities to Make Up for Shortcomings and Strengthen Weaknesses Implementation Plan*" (FGHZ [2020] No. 1257), *Shaanxi Provincial Municipal Solid Waste Classification Plan (2019-2025)*, *Shaanxi Province Implementation Plan on Accelerating the High-Quality Development of Domestic Waste Classification Work* (SJF [2022] No. 113), *Weinan City Municipal People's Government Office on Issuing Weinan Municipal Kitchen Waste Management Measures*, *Implementation Plan for the Classification of Municipal Solid Waste in Hanzhong City*, *Interim Measures for the Management of Urban Domestic Waste Classification in Xianyang City* and a series of other local policy documents.

2.4.1 Current status of the domestic waste management system

According to the survey, the management of domestic waste in the urban areas of the project area is the responsibility of the sanitation centers under the urban management and law enforcement bureaus of the districts and counties; The Sanitation Center is mainly responsible for cleaning and rubbish collection in the back streets and alleys of the city center, as well as the operation and management of the refuse transfer stations, landfill plants and transfer vehicles.

Township governments are mainly responsible for cleaning and rubbish collection in market towns. Each village head is responsible for street sweeping and refuse collection in each village. Due to the inadequacy of waste disposal facilities, township and village household waste is collected and deposited at generally non-sanitary dumping sites.

2.4.2 Current status of the domestic waste collection and transfer system

The whole process of generating, collecting and transferring domestic waste differs significantly between urban and rural areas. The source of domestic waste generation in the project area counties is divided into urban areas, market towns and rural areas, and the current status of their collection and transfer systems can be divided into three areas: The current situation of the main urban waste collection and transfer system, the current situation of the market town collection and transfer system and the current situation of the rural collection and transfer system.

- **Manner of domestic waste collection and transfer in the main urban area:**

Commercial areas, enterprises and institutions, residential areas → refuse collection bins, fruit bins, dustbins, refuse houses → collection vehicles → refuse transfer stations → domestic refuse landfills;

Street sweeping waste and public point waste → collection vehicles → waste transfer station → domestic waste landfill.

- **Manner of domestic waste collection and transfer in the town:**

Town streets, merchants and residents' domestic waste → waste collection points → domestic waste landfill/non-sanitary dumping sites.

- **Manner of domestic waste collection and transfer in the rural area:**

Villagers' household waste → bins and waste warehouse → tricycle collection and transfer → non-sanitary dumping sites.

The level of waste transfer varies from district to district, depending on the volume of domestic waste and the capacity of the supporting facilities. For instance: All villages in the Chenchang district collect and transfer domestic waste every 1-7 days; The frequency of waste transfer in each village in Linwei District is once every 1-3 days; The villages in Chengcheng County collect household waste every 1-2 days.

2.4.3 Current Issues in Domestic Waste Collection and Transfer and Treatment

1) Urban waste

As the volume of waste disposal has increased, the following problems have become prominent in all aspects of waste disposal.

- Collection system: Inadequate existing refuse collection facilities and refuse collection points;
- Transfer system: There is an ageing and insufficient number of vehicles for the transfer of domestic waste and an urgent need for additional waste transfer vehicles; Inadequate capacity of refuse transfer stations and ageing facilities and equipment;
- Insufficient landfill disposal capacity. With the rapid development of cities and the gradual improvement of the waste collection and transportation system, landfills in cities and counties will be operating at overload, and

some of them are facing the dilemma of closure near the end of their useful life.

2) Market towns and villages

Due to the late start and poor foundation of rural domestic waste management, there are a number of problems, which are manifested as follows:

- lack of refuse collection facilities (waste bins, refuse collection points, collection trucks);
- The lack of transfer facilities and equipment means that waste is mostly deposited and buried nearby, creating non-sanitary landfill sites;
- Some landfill sites are facing closure near the end of their useful life.

2.4.4 Overview of existing landfills to be closed

As proposed in the FSR, eight landfills will be closed in the Project. The landfills were constructed from 2005 to 2021 with floor areas ranging from 38 mu[17] to 435 mu and design storage capacities varying from 0.15 million m^3 to 5 million m^3. The service life is between 15-20 years.

Five out of the 8 landfills, namely, Majiagou, Yaotou, Fengxiang, Pucheng, and Baishui leased land from the villages/villagers rather than permanent land acquisition, and the landfills have not obtained the land certificate, which is not conforming with China's Land Management Law and the official land use zoning and planning.

Four landfills that are Majiagou, Yaotou, Chengcheng, and Changshougou are included in the Batch 1 Subprojects and the others will be implemented in subsequent batches.

[17] Mu is a Chinese area unit. One mu approximately equals to 666.7 m^2.

Table 2-9 Summary of Landfills to be closed

County/district	Project activity	Basic description	Construction progress	Performance of environmental protection procedures	Environmental protection facilities	Any pending issue concerning the environment	Nearest sensitive point
Pucheng County, Weinan City	Closure of Area I of Pucheng County Landfill	The Pucheng County Landfill is located on the west side of Xiangshigai Village, Yaoshan Town, Pucheng County, about 12km away from the county. The landfill consists of two areas. The land area of Area I is 62.34 mu, the volume of each one is 650,000 m^3, and the total volume is 1.3 million m^3.	Construction started in September 2018, and trial operation in November 2021.	The EIA approval (WHSF [2014] No. 150) was obtained in March 2014, and the environmental protection completion acceptance was carried out in November 2021. This is a sanitary landfill.	Landfill leachate treatment relies on the supporting leachate system of Hanjing Town Landfill (using the existing 30m^3/d facilities and the DTRO technology); Landfill gas: it is directly discharged through drainage gabions. In the closure plan, the gas-guiding well will be provided, and a new gas combustion flare will be built.	According to the monitoring reports of the landfill over the years, the unorganized waste gas, wastewater, solid waste and noise of the landfill meet the corresponding environmental standards; there is no pending issue or complaint concerning the environment. Post-closure: ① After being exported, the landfill gas is incinerated by the supporting combustion flare; ② The leachate is treated by the original leachate treatment system; ③ The landfill will not be developed after closure; ④ The follow-up monitoring systems for landfill gas, groundwater, surface settlement and leachate after closure will be provided to monitor on schedule; ⑤ The maintenance and supervision of the leachate drainage system shall be strengthened after closure.	The landfill is 214m away from Shangyaoke in the eastwest and 223m away from Wanzi Village in the southwest.
Baishui County, Weinan City	Closure of Zhangpo Landfill in Baishui County	The Zhangpo Landfill is located in Zhangpo	It commenced in March 2009, and	The EIA approval (WHSF [2005] No. 65) was obtained in December 2005,	Leachate treatment process: pre-filtration + two-stage reverse osmosis DTRO + degassing	According to the monitoring reports of the landfill over the years, the unorganized waste gas, wastewater, solid waste and	The northwest of the landfill is 520 m away from Zhangpo Village

County/district	Project activity	Basic description	Construction progress	Performance of environmental protection procedures	Environmental protection facilities	Any pending issue concerning the environment	Nearest sensitive point
		Village, Chengguan Subdistrict, with a total land area of 148 mu, a storage capacity of 1,075,000 m^3, and a design daily disposal capacity of municipal solid waste of 90t.	was completed and put into operation in December 2010.	and the environmental protection completion acceptance was carried out in August 2021. This is a sanitary landfill.	process; Landfill gas: the gas is collected and directly discharged after the passive gas evacuation and purification. In the closure plan, the gas-guiding well will be provided, and a new gas combustion flare will be built.	noise meet the corresponding environmental standards; there is no pending issue or complaint concerning the environment. Post-closure: ① After being exported, the landfill gas is incinerated by the supporting combustion flare; ② The leachate is treated by the original leachate treatment system; ③ The landfill will not be developed after closure; ④ The follow-up monitoring systems for landfill gas, groundwater, surface settlement and leachate after closure will be provided to monitor on schedule; ⑤ The maintenance and supervision of the leachate drainage system shall be strengthened after closure.	
Fengxiang District, Baoji City	Closure of Fengxiang Landfill	Fengxiang Landfill is located in Linzhenpo Village, Fanjiazhai Town. The design storage capacity is 1.287 million m^3, the daily	It commenced in September 2007, has been used for 15 years, and was expanded in March 2019.	The EIA for the original site expansion project was approved on November 12, 2018 (FH [2018] No. 141), and the project was accepted in June 2020. It is a sanitary landfill.	Leachate treatment process: The leachate enters the sewage treatment station for treatment by the process of "external two-stage nitrification and denitrification + nanofiltration + reverse osmosis". Landfill gas: The landfill	The landfill monitoring reports over the years show the unorganized waste gas, underground water and noise meet the corresponding environmental standards, and there are no leftover environmental problems or environmental complaints. Post-closure: ① After being exported, the landfill gas is	The project is surrounded by open spaces, and the landfill is 285m away from the nearest settlement Yanjiazhuang Village in the east.

County/district	Project activity	Basic description	Construction progress	Performance of environmental protection procedures	Environmental protection facilities	Any pending issue concerning the environment	Nearest sensitive point
		treatment capacity is 170-180 t, the currently used storage is 780,000 m^3, the remaining storage capacity is 507,000 m^3, and the remaining storage is estimated to satisfy 3-4 years of use.			gas is collected at the gas guide gabion through the gas guide pipe laid under the landfill site and then is discharged for combustion through the landfill gas emission pipe. In the closure plan, additional gas guide wells will be considered and existing landfill gas combustion flares will be used.	incinerated by the supporting combustion flare; ② The leachate is treated by the original leachate treatment system; ③ The landfill will not be developed after closure; ④ The follow-up monitoring systems for landfill gas, groundwater, surface settlement and leachate after closure will be provided to monitor on schedule; ⑤ The maintenance and supervision of the leachate drainage system shall be strengthened after closure.	
Nanzheng District, Hanzhong City	Closure of Jiangnan Landfill	Jiangnan Landfill is located in Zoujiawan Village, Hanshan Sub-district, Nanzheng District, covering an area of 219.6 mu, with a daily domestic waste treatment capacity of	It was completed and put into use in July 2009 and was upgraded and reconstructed in 2014.	In March 2014, the EIA approval was obtained (NHPF [2014] No. 5), and in June 2018, the acceptance approval was obtained (NFGTZ [2018] No. 47). It is a sanitary landfill.	Leachate treatment process: "biochemical process + advanced treatment"; Landfill gas treatment process: Exhaust works is provided to collect landfill gas which is burnt after being guided by and discharged from the filtrate guide pipe and gas guide gabion. In the closure plan, additional gas guide wells will be considered and a new gas combustion flare will be	The landfill monitoring reports over the years show the unorganized waste gas, underground water, waste water and noise meet the corresponding environmental standards, and there are no leftover environmental problems or complaints. Post-closure: ① After being exported, the landfill gas is incinerated by the supporting combustion flare; ② The leachate is treated by the original leachate treatment system; ③ The landfill will not be developed after	The northeast side of the landfill is 285m away from the settlement Songjiashan, and the southwest side is 225m away from Zoujiawan Village

County/district	Project activity	Basic description	Construction progress	Performance of environmental protection procedures	Environmental protection facilities	Any pending issue concerning the environment	Nearest sensitive point
		150t, and a storage capacity of 1.1 million m^3. It was rated as a Grade II harmless landfill in 2012.			built.	closure; ④ The follow-up monitoring systems for landfill gas, groundwater, surface settlement and leachate after closure will be provided to monitor on schedule; ⑤ The maintenance and supervision of the leachate drainage system shall be strengthened after closure.	

2.4.5 Overview of terminal disposal facilities

In December 2019, the Shaanxi Provincial Development and Reform Commission, Shaanxi Provincial Department of Housing and Urban-Rural Development, Shaanxi Provincial Department of Ecology and Environment and Shaanxi Provincial Department of Natural Resources jointly released the *Medium and Long-term Special Plan for Domestic Waste Incineration Power Generation in Shaanxi Province (2020~2030) (SFGNXNY [2019] No. 1718)*. Therefore, the project area and county is changing from landfill to incineration and power generation for resource utilization, in order to promote the "reduction, harmless and resourcefulness" of domestic waste, so as to effectively solve the outstanding problems such as "rubbish surrounding the city" and "rubbish going to the countryside". Based on the survey, a summary table of the facilities at the waste disposal terminals in the project area counties is shown in Table 2-10. Environmental audits are required for these facilities. Please refer to Annex 10 for the audit procedures and content.

Table 2-10 Summary of Terminal Disposal Facilities

County / district	Terminal	Basic description	Construction progress	Related situation
Jintai, Chencang, Weibin and Fengxiang Districts, Baoji City	Baoji City WTE Plant	It is located in Tongxin Village, Jinhe Town, Jintai District, south of the Lingyuan Landfill, with a design capacity of 1,500t/d. two 750t/d mechanical incinerators, two 67.5t/h residual heat boilers, two 16MW gas turbine generators, a waste storage and transfer system, a desalted water preparation system, an automatic control system, a fly ash stabilization system, a fume treatment system, a leachate treatment system, etc. will be constructed. Jintai, Chencang and Weibin Districts.	Construction has begun, and it will begin to operate in May 2023.	The construction of Baoji WTE Plant was proposed at the executive meeting of Baoji Municipal People's Government in November 2016, and its project proposal was approved by the Baoji Municipal Development and Reform Commission in December 2018. The approval indicated that the construction period of the Project was 2019-2020. According to the plan approved in 2018, the Plant was designed to treat only the municipal solid waste collected from the urban area of Baoji, and the main design indicators including population and per capita urban waste volume are based on the Urban Development Master Plan of Baoji City (2010-2020). The Baoji City Subprojects were proposed by Baoji Government in 2022 based on the Municipal Solid Waste Classification Plan of Baoji City (2020-2035). Therefore, Baoji WTE Plant and the Baoji Subprojects to be implemented are planned separately for different time periods. Baoji WTE Plant is not implemented or planned to be implemented simultaneously with the Baoji Subprojects. To sum up, Baoji WTE Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Shilipu Sewage Treatment Plant in Baoji City	Shilipu Sewage Treatment Plant is located in the eastern urban area of Baoji City and to the east Baoji Technical School, covering an area of 7.6hm2. The Plant has a designed treatment capacity of 120,000 m3/d, of which the capacity is 90,000 m3/d in Phase	Phase I was commenced in September 2002 and completed on April 1, 2004; Phase II was commenced in January	Shilipu Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with the Baoji Subprojects. To sum up, Shilipu Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.

County / district	Terminal	Basic description	Construction progress	Related situation
		I, and the total capacity is expanded to 120,000 m3/d after the completion of Phase II. It adopts a two-stage SBR process. At present, two phases have been completed and put into normal operation, and the qualified effluent is discharged into the Weihe River.	2007 and completed in February 2008	
	Panlong New District Sewage Treatment Plant in Baoji	Panlong New District Sewage Treatment Plant is located in the southeast corner of Panlong New District, to the east of Xudong Road, and to the south of Guanfeng Avenue. It covers an area of 10.75hm2. It is designed with a total capacity of 100,000 m3/d and is divided into three phases. The designed capacity of Phase I is 20,000 m3/d, that of Phase II is 30,000 m3/d, and that of Phase III is 50,000 m3/d. It adopts the process of aerated coarse grit chamber + A/A/O process + secondary sedimentation tank + DT high-density sedimentation + filtration by D-type filter + sodium hypochlorite disinfection; in the near future, all tailwater is reused, and in the long term, 60% is reused and the rest is discharged into Qianhe River.	Phase I was commenced in August 2018 and completed in August 2020; Phases II & III will be implemented according to the actual situation	Panlong New District Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with the Baoji Subprojects. To sum up, Panlong New District Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Fengxiang Sewage Treatment	Fengxiang Sewage Treatment Plant is located in Wayaotou Village, Chengguan Town, Fengxiang County, covering an area of	Phase I was commenced in May 2008 and completed on	Fengxiang Sewage Treatment Plant was planned to be implemented in two phases in 2008 and was completed in July 2014. Due to higher environmental protection requirements, it

County / district	Terminal	Basic description	Construction progress	Related situation
	Plant	6,200m2. It was divided into two phases and was completed in July 2014. In April 2020, it was upgraded to have a capacity of 18,000 tons/day. It adopts the treatment process of DN+CN biological aerated filter + high-efficiency sedimentation tank. It has been completed and put into normal operation. The qualified effluent is discharged into Dongfeng Reservoir.	June 1, 2009; Phase II was commenced in July 2012 and completed in July 2014. It was upgraded in April 2020 and now is in normal operation	was upgraded in April 2020 and is now in normal operation. Its total treatment capacity is 120,000 m3/d. Based on the construction time, Fengxiang Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with Fengxiang District Subproject. To sum up, Fengxiang Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
Jingyang County, Xianyang City	Liquan County WTE Plant	It is located in Xiahan Village, Yanxia Town, Liquan county, with a treatment capacity of 3,000t/d, and is constructed in two phases. Phase 1 has a capacity of 1,500t/d, and is provided with two 750t/d mechanical incinerators, two residual heat boilers, a 35MW gas turbine and a 40MW power generator. It serves the urban area of Xianyang City, and Liquan and Jingyang Counties.	The EIA approval was obtained in 2019. Phase 1 broke ground in 2019 and was completed in July 2020.	The project proposal for Liquan County WTE Plant was approved by the Liquan County Development and Reform Bureau in September 2018. According to the EIA report approved in 2019, the Plant was designed to treat only the municipal solid waste collected from the urban area of Xianyang City, Liquan County, and Jingyang County, and the main design indicators including population and per capita urban waste volume are based on the Urban Development Master Plan of Xianyang City (2010-2020). Jingyang County Subproject however is a project proposed by the Jingyang County Government in 2022 based on the 14th Five-Year Plan of Jingyang County (2021-2025). Therefore, Liquan County WTE Plant and Jingyang County Subproject to be implemented this time are planned separately based on different time periods. Liquan County WTE Plant was commenced in 2019, while Jingyang County Subproject is still in the early stage of preparation, so the two are not constructed simultaneously. To sum up, Liquan County WTE Plant does not fit the definition

County / district	Terminal	Basic description	Construction progress	Related situation
				of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Jingyang County No.2 Sewage Treatment Plant	Jingyang County No.2 Sewage Treatment Plant is located in Jinggan Town, Jingyang County. It was planned to be implemented in 2012 and completed in 2013. Now it is in normal operation. Its treatment capacity is 30,000 tons/day. It adopts the A/A/O micro-aerating oxidation ditch process, and after the treatment, the qualified effluent is discharged into the Jinghe River.	It was commenced in 2012 and completed in 2013	Jingyang County No.2 Sewage Treatment Plant was planned to be implemented in 2012 and was completed in 2013. It is now in normal operation. Its total treatment capacity is 30,000 m3/d. Jingyang County Subproject is a project proposed in 2022 based on the 14th Five-Year Plan of Jingyang County (2021-2025) and is planned to be commenced in May 2023. To sum up, Jingyang County Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with Jingyang County Subproject. Therefore, Jingyang County Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
Linwei District, Weinan City	Weinan City Urban WTE Plant	It is located in Sidi Village, Gaotang Town, Huazhou District, and serves Linwei District, High-tech Zone and Huazhou District, Weinan City, with a treatment capacity of 1,750t/d. It is constructed in two phases. Phase 1 has a capacity of 750t/d, and is provided with a 750t/d mechanical incinerator, an 18,000kW gas turbine and an 18,000kW power generator. Two 500t/d incineration lines will be added in the future.a	Phase 1 started construction in 2021, and is expected to be completed in May 2023.	It just serves downtown of Weinan City(Linwei District, High-tech Zone and Huazhou District) . The Project was approved by Weinan Municipal Administrative Examination and Approval Bureau in December 2020. Linwei District Subproject however is a project proposed in 2022 based on the 14th Five-Year Plan for Ecological Environmental Protection of Weinan City (2021-2025) issued in 2022. That is, Weinan WTE Plant and Linwei District Subproject to be implemented this time are planned separately based on different time periods. Linwei District Subproject will be commenced in May 2023, so the two are not constructed simultaneously. That is, Weinan WTE Plant is not implemented or planned to be implemented simultaneously with Linwei District Subproject.

County / district	Terminal	Basic description	Construction progress	Related situation
				To sum up, Weinan WTE Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Weinan Sewage Treatment Plant	For No. 1 Sewage Treatment Plant, its domestic sewage treatment capacity is 100,000 tons/day and the water reclamation capacity is 60,000 tons/day. For No. 2 Sewage Treatment Plant, its domestic sewage treatment capacity of Phase I Project is 30,000 tons/day, and Phase II Project is an expansion project with a sewage treatment capacity of 30,000 tons/day. The expanded part employs the multi-level multi-stage AO treatment process + high-efficiency filtration process. After expansion, the overall sewage treatment capacity of Weinan Sewage Treatment Plant reaches 160,000 tons/day. The qualified effluent is discharged into the Youhe River.	The upgrading and reconstruction of the two plants and the expansion of No. 2 sewage treatment plant were commenced in November 2019 and completed and put into operation in January 2021.	Weinan Sewage Treatment Plant was planned in 2004, and two sewage treatment plants have been built, namely No. 1 Sewage Treatment Plant and No. 2 Sewage Treatment Plant, which are adjacent to each other. The expansion of No. 2 Sewage Treatment Plant and the upgrading and reconstruction of the two sewage treatment plants are based on the 13th Five-Year Plan for National Economic and Social Development of Weinan City (2016-2020), and have been completed in 2021. At present, the total sewage treatment capacity of the two sewage treatment plants is 160,000 tons/day. The Linwei District Subproject is proposed in 2022 on the basis of the 14th Five-Year Plan for Ecological Environmental Protection of Weinan City (2021-2025) issued in 2022, and is scheduled to be implemented in May 2023. To sum up, Weinan Sewage Treatment Plant is not implemented or planned to be implemented at the same time as the Linwei District Subproject. Therefore, Weinan Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
Chengcheng County, Weinan City	Chengcheng County WTE Plant	It is located in Yuanjiaping Village, Zhuangtou Town, Chengcheng County, with a design capacity of 500t/d, serving Chengcheng and Heyang Counties.	It is at the EIA stage and will break ground in September 2022 and begin to operate in September 2023.	The Chengcheng County WTE Project is based on the Medium-term and Long-term Special Plan for Waste-to-Energy of Shaanxi Province (2020-2030) jointly proposed by the Shaanxi Provincial Development and Reform Commission and other three ministries and commissions in 2019. The

County / district	Terminal	Basic description	Construction progress	Related situation
				incineration plant is scheduled to be constructed in September 2022 and put into operation in September 2023; The Chengcheng County Subproject is proposed in 2022 on the basis of the 14th Five-Year Plan for Ecological Environmental Protection of Weinan City (2021-2025) issued in 2022. The domestic wastes for this subproject are collected from rural areas. The design and construction of Chengcheng County WTE Project are not associated with the Subproject. Therefore, the construction and operation of Chengcheng County WTE Project are not associated with the Subproject. To sum up, Chengcheng County WTE Project does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
Baishui and Pucheng Counties, Weinan City	Pucheng County WTE Plant	It is located in Pushi Village, Longyang Town, Pucheng County, with a floor area of 84 mu and a design capacity of 1,000t/d, and is constructed in two phases. Phase 1 has a capacity of 500t/d, and is provided with 3 (2×250+500)t/d mechanical incinerators, and 9MW+7.5MW gas turbine generators. Phase 2 will be constructed as necessary. It serves Baishui and Pucheng Counties, Weinan City mainly.	Phase 1 broke ground in December 2020 and was completed in July 2022.	It serves Baishui and Pucheng Counties, Weinan City mainly.. It is based on the 13th Five-Year Plan for Municipal Solid Waste Treatment Facilities of Pucheng County (2015-2020) proposed by the People's Government of Pucheng County in 2014. In July 2016, the Economic Development Administration of Pucheng County issued the response to the project proposal. However, the subprojects in Baishui County and Pucheng County of Weinan City are proposed by the Weinan Municipal Government in 2022 on the basis of the 14th Five-Year Plan of Weinan City (2020-2025). Therefore, the Pucheng County WTE Plant and the subprojects to be implemented in Baishui County and Pucheng County this time are planned separately based on different time periods. The construction of Phase I Project of Pucheng County WTE Plant commenced in December 2020, while the subprojects to

County / district	Terminal	Basic description	Construction progress	Related situation
				be implemented in Baishui County and Pucheng County this time are still in the early preparation stage. The two are not constructed simultaneously. That is, Pucheng County WTE Plant is not implemented or planned to be implemented at the same time as the subprojects in Baishui County and Pucheng County of Weinan City. To sum up, Pucheng County WTE Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Pucheng County Sewage Treatment Plant	Pucheng County Sewage Treatment Plant is located in the southwest of Chunxing Village, Jiaqu Township, Pucheng County, covering an area of 5.0025hm2. Its treatment capacity is 38,000 m3/d, of which Phase I Project has a capacity of 18,000 m3/d and Phase II Project has a capacity of 20,000 m3/d. It employs the CASS process for normal operation, and the qualified effluent is discharged into the Weihe River.	Phase I was commenced in November 2007 and completed and put into operation in September 2009; Phase II was commenced in May 2021 and completed and put into operation in February 2022.	Pucheng County Sewage Treatment Plant was planned in 2007, constructed in two phases and completed in February 2022. The Pucheng County Subproject was proposed by the Government of Pucheng County in 2022 and is scheduled to be implemented in May 2023, that means, the Pucheng County Sewage Treatment Plant is not implemented or planned to be implemented at the same time as the Pucheng County Subproject. To sum up, Pucheng County Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Baishui County Sewage Treatment Plant	Baishui County Sewage Treatment Plant is located in the west section of Lei Highway in Baishui County, covering an area of 3.3669hm2. Its design treatment capacity is 5,000 m3/d. It employs multi-stage AO treatment process, and the qualified effluent is partially reused, and the tailwater is discharged into the Baishui River. Phase I	Phase I was commenced in June 2019 and completed and put into operation in April 2020.	Baishui County Sewage Treatment Plant was planned in 2019, constructed in two phases and completed in April 2020. The Baishui County Subproject was proposed by the Government of Baishui County in 2022 and is scheduled to be implemented in May 2023, that means, the Baishui County Sewage Treatment Plant is not implemented or planned to be implemented at the same time as the Baishui County Subproject.

County / district	Terminal	Basic description	Construction progress	Related situation
		was officially put into operation in February 2011, and the construction of Phase II depends on the actual situation.		To sum up, Baishui County Sewage Treatment Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
Nanzheng District, Hanzhong City	Hanzhong Urban WTE Plant	It is located in Wulang Village, Xuwang Town, Hantai District, with a design capacity of 1,500t/d or 590,000t/y. Phase 1 has a treatment capacity of 600t/d and an annual power output of 7.402×107kWh, and is provided with a 600t/d incineration line and a 12MW gas turbine power generator. Phase 2 (900t/d) will be constructed as necessary. It serves the urban area of Hanzhong City (Hantai and Nanzheng Districts).	Phase 1 broke ground in October 2018 and was completed in March 2021.	The Hanzhong WTE Project is designed to serve the urban area of Hanzhong City (Hantai District and Nanzheng District). It is based on the 13th Five-Year Plan for the Construction of Domestic Waste Harmless Treatment Facilities of Shaanxi Province (2016-2020) issued by the General Office of the People's Government of Shaanxi Province in 2015. In June 2018, the Hanzhong Municipal Development and Reform Commission issued the response to the project proposal. The main design indicators including population and per capita urban waste volume are based on the Urban Master Plan of Hanzhong City (2010-2020). However, the Nanzheng District Subproject of Hanzhong City was proposed by the Government of Nanzheng District in 2022 on the basis of the 14th Five-Year Plan for Ecological Environmental Protection of Nanzheng District (2020-2025), which is still in the early preparation stage. Therefore, Hanzhong WTE Plant and the Nanzheng District Subproject to be implemented this time are planned separately based on different time periods. The Phase I Project of Hanzhong WTE Plant commenced in October 2018 and completed in March 2021, while the Nanzheng District Subproject to be implemented this time is still in the early preparation stage. The two are not constructed simultaneously. That is, Hanzhong WTE Plant is not implemented or planned to be implemented at the same time as the Nanzheng District Subproject.

County / district	Terminal	Basic description	Construction progress	Related situation
				To sum up, Hanzhong WTE Plant does not fit the definition of associated facilities set forth in the ESF of the World Bank, it is thereby not an associated facility.
	Hanzhong Jiangnan Sewage Treatment Plant	Hanzhong Jiangnan Sewage Treatment Plant is located in Hujiaying Town, Nanzheng District, Hanzhong City. The Phase I Project has a design capacity of 22,500 m3/d and was completed in 2012. In October 2015, the Phase II Upgrading and Expansion Project was completed and put into operation. With the completion of the project, its total treatment capacity reaches 33,750 m3/d. It employs the CAST treatment process. The qualified effluent is discharged into the Hanjiang River.	Phase I Works was commenced in 2012 and completed and put into operation in October 2012, and the Phase II Upgrading and Capacity Expansion Works was completed at the end of October 2015.	The Nanzheng District Subproject of Hanzhong City was proposed by the Nanzheng District Government in 2022 and is planned to be implemented in May 2023, that is, the Hanzhong Jiangnan Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with the Nanzheng District Subproject. To sum up, Hanzhong Jiangnan Sewage Treatment Plant does not meet the definition requirements of associated facilities in the World Bank ESF, it is thereby not an associated facility.
Hanbin District, Ankang City	Ankang City WTE Plant	It is located in Liyushan Village, Wuli Town, Hanbin District, with a design capacity of 1,800t/d. Phase 1 has a treatment capacity of 1,200t/d and an annual power output of 1.639×108kWh, and is provided with two 600t/d incineration lines and two 12MW gas turbine power generators. Phase 2 (600t/d) will be constructed as necessary. It serves Hanbin District, and urban areas of Hanyin, Xunyang, Pingli, Langao and Ziyang Counties.	The EIA approval was obtained in March 2021. It is under preparation, and will break ground in August 2022.	The Ankang WTE Project only includes the design service scope of municipal solid waste collected in the whole Hanbin District and the urban areas of Hanyin County, Xunyang County, Pingli County, Langao County and Ziyang County in Ankang, excluding villages and towns. Its construction is based on the Medium-term and Long-term Special Plan for Waste-to-Energy of Shaanxi Province (2020-2030) jointly proposed by the Shaanxi Provincial Development and Reform Commission and other three ministries and commissions in 2019. The EIA approval was obtained in March 2021, and the main design indicators include population and per capita urban waste, based on the overall urban development plan of Hanbin District from 2010 to 2020. The Hanbin District Subproject was

County / district	Terminal	Basic description	Construction progress	Related situation
				proposed by the Hanbin District Government in 2022 based on the Municipal Solid Waste Classification Plan of Ankang City (2020-2035). Therefore, Ankang WTE Plant and the Hanbin District Subproject to be implemented this time are planned separately based on different time periods. Ankang WTE Plant was planned to be put into operation in August 2022, while Hanbin District Subproject will be commenced in May 2023. Both are not constructed simultaneously. That is, Ankang WTE Plant is not implemented or planned to be implemented simultaneously with the Hanbin District Subproject. To sum up, the Ankang WTE Project does not meet the definition requirements of associated facilities in the ESF of the World Bank, it is thereby not an associated facility.
	Xinba Landfill in Liushui Town	It is located in Group 3 of Xinba Community, Liushui Town, with a design capacity of 62,000t, serving Liushui Town (7,000 persons).	It broke ground in 2015, and was completed in 2017, with a remaining service life of over 5 years.	The Hanbin District Subproject is still in the early preparation stage. Both are not constructed simultaneously. That is, the Xinba Landfill in Liushui Town is not implemented or planned to be implemented simultaneously with the Hanbin District Subproject of Ankang City. To sum up, the Xinba Landfill in Liushui Town does not meet the definition requirements of associated facilities in the ESF of the World Bank, it is thereby not an associated facility.
	Ankang Jiangnan Sewage Treatment Plant	Ankang Jiangnan Sewage Treatment Plant is located in the north of Baimiao Village, Dongba, Hanbin District, on the west side of Dongba Pump Station, with a land area of 6.8hm2, a design treatment capacity of 80,000 m3/d, and in the HBR+MBBR sewage	Commenced in 2018 and completed in January 2019	The Hanbin District Subproject was proposed by the Hanbin District Government in 2022 and is planned to be implemented in May 2023, that is, the Ankang Jiangnan Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with the Hanbin District Subproject. To sum up, Ankang Jiangnan Sewage Treatment Plant does not

County / district	Terminal	Basic description	Construction progress	Related situation
		treatment process adopted. It has been completed and runs normally, and can be reused after being treated up to standard.		meet the definition requirements of associated facilities in the World Bank ESF, it is thereby not an associated facility.
	Ankang Jiangbei Sewage Treatment Plant	Ankang Jiangbei Sewage Treatment Plant is located in Group 3, Wujiatai Village, Guanmiao Town, Hanbin District. Phase I Works has a design capacity of 20,000 m3/d and was completed in 2013. In October 2017, the Phase II Upgrading and Capacity Expansion Works was completed and put into operation. With the completion of the project, its total treatment capacity reaches 35,000 m3/d. It employs the CAST treatment process. The qualified effluent is discharged into the Hanjiang River.	Phase I Works was commenced in 2012 and completed and put into operation in December 2013, and the Phase II Upgrading and Capacity Expansion Works was completed at the end of July 2017.	The Hanbin District Subproject was proposed by the Hanbin District Government in 2022 and is planned to be implemented in May 2023, that is, the Ankang Jiangbei Sewage Treatment Plant is not implemented or planned to be implemented simultaneously with the Hanbin District Subproject. To sum up, Ankang Jiangbei Sewage Treatment Plant does not meet the definition requirements of associated facilities in the World Bank ESF, it is thereby not an associated facility.

3 E&S Legal Framework

The implementation of the Project needs to comply with the requirements of the Bank ESF, and also needs to comply with China's domestic laws and regulations in the field of E&S risk management. This chapter summarizes the applicable requirements of the Bank ESF in the Project, and also summarizes China's existing E&S management laws and regulations, technical specifications, and applicable standards that are most relevant to the Project. These constitute the legal basis of the E&S management framework of the Project.

During the implementation of the Project, the identification, preparation and implementation of specific project activities must meet these requirements. If major revisions are made to the national environmental or social laws and regulations applicable to the Project during the implementation process, this ESMF will be updated accordingly. The Shaanxi PMO will ensure that the preparation and implementation of subprojects comply with the requirements in this ESMF.

3.1 Bank ESF

The Bank ESF applies to the Project. ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7 (relevant to some TA subprojects mainly), ESS8 and ESS10 are relevant to the Project.

Table 3-1 summarizes the relevance and applicability of 10 ESSs to the Project.

Table 3-1 Applicability of Bank ESSs

No.	ESS	Relevant?	Relevance analysis
1	ESS1: Assessment and Management of Environmental Risks and Impacts	Yes	- A series of activities (including construction and TA activities) to be carried out under the Project will have different levels of E&S risks and impacts. The existing facilities have outstanding E&S issues (e.g., nonconforming land use); new facilities involve LAR; workers are faced with OHS risks at the construction and operation stages; the Project will pose disturbances, community health and safety, and traffic safety risks to nearby communities; landfill gas and leachate leakage may pollute soil and groundwater. In general, the Project's social risk rating is "**High**". - The Project's main environmental risks and impacts are from landfill closure, including water loss and soil erosion, introduction of alien species, groundwater and soil pollution, fires and explosions, leachate leakage, etc. - Some parts of Chencang, Weibin, Linwei and Hanbin Districts in Baoji City are located in the protection range of the Qinlin Mountains. Any subproject located in the range will be excluded. - Geological disasters may occur in the project area, such as landslides and mud-rock flows. This ESMF identifies areas prone to geological disasters, and establishes an exclusion procedure. Any subproject located in a geologically high-risk area will be excluded. Since the Project does not involve public buildings, geological disaster risks are low. - Potential negative environmental impacts also include dust, noise, wastewater, water loss and soil erosion, community health and safety, and OHS risks at the construction stage, and odor,

No.	ESS	Relevant?	Relevance analysis
			wastewater, noise, waste gas, slag, fire, explosion, and community health and safety risks. These impacts should be controlled through excellent industrial design. Therefore, environmental risks are high. - As the Project includes many activities of which the specific details have not yet been determined, therefore, this ESMF is developed to formulate principles, procedures and measures for the ESA of specific activities during the implementation of the Project; - As part of the legal agreement, the Shaanxi PMO will prepare an ESCP to commit that the Project will be prepared and implemented in accordance with the material measures and actions in this ESMF and the Bank ESF; - The borrower will conduct continuous stakeholder engagement and information disclosure at the early stage of preparation and throughout the life of the Project. - The ESF provides an ECOP, EIA and EMP outlines, a capacity building training program, a traffic safety training program, a traffic management plan, etc. - - Differences between China and other countries: (1) The preparation category of domestic environmental impact assessment documents is determined according to the *Classified Management Catalog for Environmental Impact Assessment of Construction Projects*. For example, for some subprojects, environmental impact assessment may not be required according to the requirements of the domestic catalog, but during this work, all construction contents included in subprojects shall be assessed according to the requirements of the ESF of the World Bank and the Environmental Impact Assessment Document and Environmental Management Plan and ECOP shall be Prepared; (2) There are no definition and assessment requirements for associated facilities in China, so the definition and assessment of associated facilities are not required; however, it has been defined in ESMF whether large-scale facilities such as landfills and incineration plants belong to associated facilities, and the associated facilities will still be defined and assessed according to the requirements of the World Bank in the subsequent subproject assessment process; (3) for the chemicals used, the requirements of China and the World Bank are consistent, and the raw and auxiliary materials and management measures need to be listed, and the assessment of subprojects needs to be completed as required.
2	ESS2: Labor and Working Conditions	Yes	- The Project involves direct, contracted workers and community workers, so the requirements on working conditions, labor protction, GRM, OHS, etc. in this ESS apply to the Project; - The Project will avoid child labor and forced labor. - This ESMF includes an LMPF to direct LMP preparation for subprojects. - A LMP has been prepared for the Batch 1 subprojects, and will be implemented by the PMOs and PIUs during project implementation. - Establish a worker GRM.
3	ESS3: Resource Efficiency and Pollution Prevention and	Yes	- The Project's main environmental risks and impacts are from landfill closure, including groundwater and soil pollution, leachate and landfill gas leakage, and improper leachate and landfill gas treatment.

No.	ESS	Relevant?	Relevance analysis
	Management		- Potential negative environmental impacts also include dust, noise, wastewater, water loss and soil erosion, community health and safety, and OHS risks at the construction stage, and odor, wastewater, noise, waste gas, slag, fire, explosion, and community health and safety risks. This ESMF includes a generic Environmental Code of Practices (ECOP). - The Project does not involve the production, storage, transport, use and disposal of industrial and agricultural hazardous materials and waste, and only involves the storage and transport of hazardous domestic waste, which will be collected and stored using waste bins, and transferred to waste disposal plants using special trucks for disposal. - The Project does not involve the construction of landfills and WTE plants, but involves landfill closure, and the construction or reconstruction of kitchen waste disposal plants, which is a main emission source of greenhouse gases, and GHG emissions should be estimated using the method approved by the Bank. - This ESMF screens associated facilities preliminarily, and confirms that the associated facilities do not include any large WTE plant or landfill. In addition, an audit should be performed on upstream and downstream facilities during the EIA. - This ESMF sets out requirements on pollution management and resources saving for the specific activities in accordance with the Bank ESF, EHSGs and Good International Industry Practice (GIIP). Relevant measures and management approaches are reflected in the generic ECOP in this ESMF and will be included in relevant E&S management documents for future subprojects. - Differences between China and other countries: (1) Regarding the estimation of GHG, China requires that greenhouse gas accounting is required in only key industries such as the chemical industry and cement industry. An estimation of greenhouse gas emissions is not required for plastic waste reduction projects in China, but the greenhouse gas emissions will be estimated according to the method agreed upon by the World Bank in the EIA process; (2) Since the plastic waste reduction projects do not involve industries with high water and energy consumption, there is no need to assess the water and energy consumption in China, but the water and energy consumption of the project activities shall be assessed according to the requirements of the World Bank in the EIA process.
4	ESS4: Community Health and Safety	Yes	- The Project may pose health and safety impacts on nearby communities. - During facility construction, trucks will pose health and safety risks and impacts to local residents. - At the operation stage, odor, wastewater and noise generated by WTSs, kitchen waste disposal plants and Rural organic waste disposal stations will affect nearby communities. Waste trucks will also have community health and safety impacts. Fires and explosions of kitchen waste disposal and biogas storage facilities may also pose safety risks to nearby communities. - During landfill closure, leachate and landfill gas leakage will pose health and safety to nearby communities. After closure, different land uses may also pose such risks. Since landfill closure, and bulk waste and construction waste disposal facilities may involve altered habitats, their services for nearby communities may be affected.

No.	ESS	Relevant?	Relevance analysis
			- There are still residents within the health protection distance of some existing landfills. An adequate health and safety risk assessment should be conducted to improve the closure design, implementation and O&M arrangements, and land uses to minimize health and safety risks. - The analysis of specific community health and safety impacts will be included in the ESA of subprojects, and a management measures and an emergency response plan will be included. - An SEP has been prepared for the Project, and continuous consultation with communities will be conducted with nearby communities throughout the project lifecycle. - A traffic safety training program has been prepared.
5	ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Yes	- The newly constructed waste transfer and disposal facilities (e.g., WTSs, sorting center, construction and bulk waste disposal facilities) involve LA of 2-200 mu each, and potentially involve small amounts of HD. An RAP will be prepared. - Some existing facilities have outstanding land use issues, and a social audit should be conducted to identify potential risks, remedies, costs and timing. - The land of some existing landfills is leased, and there are residents within the safety distance around some landfills. The construction of waste disposal facilities after closure may trigger community objections. - A resettlement policy framework and a social audit outline have been developed to guide RAP preparation / social audit for specific subprojects. - The social audit has covered the LAR and compensation of the relevant facilities. - An RAP has been prepared for the Batch 1 subprojects.
6	ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Yes	- The Project is mostly located in areas heavily disturbed by human activity, and the possibility of involving natural and key habitats is very low. However, certain project activities may involve altered habitats, such as landfill closure, and bulk and construction waste disposal facilities. A further study on the ecological background will be conducted during the EIA, and activities involving altered habitats of important biodiversity value will be excluded. In addition, landscaping during landfill closure may introduce alien species. The ESF lists local species suitable for landscaping. - Landfill closure involves soil borrowing, which may involve natural or altered habitats, and affect ecosystem services. - This ESMF includes an exclusion list to exclude any subproject that may cause significant impacts on natural habitats and biodiversity; - Some parts of Chencang, Weibin, Linwei and Hanbin Districts in Baoji City are located in the protection range of the Qinlin Mountains. Any subproject located in the range will be excluded. - Differences between China and other countries: China and the World Bank basically have the same requirements, but China pays less attention to the habitats that have been changed. The biodiversity value of the changed habitat needs to be verified during the EIA process and assessed according to the ESF response requirements of the World Bank.
7	ESS7: Indigenous Peoples /	Yes	- This ESS would be mainly relevant to TA activities and OBA waste agricultural much management components, but subject to further confirmation during the implementation when

No.	ESS	Relevant?	Relevance analysis
	Sub-Saharan African Historically Underserved Traditional Local Communities		relevant geographical coverage is known. - The Batch 1 subprojects do not involve any minority community. This will be further identified. - Suggestions in research findings, if adopted, may involve and affect minority communities. Meaningful consultation will be conducted with minority residents, and their opinions incorporated into research findings, thereby ensuring that they benefit from the Project equally. Their participation requirements are included in the SEF.
8	ESS8: Cultural Heritage	Yes	- The Project will involve extensive civil works and equipment installation, which may have potential impacts on movable and immovable cultural heritage. There is also the possibility of chance find during construction. - The ESMF includes exclusion provisions to exclude any subproject that has significant impacts on existing cultural heritage. Each subproject's environmental assessment will further address the potential impact of cultural heritage, and develop relevant measures (including chance find procedures) as necessary. - An SEP has been prepared, and consultation will be conducted with nearby communities throughout the project lifecycle. - Differences between China and other countries show that China pays more attention to cultural heritages protected by law, that is, cultural relics protection sites at a county level and above, and pays little attention to intangible cultural heritages. Accidental discovery procedures have been established in ESMF, and subprojects need to be assessed according to the ESF requirements of the World Bank.
9	ESS9: Financial Intermediary (FI)	No	- The Project does not involve any FI, therefore, this ESS does not apply.
10	ESS10: Stakeholder Engagement and Information Disclosure	Yes	- Information disclosure and consultation will run through preparation, construction and operation stages, with attention paid to needs of vulnerable groups, such as elders, women and cleaners. - At the preparation and implementation stages, attention will be paid to the participation of persons and groups affected materially by the Project (cleaners, contracted workers, community workers, residents affected by LA, community residents, etc.) and having material influence on the Project (natural resources bureaus, ecology and environment bureaus, health commissions, etc.). - The Shaanxi PMO, county / district PMOs and PIUs will engage with all stakeholders in the whole project lifecycle, including women and low income residents, in order to provide timely, relevant, understandable and accessible information to them. In addition, a GRM is also included in the SEP. - A separate SEF has been prepared to guide information disclosure, public participation and grievance redress. - A detailed SEP has been prepared for the Batch 1 subprojects, defining the responsibilities of the PIUs, and information disclosure and public consultation activities at different stages.

3.2 Bank EHSGs

The Bank's ESF also requires that the Project adopts relevant requirements in the Bank's Environment, Health and Safety Guidelines (EHSGs), which include normally acceptable and achievable performance levels and measures.

The EHSGs include a set of general EHSGs, and 62 sets of sector-specific EHSGs. See Table 3-2.

Table 3-2 Applicability of Bank EHSGs

No.	EHSGs	Applicability
1	EHS General Guidelines	- The General Guidelines provides general guidance on management of air pollution, energy conservation, wastewater, solid waste, hazardous material, noise and contaminated land, and some performance levels and standards for references. In addition, it also provides general guidance on measures for community health and safety, occupational health and safety, and health and safety issues for construction/decommissioning activities. - The assessment of pollution, health and safety risks in the EIA of a subproject should comply with these guidelines. - In the ESA process for specific subprojects, relevant pollution and health/safety assessment and mitigation measures development will be conducted in line with these guidelines.
2	EHSGs for Waste Management Facility	- These guidelines cover facilities or projects dedicated to the management of municipal solid waste and industrial waste, including waste collection and transport; waste receipt, unloading, processing, and storage; landfill disposal; physicochemical and biological treatment; and incineration projects. - These guidelines describe EHS issues related to the waste management facilities during operation and decommissioning stages, and provide recommendations on mitigation of such impacts. In addition, these guidelines also provide air emission and wastewater discharge standards of EU and US in the field of waste management facilities.
3	EHSGs for Construction Material Extraction	- These guidelines address waste gas, noise/vibration, wastewater, solid waste, occupational and community health and safety issues in process of extraction and processing of construction materials, and presents a series of management and mitigation measures recommendations. - The Project involves landfill closure and reconstruction, which may involve borrow areas that have similar environmental, health and safety impacts. The ESA of any subproject involving any borrow area should refer to the relevant suggestions in these guidelines.

These guidelines provide environment, health and safety guidance for general construction activities/facility operations and also for some specific sectors. Some guidelines provide pollution emission reference levels, e.g. the EHS General Guidelines provide ambient air quality standards, municipal wastewater treatment standards, waste water discharge standards from industrial facilities, noise limit for work places, as well as measures guidance for GHG reduction. The actual application of EHSGs on specific subprojects will depend on professional judgment in the EIA under the subproject-specific context with consideration of site-specific situations and other relevant factors. If applicable, then the measures and levels will be incorporated into the specific EIA.

In addition, this ESMF also takes into account other good practices of the Bank Group for traffic management and construction camp management, and developed general E&S impacts management measures (see Appendix 4) as a guide to ESMP preparation of future subprojects.

3.3 Legal Framework for Environmental Management of China

Since the promulgation of its first Environmental Protection Law in 1979, China has gradually established a comprehensive environmental management legal framework. Roughly, this framework includes more than 80 laws and statues, over 120 regulations and over 1,000 standards and technical guidelines at national level primarily addressing pollution control, natural resource conservation and management of the environment. In addition, there are also a large number of regulations and implementation plans at local levels. Many local governments also have developed local environmental and emission standards that are more stringent than national standards. See Table 3-3.

Table 3-3 Applicable State Environmental Laws and Regulations

No.	Law/Regulations	Version	Relevance/Applicability
I. General Environmental Protection and Pollution Control Laws			
1	Environmental Protection Law	2015-01-01	The fundamental and "most stringent" environmental law ever in China. It sets out the general principle of environmental protection and sets up key systems of environmental management.
2	Environmental Impact Assessment Law	2018-12-29	It requires construction projects and certain types of plans are subject to requirements of EIA, public participation and development of mitigation measures to avoid, reduce and mitigate adverse impacts.
3	Water Pollution Control Law	2018-10-26	This national laws for surface/ground water pollution control applies to all types of projects and facilities with wastewater pollution.
4	Solid Waste Pollution Control Law	2018-12-29	It presents pollution control requirements covering domestic waste, industrial solid waste, construction waste, agricultural waste and hazardous waste, and is the main legal foundation for the Project.
5	Circular Economy Promotion Law	2018-10-26	It is a basic law for promoting waste reduction, reuse and resource recycling. It encourages establishment of waste recycling system.
6	Noise Pollution Control Law	2018-12-29	This law establishes legal requirements for noise pollution control for industrial facilities, construction activities, traffic, and social ambient noise.
7	Soil Pollution Control Law	2018-08-31	It requires protection of soil and prevent soil pollution by all citizen and organizations. The waste sorting, collection, transfer and disposal activities in the Project must adopt effective measures to prevent and mitigate soil pollution.
8	Soil Conservation Law	2010-12-25	It requires all activities that can cause soil erosion to adopt prevention and mitigation measures.
II. Regulations on Solid Waste Management			
9	Regulations on City Appearance and Environmental Sanitation	2017.03-01	It sets out the national environmental sanitation standards and requirements for sanitation facilities in cities.
10	Measures for the Management of Urban Domestic Waste	2017-04-28	It sets out management requirements and measures for cleaning, collection, transportation and disposal of urban domestic waste.

No.	Law/Regulations	Version	Relevance/Applicability
11	Regulation on Management of Urban Construction Waste	2005-03-23	It sets out requirements on dumping, transportation/transfer, landfill, recycling of construction waste in urban areas.
12	National Inventory of Hazardous Waste	2016-03-30	The inventory provides a list of solid waste that are classified as hazardous. It provides guidance for hazardous waste management in the Project.
13	Technical Policies for Hazardous Waste Pollution Control	2001-12-17	This policy applies to technical selection for generation, collection, transportation, classification, inspection, packaging, recycling, storage and disposal of hazardous waste, and provides technical guidance on planning, site selection, design, construction and operation management of hazardous waste management facilities.
14	Regulations on the Administration of Recycling and Disposal of Waste Electronic Products	2019-03-02	This regulation regulates the recycling and related disposal activities of waste electronic products, and stipulates that the disposal of waste electrical and electronic products will implement a qualification licensing system.
III. Laws and regulations on OHS			
15	Labor Law	2018-12-29	General requirements for occupational health and safety risk management, including clarification of the parties and responsibilities, management process and penalties for non-compliance
16	Contract Law	1999-10-01	
17	Work Safety Law	2014-12-01	
18	Occupational Disease Prevention Law	2017-11-05	
19	Guidelines for Prevention and Control of Occupational Diseases by Employers	2010-08-01	Methods and technical guidelines for OHS risk management in China
20	Occupational Health and Safety Management System Requirements and Guidelines	2018-03-12	
21	Occupational Disease Hazard Reporting Measures	2012-06-01	
22	Classification of Occupational Exposure to Hazardous Material	2010-11-01	
23	Occupational Exposure Limits for Hazardous Factors in the Workplace-Chemical Hazardous Factors	2007-11-01	
24	Occupational Exposure Limits for Hazardous Factors in the Workplace-Physical Hazardous Factors	2007-11-01	
25	Management Rules for Emergency Response Plans for Work Safety Accidents	2009-05-01	
26	Regulations on Accidents Reporting and Investigation	2007-06-01	
IV. EIA policies			
27	Categorized Catalogue for Environmental Impact Assessment of Construction Projects	2018-04-28	It specifies the principles for the classification of EIA levels for various construction projects and the requirements for the form of EIA reports.
28	EIA Technical Guidelines, including a General Guidelines and more than 20 environmental factor and industrial sector-specific	2017-01-01	It specifies scope, depth and technical methods of EIA for various environmental factors and industrial sectors projects.

No.	Law/Regulations	Version	Relevance/Applicability
	guidelines.		
29	Methods of Public Consultation for EIA	2019-01-01	It requires public consultation for EIA. Three rounds of information disclosure are required (initial project information, first draft of environmental assessment report, environmental assessment draft, and solicitation of opinions)

The above table only lists some of the main laws, regulations and technical guidelines that are relevant to the Project. Specific applicable legal framework at the subproject level will be determined during the ESA stage for each subproject.

3.4 Applicable Standards

China has established a complete set of environmental pollution management system. It includes a full set of environmental and emission standards covering all environmental factors and various industrial sectors. In addition, China also issued sectoral cleaner production standards for over 60 industrial sectors which are developed in line with GIIP in terms of energy and resource consumption benchmarks. Some of the national standards and guidelines are listed in Table 3-4.

Table 3-4 Applicable National Standards

No.	Standard	Scope	Applicable?
A	**Standards on environmental quality and pollutant discharge**		
1	Ambient Air Quality Standard (GB3095-2012) and amendment	This standard specifies ambient air functional zoning, rating, pollutants, average times and concentration limits, monitoring methods, statistics, monitoring, etc., and applies to ambient air quality evaluation and management. This standard applies to the evaluation of ambient air in each subproject area.	Yes
2	Limits in Annex D to Technical Guidelines for Environmental Impact Assessment—Air Environment (HJ2.2-2018)	This annex gives reference concentration limits of other air pollutants. This standard applies to the evaluation of other pollutants of ambient air in each subproject area.	Yes
3	Environmental Quality Standard for Surface Water (GB3838-2002)	This standard specifies control items and limits of water environmental quality, and methods of water quality evaluation and analysis, and applies to surface water bodies in China, including rivers, lakes, canals and reservoirs. This standard applies to the current situation evaluation of surface water environmental quality in each subproject area.	Yes
4	Groundwater Quality Standard (GB/T14848-2017)	This standard specifies groundwater quality classification, indicators and limits, and applies to groundwater quality survey, monitoring, evaluation and management. This standard applies to the evaluation of groundwater environmental quality in each subproject area.	Yes
5	Sound Environmental Quality Standard (GB3096-2008)	This standard specifies environmental noise limits and measuring methods, and applies to sound environmental quality evaluation and management.	Yes

No.	Standard	Scope	Applicable?
		This standard applies to the evaluation of sound environmental quality in each subproject area.	
6	Soil Environmental Quality Risk – Control Standard for Soil Contamination of Development Land (GB36600-2018)	This standard specifies soil pollution risk screening and control values for construction land, and monitoring and supervision requirements, and applies to the risk screening and control of soil pollution of construction land. This standard applies to the evaluation of soil environmental quality of construction land of each subproject.	Yes
7	Soil Environmental Quality Risk – Control Standard for Soil Contamination of Farmland (GB15618-2018)	This standard specifies screening and control values for soil risks of farmland, and monitoring and supervision requirements, and applies to the soil pollution risk screening and classification of farmland. This standard applies to the evaluation of soil environmental quality of farmland around each subproject area.	Yes
8	Dust Emission Limits at Construction Site Boundaries (DB61/1078-2017)	This standard specifies dust emission control requirements and monitoring methods at construction site boundaries, and applies to construction sites in built-up urban areas and planned areas.	Yes
9	Emission Standard for Odor Pollutants (GB4554-93)	This standard specifies maximum emission limits for 8 odor pollutants, and applies to the emission management of waste dumps and construction projects. This standard applies to odor, H2S and NH3 emitted by WTSs.	Yes
10	Comprehensive Emission Standard for Air Pollutants (GB16297-1996)	This standard specifies emission limits of 33 air pollutants, and applies to all subprojects.	Yes
11	Integrated Wastewater Discharge Standard (GB8978-1996)	This standard specifies maximum allowable emission limits of 69 water pollutants, and applies to the emission management of construction projects. Wastewater will be delivered to WWTPs for treatment when treated to Level 3 in this standard.	Yes
12	Ambient Noise Emission Standard at Construction Site Boundaries (GB12523-2011)	This standard specifies noise emission limits at construction site boundaries and measuring methods, and applies to the noise management, evaluation and control of construction sites with noise-sensitive buildings nearby. This standard applies to construction site boundary noise of each subproject.	Yes
13	Ambient Noise Emission Standard at Boundaries of Industrial Enterprises (GB12348-2008)	This standard specifies noise emission limits at boundaries of industrial enterprises and measuring methods, and applies to the noise management, evaluation and control of industrial enterprises. This standard applies to plant boundary noise of each subproject.	Yes
14	Pollution Control Standard for the Storage and Landfilling of General Industrial Solid Waste (GB18599-2020)	This standard specifies the site selection, design, operation management and closure of storage and disposal places of general industrial solid waste, and control and monitoring requirements, and applies to the construction, operation and management of newly constructed, expanded, reconstructed and existing storage and disposal places of general industrial solid	Yes

No.	Standard	Scope	Applicable?
		waste. This standard applies to the storage and management of general industrial solid waste of each subproject.	
15	Pollution Control Standard for Stored Hazardous Waste (GB18597-2001) and amendment	This standard specifies the general requirements for hazardous waste storage, packaging, protection, monitoring and closure, and applies to the pollution control and management of all hazardous waste (except tailings). This standard applies to the control of hazardous waste generated by each subproject.	Yes
16	Landfill Pollution Control Standard (GB16889-2008)	This standard specifies the landfill site selection, design, construction, operation and O&M requirements, pollutant emission limits and environmental monitoring requirements.	Yes
B	**Technical guidelines**		
1	Technical Guidelines for Environmental Impact Assessment—General Principles (HJ2.1-2016)	This standard assesses environmental impacts of construction projects / development activities with potential environmental impacts.	Yes
2	Technical Guidelines for Environmental Impact Assessment—Air Environment (HJ2.2-2018)	This standard specifies the general principles, scope, procedure, method and requirements for air EIA, and applies to construction projects. Its procedure has 3 stages. Stage 1 includes document review, pollution source and protection target investigation, and determination of scope and evaluation criteria; Stage 2 includes pollution source verification, forecast model selection, environmental quality investigation or monitoring, data collection, and assessment; Stage 3 includes preparation of an environmental monitoring plan and EIA document. The recommended AERSCREEN model from the U.S.EPA is applied here.	Yes
3	Technical Guidelines for Environmental Impact Assessment—Surface Water Environment (HJ2.3-2018)	This standard specifies the general principles, scope, procedure, method and requirements for surface water EIA, and applies to construction projects.	Yes
4	Technical Guidelines for Environmental Impact Assessment—Groundwater Environment (HJ610-2016)	This standard specifies the general principles, scope, procedure, method and requirements for groundwater EIA, and applies to construction projects.	Yes
5	Technical Guidelines for Environmental Impact Assessment—Ecological Impacts (HJ19-2022)	This standard specifies the general principles, scope, procedure, method and requirements for EIA, and applies to construction projects.	Yes
6	Technical Guidelines for Environmental Impact Assessment—Sound Environment (HJ2.4-2021)	This standard specifies the general principles, scope, procedure, method and requirements for sound EIA, and applies to construction projects. Its procedure has 3 stages. Stage 1 includes noise source investigation, and determination of scope and evaluation criteria; Stage 2 includes noise source verification, forecast model selection, environmental quality investigation or monitoring, data collection, and assessment; Stage 3 includes development of noise control measures, investment estimate and	Yes

No.	Standard	Scope	Applicable?
		effect analysis.	
7	Technical Guidelines for Environmental Impact Assessment—Soil Environment (HJ964-2018)	This standard specifies the general principles, scope, procedure, method and requirements for soil EIA, and applies to construction projects that may affect soil, such as chemical, metallurgy, mining, farming, forestry and water resources projects.	Yes
8	Technical Guidelines for Environmental Impact Assessment of Construction Projects (HJ169-2018)	This standard specifies the general principles, scope, procedure, method and requirements for environmental risk assessment, and applies to potential sudden accidents (excluding accidents arising from sabotage and natural disasters) of construction projects involving the production, use or storage of toxic, harmful, flammable and explosive substances.	Yes

The Bank ESF requires application of World Bank Group EHSGs for EHS protection measures as well as resource/energy consumption levels and emission standards. In actual application at specific subprojects, whether EHSGs or national standards/levels will be used depends on specific EIA with consideration of specific context.

In fact, only few EHSGs provide quantitative performance level or emission standards. Among them, some guidelines clearly indicate that, if there is no relevant standard in the project country, the EHSGs should be adopted, such as the ambient air quality standards and wastewater discharge standards for industrial facilities in the EHS General Guidelines. In other cases, EHSGs provide standards from other countries as a reference, e.g. the EHSGs for Waste Management Facilities set out air emission standards for MSW incineration facilities in US and EU as a reference, while state that actual applicable standards need to be considered in site-specific EIA.

Generally, if national requirements differ from the performance levels and measures specified in the EHSGs, the Bank requires that the more stringent one be adopted. If less stringent levels or measures than those provided in the EHSGs are appropriate, the Bank will require that full and detailed justification for any proposed alternatives be provided through ESA. This justification must demonstrate, to the satisfaction of the Bank, that the choice of any alternative performance level is consistent with the objectives of the ESSs and the applicable EHSGs, and is unlikely to result in any significant environmental or social harm.

3.5 Legal Framework for Social Management of China

Appropriate social management systems have been established for investment projects in China, including a management system for social risks, a social management system for LAR, a minority management system, and a labor management system. The social risk management system of a project requires that the project must be aligned with the basic interests of most people, and major

decisions, major fixed asset investments and LA should be subject to social stability risk assessment.

3.5.1 Social Stability Risk Assessment

A sound management organization has been established for project social stability risk assessment in China. The owner should prepare or appoint a consulting agency to prepare the social stability risk assessment report; the local government should review and evaluate such report.

China's requirements for social stability risk assessment are partly consistent with the SIA requirements in ESS1. China's social stability risk assessment pays more attention to social stability risks arising from project construction and decision-making, but less attention to social inclusiveness and sustainability. To strengthen the Project's social management, realize its social objectives, and realize social fairness, inclusion and sustainability, the Shaanxi PMO will identify social risks, with focus on restrictions on land use, change in land use, labor and working conditions, community health and safety, inadequate stakeholder engagement, ethnic minority impacts, etc. An SIA will be conducted before the appraisal of each subproject as per ESS1.

3.5.2 Labor Management

Employers shall sign employment contracts with laborers on a voluntary basis to define both parties' rights and obligations. The Labor Law of the PRC (amended in 2018), the Labor Contract Law (amended in 2012), and the Special Provisions on Labor Protection of Female Employees are complied with strictly. Salaries shall be based on work, and equal pay shall be paid for equal work. The average working hours of workers shall not exceed 44 hours per week or 8 hours per day. Juvenile workers (16-18 years old) shall not be involved in overtime working. Laborers shall not be discriminated against on the basis of ethnic group, race, gender, religion, etc. Forced labor is prohibited. Employers must establish sound OHS systems to reduce occupational hazards.

The Chinese government has also established a system of laws, regulations and industry standards to protect laborers' occupational health and safety, including state laws and regulations, local regulations and bylaws, and health and safety standards of different industries. A multi-layer legal system for occupational health protection has been established. There are special laws that protect women's labor rights, including the prohibition of sexual harassment.

These laws make provisions on wages, working hours, labor protection and labor disputes, and prohibit the use of forced labor and/or child labor, fully

consistent with the requirements of ESS2. Considering the nature of the Project, China's all-round provisions on labor protection, and the increasing labor supervision of local governments, there is almost no risk of forced and child labor for project workers.

3.5.3 Community Health and Safety

The community health and safety requirements cover work safety, infectious disease prevention, traffic safety, etc. China has established a sound regulatory framework in terms of work safety, traffic safety, infectious disease prevention, emergency management, etc. to protect people's lives and properties.

3.5.4 LAR

China has developed a complete legal framework and policy system on LA, HD, resettlement and compensation, including the Land Administration Law of the PRC (amended in August 2019), and the Regulations on the Expropriation of Buildings on State-owned Land and Compensation (Order No.590 of the State Council) (January 21, 2011). Within the state legal and policy framework, local governments have promulgated relevant local regulations and policies to manage and direct local LA, HD, resettlement and compensation work.

3.5.5 Ethnic Minorities

As discussed in Table 3-1, in the counties / districts involved in the Batch 1 subprojects, the villages / communities served by front end waste collection facilities, and the sites of all newly constructed facilities under the Project (e.g., construction waste disposal plants, sorting centers, WTSs) do not involve communities or villages inhabited by ethnic minorities. In the social audit of future batches and TA activities, further screening will be carried out to see if villages / communities served by front end waste collection facilities and downstream impacts of TA activities involve communities or villages inhabited by ethnic minorities.

China has promulgated the Law on Regional National Autonomy, Regulations on Administrative Work of Minority Townships, 13th Five-year Plan for Ethnic Minority Programs, Regulations on Urban Minority Work, etc., with the aim of fulwly respecting the dignity, rights, economy and culture of ethnic minorities, promoting their equality and development, and paying special attention to their all-round development. However, these policies do not provide for the following on the project level, including: 1) conducting meaningful consultation with minority residents and their communities; 2) free, prior and informed consent (FPIC); and 3) preparing an EMDP.

To ensure that ethnic minorities conduct meaningful consultation in a culturally appropriate manner, and benefit from the Project, requirements on ethnic minority participation are included in the SEF.

3.5.6 Information Disclosure and Public Participation

For information disclosure, public participation and grievance redress, the applicable state and local laws and regulations make comprehensive and stringent provisions on the approval and implementation of major construction projects, LAR and compensation, resource allocation, etc.

The central and provincial governments have established systematic grievance redress mechanisms, where citizens, legal persons and other organizations may file grievances or raise suggestions to governments at all levels by letter, e-mail, fax, telephone, visit, etc.

See Table 3-5 for the social laws, regulations and policies applicable to the Project.

Table 3-5 Applicable State Social Laws and Regulations

No.	Name	Version	Scope
I. General laws on social risk management: Compared to ESS1, the main gap in SIA is that the applicable state policies require that social stability risk assessment be conducted for major fixed asset investment projects, which is a special chapter on feasibility study. This assessment is focused on social stability risks of major projects. However, there is no SIA requirement for ordinary projects, and social stability risk assessment has no requirement for the social review of existing and associated facilities.			
1	Interim Regulations on Major Administrative Decision-making Procedures	2019	Major administrative decisions shall be made under the principle of democratic decision-making, opinions shall be fully solicited from all parties, and it shall be guaranteed that the people participate in decision-making through various channels and form. If any major administrative policy may affect social stability and public security adversely, the undertaker or any other agency responsible for risk assessment shall assess the risk controllability of the draft decision.
2	Social Stability Risk Assessment for Major Fixed Asset Investment Projects	2012	The social stability risk assessment shall include: 1) if any major issue is scientific, including meeting most people's final needs, being financially affordable, and being understood and supported by most people; 2) if all major matters have been subject to strict research and demonstration to fully consider various restrictions; if the program is detailed and specific, and if supporting measures are sound; 3) if any major security event will occur if local residents strongly object the project, and if there is any contingency plan; 4) potential major issues affecting social stability.
II. Laws on LAR: Compared to ESS5, the main gaps are: 1) There is no requirement to prepare an RAP except for large hydropower projects; 2) There is no social audit report for past LA for a project; 3) No M&E is required except for large water resources projects, including a third party impact assessment on the APs' living standard.			
3	Regulations on the Expropriation of	2011	Where a building of any entity or individual on state-owned land is expropriated for public interest, the owner of the expropriated

No.	Name	Version	Scope
	Buildings on State-owned Land and Compensation		building (hereinafter referred to as the "owner") shall be fairly compensated. The principle of "democratic decision-making, due process and open results" shall be followed in the building expropriation and compensation. The compensation for the value of houses to be expropriated shall not be less than the market price of the real estate comparable to the houses to be expropriated on the date of the public notice of the house expropriation decisions. The value of the houses to be expropriated shall be assessed and determined by real estate appraisal agencies with appropriate qualifications in accordance with the procedures for evaluating houses to be expropriated.
4	Labor Law of the PRC	Amended in 2019	If land collectively owned by farmers is to be acquired for public interests, acquisition may be implemented according to law. If a people's government at or above the county level is to apply for land acquisition, it shall conduct a current status survey and a social stability risk assessment, and disclose the range and purpose of acquisition, current status, compensation rate, resettlement mode, social security, etc. in the township (town), village and village group for at least 30 days to collect comments from the affected rural collective economic organization and its members, village committee and other interested parties. If most members of the affected rural collective economic organization think that the land compensation and resettlement program does not conform to the laws and regulations, the people's government at or above the county level shall organize a public hearing, and modify the program according to the laws, regulations and public hearing. Owners or users of the land to be acquired shall, within the time limit specified in the announcement, go through compensation registration on the strength of the real estate ownership certificate. The people's government at or above the county level shall organize the department concerned to estimate the relevant costs and make them fully available, enter into compensation and resettlement agreements with the owners and users of the land to be acquired. The people's government at or above the county level shall apply for land acquisition only when the preparatory work has been completed. Fair and reasonable compensation shall be granted for land acquisition to ensure that the living standard of the affected farmers is not reduced, and their long-term livelihoods are secured.
			The use of collective land for rural public facilities and welfare purposes shall be approved according to law; farmland involved shall be converted into construction land.
5	Block Comprehensive Land Prices for Acquired Farmland of Shaanxi Province	2020	LA compensation rates in all counties / districts are defined.
III. Laws on labor management: The applicable state regulations largely comply with ESS2. However, there are two differences: First, Chinese labor policies do not manage laborers by category; second, ESS2 and EHSGs are more concerned about OHS.			

No.	Name	Version	Scope
6	Labor Law of the PRC	Amended in 2018	Salaries shall be based on work, and equal pay shall be paid for equal work. The average working hours of workers shall not exceed 44 hours per week or 8 hours per day. In case of specific circumstances, the extended working hours will not exceed 3 hours per day and 36 hours in total per month. The juvenile workers (16-18 years old) should not be involved in overtime working. A sound labor dispute settlement system shall be established by corporate committees under the formal trade union system. Workers may also appeal through the labor bureau.
	Labor Contract Law of the PRC	Amended in 2012	
7	Civil Servant Law of the PRC	Amended in 2018	Civil servants shall be managed on the basis of openness, equality and competition, and in accordance with statutory authorities, conditions, standards and procedures. The government shall train civil servants based on their job requirements. A civil servant's salary shall include the basic salary, allowances, subsidies and bonuses.
8	Provisions on the Administration of Contractual Civil Servants (for Trial Implementation)	2017.9	Written employment contracts shall be signed with civil servants on an equal, voluntary and consensual basis to define both parties' rights and obligations. The labor contract shall specify the term, job requirements, labor conditions, salaries, benefits and insurance, termination, liability for breach, etc.
9	Law of the PRC on Prevention and Control of Occupational Diseases	Amended in 2018	In China, there are over 100 technical standards on occupational safety and disease control, which are based on industry best practices. Employers shall establish a complete occupational health and safety system, strictly enforce relevant measures and standards, and offer relevant training to workers.
10	Trade Union Law of the PRC	2009	All physical and mental workers of enterprises and public institutions shall have the right to join and organize trade unions, regardless of ethnic group, race, gender, occupation, religion and education. An enterprise or public institution shall establish a trade union according to law within one year after opening.
11	Law of the PRC on the Protection of Rights and Interests of Women	Amended in 2018	Special protection shall be offered to women and children, and they shall not be hired for dangerous jobs.
12	Special Provisions on Labor Protection of Female Employees	2012	Women shall enjoy the same labor and social security rights as men, and receive equal pay for equal work. The employer shall protect women's safety and health at work, and not assign unsuitable jobs to women. Women enjoy special protection during mensuration, pregnancy, lying-in and breastfeeding periods. The employer shall prevent sexual harassment on female workers, and protect their privacy when handling their appeals.
	Special Provisions on Labor Protection of Female Employees of Shaanxi Province	2018	
13	Notice by the General Office of the Ministry of Human Resources and Social Security of Issues Concerning	2020	For employees who are patients or suspected patients infected with COVID-19 or their close contacts during the period of receiving treatment in isolation or the medical observation period and who are unable to normally provide work as a result of the quarantine measures or other emergency measures taken by the government, their employers shall pay remuneration to such employees during the periods and shall not terminate employment

No.	Name	Version	Scope
	Properly Handling Labor Relations during the Prevention and Control of the Outbreak of COVID-19		contracts with such employees in accordance with Articles 40 and 41 of the Employment Contract Law.
IV. Policies on ethnic minorities: The Chinese policies stress that affected ethnic minorities receive social and economic benefits suited to their cultural customs through a series of measures, and that measures be taken to avoid or minimize potential adverse impacts on them, but does not require that an EMDP or ethnic minority development framework be prepared on the project level.			
14	Law on Regional National Autonomy	1984	When handling special issues related to local ethnic groups, local governments of regional national economy shall consult extensively with their representatives, and respect their opinions. Local governments at all levels should ensure that all local ethnic groups enjoy the citizenship rights stipulated in the Constitution, and educate them to perform the obligations stipulated in the Constitution.
15	Regulations on Administrative Work of Minority Townships	1993	Local governments of regional national economy shall use local languages when performing duties; preferential policies in education shall be offered; minority townships shall be assisted in establishing radio stations, culture halls and other cultural facilities; characteristic minority cultural heritage shall be protected and inherited. Measures shall be taken to strengthen the training and appointment of minority leaders.
IV. Policies on information disclosure: Compared to ESS10, China's policies and practices are concerned about early-stage participation, but do not have any specific requirement on stakeholder engagement in the whole process.			
16	Measures for Public Participation in Environmental Impact Assessment	2019	The state encourages the public participation in the assessment of environmental impacts. The construction entity shall seek the opinions of citizens, legal persons and other organizations within the scope of environmental impact assessment in accordance with the law. Information shall be disclosed by the Internet, newspaper and announcement. Before submitting the EIA report to the environmental authority for approval, the construction agency shall prepare a note on public participation. The environmental authority shall disclose information to the public by website or otherwise for not less than 10 working days.
17	Opinions of the General Office of the State Council on Advancing Public Disclosure of Government Information in the Field of Approval and Implementation of Major Construction Projects	2017	Except national secrets, trade secrets, personal privacy, and other content which is not disclosed according to the law, the information in the process of the approval and implementation of major construction projects shall be disclosed to the public as much as possible so as to improve the transparency and efficiency of the approval and implementation of projects. Over the course of the approval and implementation of major construction projects, information of eight kinds, including approval service information, approval result information, invitation for bid and bidding information, land expropriation information, information on material modification of design, construction-related information, quality safety supervision information, and information relating to completion of construction, shall be publicly disclosed.
18	Opinions of the General Office of the State Council	2017	

No.	Name	Version	Scope
	on Advancing Public Disclosure of Government Information in the Public Resource Allocation Field		
19	Opinions on Fully Promoting the Disclosure of Government Affairs	2016	The disclosure of government affairs shall be promoted comprehensively, and statutory public participation, expert demonstration, risk assessment, compliance review, and collective decision-making procedures established. The scope of disclosure shall cover decisions, implementation, management, services, results and key areas. Government data opening shall be promoted, policy interpretation strengthened, and public participation expanded. The disclosure of government affairs shall be included in the performance evaluation system.
20	Province-level information disclosure platforms are being established to ensure that land-expropriated farmers receive land acquisition information efficiently and conveniently, including 4 Level 1 matters and 10 Tier 2 matters.	2019	Province-level information disclosure platforms are being established to ensure that land-expropriated farmers receive land acquisition information efficiently and conveniently, including 4 Level 1 matters and 10 Tier 2 matters.
21	Regulations on Complaint Letters and Visits	*2022*	Transparent grievance redress channels have been established, and implementation measures for further appeals are in place. Citizens, legal persons or other organizations shall submit suggestions, opinions or appeal requests to governments at all levels by way of letter, e-mail, telephone or visit, etc., to be handled by competent administrative authorities according to law.

Only some applicable laws and regulations are listed above. The specific legal framework will be finalized in the SIA, and analyzed in detail in order to develop mitigation measures accordingly.

4 Completed Stakeholder Engagement and Information Disclosure Activities

By the project appraisal, the locations of most facilities had not been determined. TA subprojects and mulch film recovery programs would be determined gradually from the first year of implementation. Only the scope and locations of the Batch 1 subprojects have been fixed, and the counties / districts involved are Linwei District and Chengcheng County in Weinan City, Chencang District in Baoji City, and Baoji City. The Shaanxi PMO has prepared an SEP as per ESS 10. Since the sites, sizes and technical solutions of future subprojects have not been fixed, the Shaanxi PMO has prepared an SEF to direct the preparation and SEP implementation of future subprojects.

4.1 Completed Stakeholder Engagement Activities

By the project appraisal, the Shaanxi PMO, county / district PMOs, PIUs and SIA agency had conducted a series of engagement activities by means of FGD, key informant interview, field visit, questionnaire survey, etc. to discuss the Project's scope, and potential E&S risks and impacts to support design optimization. Targets of public participation mainly include workers, village / community officials and residents involved in project activities, communities and residents around facilities, schools, persons affected by LAR, heads of existing facilities, owners and third party management companies of associated facilities, heads of PMOs and PIUs, government agencies concerned, township governments, EIA and feasibility study agencies, etc.

The completed public participation activities are summarized as follows:

Interview with agencies concerned: The Shaanxi PMO discussed with the agencies concerned to determine the scope of construction and E&S risks management procedures; the SIA agency interviewed the agencies concerned (city / county / district natural resources bureaus, health commissions, etc.) to learn state regulations and technical standards on land use, OHS, community health and safety, etc. in order to design mitigation measures that comply with the state regulations and ESSs.

Key informant interview: The SIA agency interviewed key stakeholders (mainly including PIUs and competent authorities, heads of existing facilities, owners and third party management companies of associated facilities, feasibility study and EIA agencies, township and village officials) to learn potential E&S risks of existing facilities, associated facilities and proposed activities (including land use, OHS, community health and safety, NIMBY, etc.), existing institutional and management measures, and suggestions for future E&S risk management.

FGD: The SIA agency held FGDs with workers of existing facilities, community workers, nearby community residents, school staff, etc. to learn working conditions, remuneration, OHS

training, protection, physical checkup, etc., and their concerns about and suggestions on E&S impacts.

Questionnaire survey: A questionnaire survey was conducted on some rural residents to learn on mulch film disposal. Most rural residents think that if used mulch film is dumped in farmland without disposal, it would be very harmful to the local environment; most of them choose to burn it locally or dump it into waste bins, and less than 1/3 of them choose to put it in fixed collection sites or sell it, mainly due to difficult picking; over half of them are willing to have it recovered with monetary compensation.

Based on the completed stakeholder engagement activities, the following suggestions are proposed for future project activities:

- Complete site selection and land approval of some facilities as soon as possible. Since existing facilities have an incomplete or nonconforming land use procedure, the Shaanxi PMO, county / district PMOs and PIUs should communicate with the county / district governments and natural resources bureaus to solve the outstanding issues.
- To establish effective integrated urban and rural waste systems, attention should be paid to front end community workers' working conditions, and their safety awareness improved. There are many community workers, mostly being cleaners on public welfare jobs, responsible for waste collection and transfer. Some township governments have not covered accident insurance for cleaners, and small waste collection vehicles provided in some townships are not insured. Therefore, the county / district environmental sanitation authorities should direct and supervise the management of front end community workers.
- Workers of transfer and disposal facilities may be exposed to OHS risks. The implementation of government regulations on labor protection and OHS management by landfills should be strengthened. These facilities generally have not implemented occupational hazard assessment and occupational health checkup, and the county / district PMOs and PIUs should ensure implementation through communication with the local health commissions as soon as possible.
- Attach great importance to NIMBY of waste facilities. Sites of waste facilities should be selected in adequate consultation with nearby community residents, and the SIA should design effective mechanisms and procedures for the PMOs and contractors. During the construction and operation of waste disposal facilities, continuous information disclosure and public participation mechanisms should be established to minimize impacts on nearby residents.
- Pay attention to the participation of villagers in the whole lifecycle of mulch film management subprojects. It is feasible to include unrecyclable used mulch film in integrated urban and rural collection and transfer systems for disposal at terminal

facilities (e.g., landfilling and incineration), but prevailing mulch film recovery prices are low and farmers are not motivated. The government should grant incentives in this aspect. The county / district PMOs and ARABs may direct pilot villages to develop and implement participatory mulch film recovery programs, and conduct information disclosure and meaningful engagement to ensure that such programs are appropriate, feasible and sustainable.

The completed engagement activities can be referred to the Section 3.1 of stakeholder engagement framework (SEF) and standalone stakeholder engagement plan (SEP) for the Batch 1 subprojects, which were prepared separately.

4.2 Completed Information Disclosure Activities

The Shaanxi PMO disclosed the draft E&S management documents (including ESMF, ESCP, SEF, LMPF, etc.) on its official website on September 23, 2022 (see Figure 4-1).

陕西省发展和改革委员会
Shaanxi Provincial Development and Reform Commission

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利用世界银行贷款城乡塑料垃圾减量项目（二期）社会和环境评估文件公示

来源：外贷办　点击量：32　发表时间：2022-09-23 16:29

一、项目名称及概要

项目名称：利用世界银行贷款城乡塑料垃圾减量项目（二期）

项目概要：本项目涉及陕西省黄河流域和长江流域的11个区县（含宝鸡市本级活动）。项目投资活动类型被分为三类：1）建设类项目；2）技术援助类项目（包括能力建设和课题研究等）；3）基于产出激励（OBA）的衣膜治理等。建设类项目主要包括生活垃圾收集（如村级垃圾收集屋）、转运设施（如中转站）、垃圾资源化焚烧（如大件垃圾拆解中心等）、现有垃圾填埋场封场等。

本项目将探索农村垃圾回收利用处理和塑料垃圾减量化的有效路径和模式，推动将城镇垃圾专项处理设施和处理能力向乡村延伸覆盖，构建统筹城乡环卫设施一体化的"全链条"生活垃圾治理体系，全面提升城乡环卫垃圾一体化的路径和模式，增强环境保护和垃圾治理的系统性、整体性、协同性，探索城乡生态环境保护和高质量发展的"西部模式"，贡献城乡塑料垃圾减量的"陕西智慧"。

二、建设单位联系方式

建设单位：陕西省利用国外贷款项目办公室

地址：西安市新城区省政府大院6号楼四层

联系人：崔静海　电话：029-63918847

三、社会评估咨询机构联系方式

评价单位：陕西科社商务信息咨询有限公司

地址：西安市碑林区南二环西段大洋时代国际

联系人：杨凯　电话：15389408263

四、环境评估咨询机构联系方式

评价单位：中圣环境科技发展有限公司

地址：西安市雁塔区丈八一路旺都D座

联系人：李屈　电话：15667080072

五、公示时间：

2022年9月23日—10月14日。

六、征求公众意见的主要事项

听取社会各界对项目环境评价、社会评价和移民安置方面有关工作的意见及建议。特将本项目9项社会评估文件和1项环境影响评价文件的相关信息进行公示，向公众征求意见和建议。

七、公众提出意见的主要方式

自公示发布之日起20日内公众可采取发送邮件、信函、传真、致电等方式，向建设单位、编制机构发表对项目环境评价及移民安置工作的意见和看法，评价单位将真实记录公众的意见和建议。

附件：

1.项目社会尽职调查报告
2.项目社会影响评价报告
3.项目劳动者管理程序
4.项目移民安置行动计划
5.项目利益相关者参与计划
6.项目环境与社会管理框架
7.项目劳动者管理程序框架
8.项目利益相关者参与框架
9.项目环境与社会承诺计划
10.项目环境影响评价报告（第一批子项目）

陕西省利用国外贷款项目办公室
2022年9月23日

Figure 4-1 Disclosure of Draft E&S Management Documents

According to WB's comments and the feedbacks from the public, Shanxi PMO further modified draft E&S documents that were cleared by WB in November 2022. After then, Shaanxi PMO re-disclosed the final E&S documents on the official website of http://sndrc.shaanxi.gov.cn/fgyw/tzgg/FBjQbe.htm on 23 November 2022. Please refer to Figure 4-2.

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陕西省发展和改革委员会
Shaanxi Provincial Development and Reform Commission

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利用世界银行贷款城乡塑料垃圾减量项目（二期）社会与环境评估文件（终稿）公示

来源：外贷办　　点击量：6　　发表时间：2022-11-23 11:38

按照世行贷款项目前期准备程序和国内有关要求，2022年9月23日—10月14 日，我们对世界银行贷款城乡塑料垃圾减量项目（二期）社会与环境评估文件（初稿）进行了第一次公示，公示期内未收到异议。目前，根据前期工作情况，项目社会与环境评估文件（终稿）已修改完成，现按要求进行第二次公示。

一、项目名称及概要

项目名称：利用世界银行贷款城乡塑料垃圾减量项目（二期）

项目概要：本项目涉及陕西省黄河流域和长江流域的11个区县（含宝鸡市本级活动）。项目投资活动类型被分为三类：1）建设类项目，2）技术援助类项目（包括能力建设和课题研究等），及3）基于绩效的激励支付机制（PBIFM）的农膜治理项目及。建设类项目主要包括生活垃圾收集（如村级垃圾收集屋）、转运设施（如中转站）、垃圾资源化终端（如大件垃圾拆解中心等）、现有垃圾填埋场封场等。

本项目将探索农村垃圾回收利用处理和塑料垃圾减量化的有效路径和模式，推动将城镇垃圾专项处理设施和处理能力向乡村延伸覆盖，构建统筹城乡环卫设施一体化的“全链条”生活垃圾治理体系，全面提升城乡环卫垃圾一体化的路径和模式，增强环境保护和垃圾治理的系统性、整体性、协同性，探索城乡生态环境保护和高质量发展的“西部模式”，贡献城乡垃圾减量的“西部智慧”具有不可替代的地域优势和政策优势。

二、建设单位联系方式

建设单位：陕西省利用国外贷款项目办公室

地　址：西安市新城区省政府大院 6 号楼 4 层

联 系 人：崔静涛　电话：029-63918847

邮　箱：waidaiban@163.com

三、社会评估咨询机构联系方式

评价单位：陕西科社商务信息咨询有限公司

地　址：西安市碑林区南二环西段大洋时代国际

联 系 人：杨凯　电话：15389408263

四、环境评估咨询机构联系方式

评价单位：中圣环境科技发展有限公司

地址：西安市雁塔区丈八一路旺都D座

联系人：李雁　电话：15667080072

五、公示时间

2022年11月23日—12月7日。

六、征求公众意见的主要事项

为听取社会各界对项目社会影响评价、环境影响评价、利益相关方参与及移民安置方面有关工作的意见和建议，在2022年9月已经公示了10项环境与社会评估文件的初稿，此后又根据世行意见对这10项环境与社会评估文件初稿进行了更新，现将更新后的环境与社会评估文件（终稿）的相关信息进行公示，再次向公众征求意见和建议。

七、公众提出意见的主要方式

自公示发布之日起14日内公众可采取发送邮件、信函、传真、致电等方式，向建设单位、编制机构发表对项目及移民安置工作的意见和看法，评价单位将真实记录公众的意见和建议。

附件：1 SA-社会尽职调查报告（终稿）-202211-公示.pdf
2 SIA-社会影响评价报告（终稿）-202211-公示.pdf
3 LMP-劳动者管理程序（终稿）-202211-公示.pdf
4 RAP-移民安置计划（终稿）-202211-公示.pdf
5 SEP-利益相关者参与计划（终稿）-202211-公示.pdf
6 ESMF-环境与社会管理框架（终稿）-202211-公示.pdf
7 LMPF-劳动者管理程序框架（终稿）-202211-公示.pdf
8 SEF-利益相关者参与框架（终稿）-202211-公示.pdf
9 ESCP-环境与社会承诺计划（评估阶段）-202211-公示.pdf
10 EIA-环境影响评价报告（第一批子项目）终稿202211-公示.pdf

陕西省利用国外贷款项目办公室
2022年11月23日

Figure 4-2 Final E&S Documents Disclosure

5 E&S Risks and Impacts Management of Construction Subprojects

The ultimate purpose of the Project is to reduce plastic pollution, but there may still be potential E&S risks and impacts to varying degrees. Since the scope and locations of most construction subprojects will be determined successively later, this ESMF only provides general qualitative analysis of potential E&S risks and impacts based on the current project proposal. Detailed ESA for each specific subproject will be conducted following the procedures and requirements set out in this ESMF after the details of location, scale, technical design etc. are defined.

Construction subprojects involve the construction and reconstruction of urban and rural domestic waste collection, transfer and terminal disposal facilities, and their E&S impacts are identified as follows:

5.1 Identification of Risks

5.1.1 Identification of Environmental Risks

The Project consists of a series of complex subprojects, and the potential environmental risks involved are also complex and diverse, ranging from "Low" to "High". Some activities (e.g., landfill closure) may have high or substantial environmental risks. For example, landfill leachate leakage may pollute surface water and groundwater; some activities (domestic waste collection and transfer, recyclable recovery and sorting, etc.) may have "moderate" or "low" environmental risks. In general, the Project's environmental risks and impacts are as follows:

- **Construction stage**

There are direct environmental impacts during construction, including environmental sensitivity of sites (e.g., if any nature reserve, natural habitat, altered habitat of high biodiversity value, water source reserve, cultural relic reserve, etc. is involved), disturbance of vegetation and/or water bodies, and impacts of wastewater, dust, noise, solid waste (including potentially hazardous waste), and water loss and soil erosion; potential secondary environmental pollution, and community health and safety risks, OHS risks (including COVID-19); personal safety risks of material transport and machinery operation for nearby communities, etc.

- **Operation stage**

Environmental risks at the operation stage include wastewater, waste gases, noise and solid waste generated by facilities, risks generated by solid waste collection, sorting, transfer, recycling and disposal facilities, OHS risks (including machinery operation safety, exposure to hazardous waste and gases), community health and safety risks (including traffic disturbance, traffic safety, production accidents, improper landfill closure, and change in land use after

landfill closure), as well as energy and resource consumption, cumulative impacts, and greenhouse gas emissions of disposal facilities.

See ***Appendix 4*** for detailed risks and impacts, mitigation measures during project planning, construction and operation.

5.1.2 Identification of Social Risks

The social risk analysis of the Project is conducted by stage (preparation, implementation and operation) against the ESF, ranging from "Low" to "High".

Construction subprojects do not involve any minority village, so ESS7 does not apply. Social risks mainly include: 1) outstanding issues of existing facilities (e.g., compliance of land use, community health and safety impacts of landfills to be closed (especially those within the health protection distance), and potential disputes arising from uncertain land uses); 2) LAR risks arising from construction subprojects (e.g., WTSs, sorting facilities, bulk waste dismantling center, Rural organic waste disposal stations); 3) community health and safety risks; 4) NIMBY risks in site selection and construction[18]; 5) occupational health and safety risks of direct, contracted and community workers, and labor and working conditions risks (e.g., salaries, working hours, contract clauses, GRM, overtime pay); and 6) sustainability risks arising from inadequate stakeholder engagement.

1)Outstanding issues of existing facilities (ESS1)

In the Project, 8 existing landfills will be closed. Some landfills will be further developed after closure, but they may have outstanding issues in land use; some landfills to be closed do not meet the health protection distance[19] requirement. Therefore, the compliance of existing land uses and the feasibility of future development will be assessed to identify potential E&S risks and impacts and develop appropriate management measures. Such risks are "High".

2)LAR impacts (ESS5)

Front end collection facilities (rural waste collection houses) will be built in rural areas, with a floor area of 20-30 m^2 each, and their sites will be determined through consultation, usually on collective construction land without no directly affected person. Therefore, such facilities have minor land use impacts.

The Project involves the construction of domestic waste transfer facilities (e.g., WTSs) and terminal disposal facilities (e.g., bulk waste dismantling center, kitchen waste disposal plant), which may involve LAR. Each subproject involves LA of 2-200 mu, but HD will be minimized during site selection and design.

[18]People may object some unpopular things, such as constructing a WTS or landfill near their communities, but are glad to place such things elsewhere (not in my back yard).

[19] According to the technical standard, the distance is usually at least 300 meters.

China, Shaanxi Province and the project counties / districts have established sound LA policies and regulations, and LAR processes, and have rich experience in LAR. In general, LAR risks are "Substantial".

3)Labor and working conditions risks (ESS2)

The Project involves direct, contracted and community workers.

The Project has potential labor management risks, such as labor rights protection, labor health and safety, contractor labor management, driving safety, equipment operating risks, and health risks in construction (noise, air, dust, COVID-19, etc.). The Project's labor, and working conditions and OHS risks are "Substantial".

The minimum working age stipulated in the Labor Law is 16 years (higher than 14 years in ESS2), and special protection should be granted to underage workers aged 16-18 years. The county / district governments are practicing increasingly stringent regulation to avoid potential child labor. Based on the social audit, no child or underage labor is found, so forced and child labor risks are negligible.

4)Community health and safety (ESS4), and NIMBY risks (ESS1)

The selection of sites for waste collection houses, WTSs, recyclable sorting center, bulk waste dismantling center, kitchen waste disposal plant, etc. may lead to NIMBY risks. Waste collection and transfer may lead to traffic safety risks.

Facility sites will be selected in full consultation with local residents, evade environmentally sensitive sites (e.g., communities, hospitals, schools), and keep the health protection distance. Truck drivers are licensed and trained, and waste transfer times are fixed in consultation with nearby residents. Some landfills have outstanding issues in land use, which, if not solved properly, may lead to social conflicts. Therefore, the Project's NIMBY risks are "High".

5) Risks of exclusion (for vulnerable groups[20])(ESS1)

Local vulnerable groups may be affected more seriously, and be excluded from the Project, mainly including low-income residents (village cleaners), elders, pregnant women, the disabled, etc.

An SEP has been prepared to direct meaningful public consultation and protect the interests of vulnerable groups. Since the Project involves a large number of cleaners, and existing facilities have a low management level and are short of funds, so the Project's impacts on vulnerable groups are "Substantial". Existing management mechanisms and procedures will be improved, and more consideration given to their development and equality.

5)Information disclosure and participation (ESS10)

[20] In the Project, vulnerable groups include low-income residents, elders, the disabled, and irregular workers (e.g., village cleaners).

Domestic waste collection, transfer and disposal involve numerous households. At the preparation, implementation and operation stages, information disclosure and participation is an important aspect of realizing the project objectives. Except the agencies concerned, project-affected parties include residents, property management companies, drivers, cleaners, persons affected by LAR, etc. Inadequate information disclosure or negotiation may affect the realization of the project objectives. In particular, the NIMBY effect should be addressed through adequate consultation.

5.2 E&S Risks and Impacts Analysis of Construction Subprojects

This ESMF provides a preliminary qualitative analysis of the E&S risks and impacts of the proposed activities, and applicable ESSs and potential E&S instruments. Such analysis is indicative and will be refined for each subproject when more information is available. See Table 5-1.

Table 5-1 Identification of E&S Risks and Impacts of Construction Subprojects

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
Collection facilities	8 counties / districts: constructing village and community waste collection sites, and purchasing collection vehicles and waste bins	1. Construction stage ①Collection sites may be close to sensitive sites, thereby causing environmental impacts; ②Safety risks for communities, such as truck running, hosting machinery, noise, dust and construction waste 2. Operation stage ①OHS risks for waste collection workers, and community safety risks (especially for elders and children); ②Environmental and safety risks for community residents from the use of waste bins, such as odor and flies; ③Environmental risks and impacts of supporting facilities, such as WTSs and waste disposal facilities; ④Safety risks of collection vehicles for workers and community residents; ⑤Pollutant leakage risks during transport; ⑥Community health and safety risks during hazardous waste handling and transport; ⑦OHS risks for workers during vehicle maintenance； ⑧ A risk of leakage during garbage collection and storage may pollute surrounding surface water bodies and the groundwater environment.	• NIMBY risks of waste collection sites; • Inadequate stakeholder engagement (especially non-inclusion risks for vulnerable groups); • Community health and safety risks during construction; • OHS risks; • Community disturbance, such as noise, odor and waste; • Deficiencies in the management of community workers (e.g., working conditions, OHS).	**Environmental risk rating**: Construction is small in scale, and safety risks during construction are minor; mature management measures will be applied to waste bins to avoid leakage and safety risks. Household hazardous waste (used batteries, etc.) have low health risks; mature management measures are in place for the use of collection vehicles. Therefore, this activity's environmental risks are "Moderate"; **Social risk rating**: Sites of waste collection sites will be determined through consultation to avoid NIMBY risks effectively; community workers are managed as per statutory management procedures; the Project will not change rural waste management systems, and affect rural cleaners, drivers, etc. However, considering community workers' working conditions, OHS and grievance redress, this activity's social risks are "Moderate".	ESS1, ESS2, ESS3, ESS4, ESS8, ESS10, potential applicable instruments (one or more): ECOP, SIA, ESMP, SEP, LMP
Transfer	8 counties / districts:	1. Construction stage	• NIMBY risks of WTS site	**Environmental risk rating**:	ESS1, ESS2,

[21] SIA: Social Impact Assessment, LMP: Labor Management Plan; RAP: Resettlement Action Plan; SEP: Stakeholder Engagement Plan; ESMP: Environmental and Social Management Plan; EIA: Environmental Impact Assessment

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
facilities	constructing and reconstructing WTSs	①Disturbance to ground vegetation ②Safety risks during land leveling, equipment installation and truck running; ③Noise and dust during construction; ④Environmental impacts of wastewater; ⑤Temporary material storage, and solid waste transport and disposal; OHS risks, including COVID-19; Safety risks of material transport and machinery operation for nearby communities ⑥Potential impacts on cultural heritage. 2. Operation stage: ①Wastewater, waste gas and noise during waste compression; ②OHS risks, including machinery operation, truck running and hazardous gas inhalation; ③Community health and safety risks , including traffic safety risks, noise and odor; ④Serious cumulative impacts, though WTSs are small and scattered	selection; • LAR risks of new facilities (avoiding farmland occupation where possible) • Inadequate stakeholder engagement, especially vulnerable groups • Labor management risks during construction and operation, such as OHS, traffic safety, contractor labor management and GRM • Traffic safety risks for nearby residents due to truck running	Environmental risks and impacts are from the operation stage mainly, and limited to sites, and can be fully mitigated through mature measures. Therefore, this activity's environmental risks are "Moderate". **Social risk rating**: WTSs are small in scale (3-5 mu), and are kept away from environmentally and socially sensitive sites, and are usually located on unused state-owned land or collective construction land; site selection and implementation should be disclosed and subject to extensive consultation. The PIUs should conduct labor management assessment, and establish an LMP and a GRM according to the applicable laws; qualified contractors are used, and workers are usually locals; local governments are intensifying labor supervision and there is no forced or child labor. This activity's social risks are "Moderate".	ESS3, ESS4, ESS5, ESS8, ESS10, potential applicable instruments (one or more): EIA, SIA, RAP, ESMP, SEP, LMP
Terminal disposal facilities	Landfill closure	1. Construction stage ①Disturbance to ground vegetation; ②Noise and dust during construction; ③Environmental impacts of wastewater; ④Temporary material storage, and solid waste transport and disposal; OHS risks, including	• Outstanding LAR issues (e.g., nonconforming land use); • Outstanding issues in land use; • Community health and	**Environmental risk rating**: Landfill closure has leachate leakage, explosion and fire risks. Therefore, this activity's environmental risks are "Substantial". During EIA, sites	ESS1, ESS2, ESS3, ESS4, ESS6, ESS8, ESS10, potential applicable

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
		COVID-19; ⑤Personal safety risks of material transport and machinery operation for nearby communities; ⑥Environmental pollution, and OHS / community health and safety risks arising from landfill gas and leachate leakage ⑦Water loss and soil erosion, and disturbance to natural or altered habitats; ⑧Potentially impacts on altered habitats; ⑨Potential impacts on cultural heritage. 2. Operation stage ①Potential pollution; ②Potential community health and safety risks due to change in land use after landfill closure; ③Potential pollution and safety risks due to leachate and landfill gas treatment after landfill closure; ④Greenhouse gases generated by landfill closure; ⑤Potential introduction of alien species； ⑥ Impact of landfill gas from landfill on the surrounding environment. ⑦ The landfill leachate may cause leakage, thus polluting the surface water and groundwater of the surrounding environment. Long-term monitoring of groundwater, deposit stability, landfill gas and leachate is required for the landfills after closure, and long-term treatment of landfill gas and leachate is required.	safety risks due to nonconformity with the health protection distance; • Labor management risks during construction and operation, such as OHS, traffic safety, contractor labor management and GRM • Community health and safety risks arising from landfill gas and leachate • Inadequate stakeholder engagement, especially vulnerable groups • Disturbance and impacts of wastewater, waste gas, slag and noise on community residents during construction and operation	involving natural and altered habitats, and alien species should be excluded. **Social risk rating**: Workers dealing with leachate treatment after landfill closure are exposed to OHS risks; improper leachate treatment will pollute groundwater and affect public health; landfill gas may explode or cause a fire. This activity's social risks are "High".	instruments (one or more): EIA, SIA, ESMP, SEP, LMP
Terminal disposal facilities	Constructing and reconstructing recyclable sorting center, and bulk waste dismantling center	**Sorting and dismantling center:** 1. Construction stage ①Impacts of wastewater, dust, noise and solid waste during construction; ②Worker safety risks, including hoisting, welding and COVID-19;	• NIMBY risks; • LAR risks of new facilities (avoiding farmland occupation where possible) • Inadequate stakeholder	**Environmental risk rating**: The sorting and dismantling centers are generic construction workers, and their mitigation measures are mature; mitigation measures are in place for potential OHS, traffic	ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, ESS10, potential applicable

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
		③Personal safety risks of material transport and machinery operation for nearby communities; ④Potential impacts on cultural heritage; ⑤Disturbance to natural or altered habitats. 2. Operation stage ①Wastewater, waste gas, slag and noise during operation; OHS risks; traffic safety risks; ②Fire risks	engagement, especially vulnerable groups • Labor management risks during construction and operation, such as OHS, traffic safety, contractor labor management and GRM • Traffic safety risks for nearby residents due to truck running • Disturbance and impacts of wastewater, waste gas, slag and noise on community residents during construction and operation	safety, and community health and safety risks at the operation stage. Therefore, this activity's environmental risks are "Moderate". **Social risk rating**: new facilities will be kept away from environmentally and socially sensitive sites, usually with a floor area of 5-200 mu each; site selection and implementation should be disclosed and subject to extensive consultation. The PIUs should conduct labor management assessment and establish an LMP and a GRM according to the applicable laws; qualified contractors are used, and workers are usually locals; local governments are intensifying labor supervision and there is no forced or child labor. This activity's social risks are "High".	instruments (one or more): EIA, SIA, RAP, ESMP, SEP, LMP
	Constructing and reconstructing kitchen waste disposal plant	**Kitchen waste disposal plant:** 1. Construction stage: ①Disturbance to ground vegetation, and safety risks during construction and installation, including truck running; ②Environmental risks of noise, dust and wastewater, and temporary material storage during construction, and solid waste transport and disposal; ③OHS risks, including COVID-19; ④Community health and safety risks of	• NIMBY risks; • LAR risks of new facilities (avoiding farmland occupation where possible) • Inadequate stakeholder engagement, especially vulnerable groups • Labor management risks during construction and	**Environmental risk rating**: The kitchen waste disposal process is complex. The potential environmental risks and impacts are related to operation stage. The key concerns are fire and explosion of methane, strong bad odor, and wastewater with high strength. However, these impacts are site-specific and can be mitigated by good engineering	ESS1, ESS2, ESS3, ESS4, ESS6, ESS8, ESS10, potential applicable instruments (one or more): EIA, SIA, RAP, ESMP, SEP, LMP

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
		material storage and machinery operation; ⑤Potential impacts on cultural heritage. 2. Operation stage: ①Wastewater, waste gas, noise and solid waste emissions; ②Health and safety risks of trucks for workers and nearby residents; ③Explosion and fire risks of biogas storage facilities; ④Greenhouse gas emissions	operation, such as OHS, traffic safety, contractor labor management and GRM • Traffic safety risks for nearby residents due to truck running • Disturbance and impacts of wastewater, waste gas, slag and noise on community residents during construction and operation	design. Therefore, this activity's environmental risks are "Substantial". **Social risk rating**: New facilities will avoid environmentally and socially sensitive sites, and involve LAR; site selection and implementation should be disclosed and subject to extensive consultation. The PIUs should conduct labor management assessment and establish an LMP and a GRM according to the applicable laws; qualified contractors are used, and workers are usually locals; local governments are intensifying labor supervision and there is no forced or child labor. Some facilities will be constructed on closed landfills, and if outstanding issues are not handled properly, social conflicts may occur. This activity's social risks are "Substantial".	
Terminal disposal facilities	Rural organic waste disposal station	1. Construction stage: ①Disturbance to ground vegetation, and safety risks during construction and installation, including truck running ②Environmental risks of noise, dust and wastewater, and temporary material storage during construction, and solid waste transport and disposal; ③OHS risks, including COVID-19;	• NIMBY risks; • LAR risks of new facilities (avoiding farmland occupation where possible) • Inadequate stakeholder engagement, especially vulnerable groups • Labor management	**Environmental risk rating**: The Rural organic waste disposal process is simple. Therefore, this activity's environmental risks are "Low". **Social risk rating**: New facilities will avoid environmentally and socially sensitive sites, and involve	ESS1, ESS2, ESS3, ESS4, ESS6, ESS8, ESS10, potential applicable instruments (one or more): EIA, SIA, ESMP,

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
		Community health and safety risks of material storage and machinery operation; ④Potential impacts on cultural heritage; ⑤Disturbance to natural or altered habitats. 2. Operation stage: ①Wastewater, waste gas, noise and solid waste emissions; ②Health and safety risks of trucks for workers and nearby residents; ③Greenhouse gas emissions； ④ Long-term operation of the terminal may result in continuous emission of waste gas, so it is necessary to take treatment measures for continuous treatment.	risks during construction and operation, such as OHS, traffic safety, contractor labor management and GRM • Traffic safety risks for nearby residents due to truck running • Disturbance and impacts of wastewater, waste gas, slag and noise on community residents during construction and operation	LAR; site selection and implementation should be disclosed and subject to extensive consultation. The PIUs should conduct labor management assessment, and establish an LMP and a GRM according to the applicable laws; qualified contractors are used, and workers are usually locals; local governments are intensifying labor supervision and there is no forced or child labor. This activity's social risks are "Moderate"	SEP, RAP, LMP
Terminal disposal facilities	Open dumps remediation	Leachate and landfill gas leakage risks; Dust, noise and wastewater impacts; water loss and soil erosion; Traffic risks; outstanding issues related to groundwater and soil pollution To judge current environmental impacts, an open stockyard may be selected for surrounding environment monitoring. Since an open storage yard likely contains toxic and harmful waste, it is necessary to sample and analyze the waste components in the storage yard and formulate corresponding treatment measures according to the results. If monitoring results show that the site is polluted, further environmental rehabilitation should be taken, otherwise the site may be landscaped. The pollution of soil and groundwater by domestic waste is organic pollution mainly. Domestic waste can degrade	• Inadequate stakeholder engagement, especially vulnerable groups • Risks of improper treatment of leachate and landfill gas; • Labor management risks during waste transfer, such as OHS, traffic safety, contractor labor management and GRM • Traffic safety risks for nearby residents due to truck running • Community health and safety risks arising from improper land use	**Environmental risk rating**: The primary concern is the pollution of soil and groundwater. Due to the small size and the fact that the open dumps are periodically cleaned up by township government, the environmental risks are "Substantial". **Social risk rating**: The PIUs should conduct labor management according to the applicable laws; but there are OHS risks in waste collection and transfer; after land leveling, improper land uses will pose health risks to nearby residents. This activity's social risks are "Moderate".	ESS1, ESS2, ESS3, ESS4, ESS6, ESS8, ESS10, potential applicable instruments (one or more): EIA, SIA, ESMP, SEP, LMP

Type	Counties / districts and activity	Potential environmental risks and impacts	Potential social risks and impacts	Risk rating	ESSs AND management instruments [21]
		naturally, and local governments would clean up such stockyards regularly, so local environmental impacts are limited.			

5.3 E&S Management Procedure for Construction Subprojects

5.3.1 Overall Requirements

Since the determination of many specific project activities and detailed environmental and social assessment (ESA) work will be carried out at the implementation stage, the subproject identification, screening, ESA, E&S document preparation, review and approval, monitoring and reporting, and stakeholder engagement procedures have been formulated. The Shaanxi PMO has committed in the ESCP that the requirements set out in this procedure will be followed to manage E&S risks and impacts and will submit regular progress reports to the Bank.

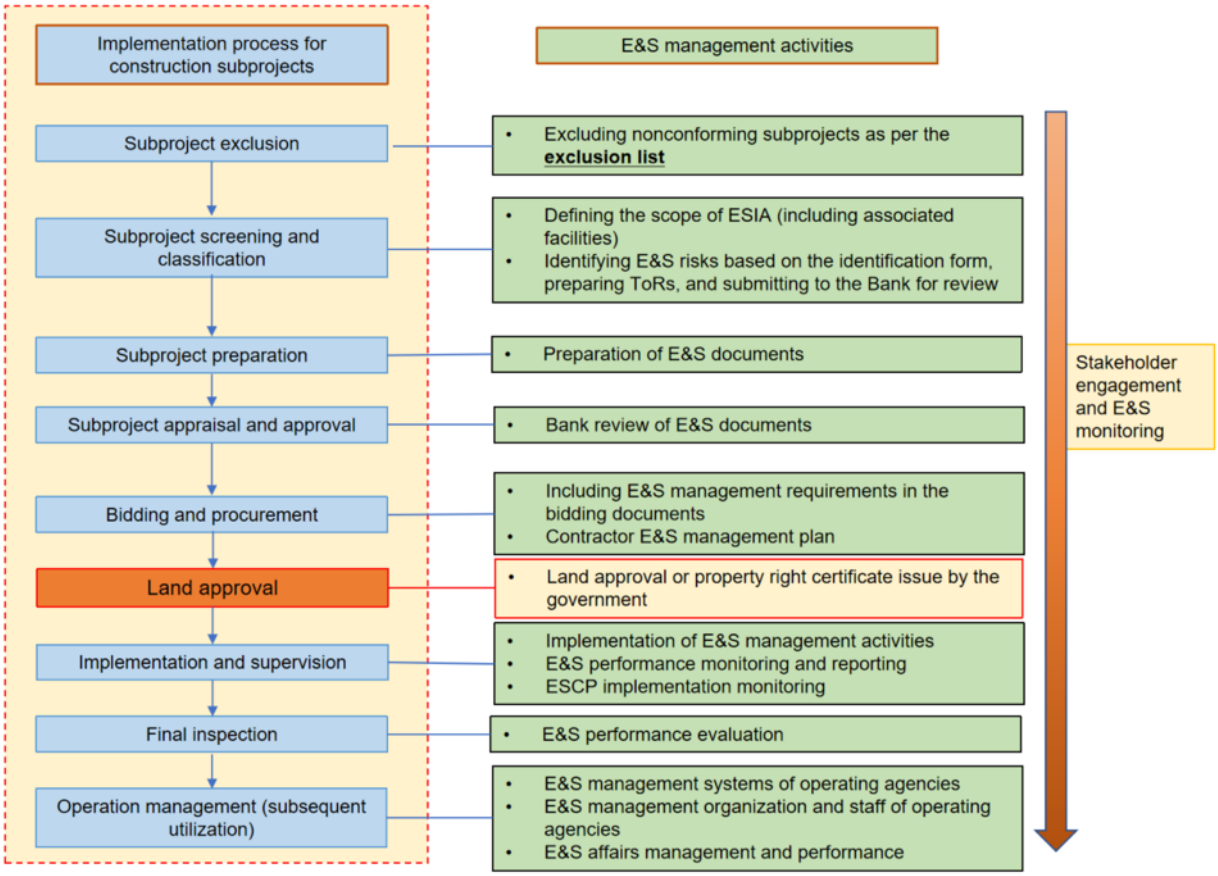


Figure 5-1 E&S Management Procedure for Construction Subprojects

5.3.2 Specific Management Procedure

1) Subproject screening and classification

The Project includes a series of construction activities, including the construction and reconstruction of WTSs, construction of sorting center, landfill closure, construction of bulk waste dismantling center, construction of kitchen waste disposal plant, etc.. Therefore, each subproject proposed will be subject to E&S risk screening at the identification stage, which includes two aspects:

- First, screening will be conducted against the exclusion list (see the box below) and any subproject falling into the list will be excluded;
- For each eligible subproject, the Shaanxi PMO will conduct E&S risks and impacts screening according to the requirements of the ESF, determine the E&S risk rating and, confirm the requirement of E&S document preparation with the Bank (see Appendix 2: E&S Screening Form, and Appendix 3: Guidelines for E&S Risk Classification).

2) Exclusion list

The Shaanxi PMO will conduct screening for the proposed subprojects against the following exclusions list. The project activities falling into the list will be excluded.

Exclusion List

- Project activities that are not in line with the Project Development Objective, i.e. to strengthen the national and local policies and institutional capacity, and reduce plastic pollution of domestic waste;
- Activities that are located within nature reserves, natural habitats , critical habitats and modified habitats with significant biodiversity value;
- Construction project activities which are new, modified and expanded solid waste treatment facilities (including incinerators and landfills) with significant environmental and social impacts;
- Construction subprojects that are located within protection or construction restriction zones of cultural heritage;
- Distance between project sites and nearby communities cannot meet the minimum safety distance;
- Project activities that occupy basic farmland without conversion approval from relevant authorities;
- Project owners have violated environmental regulations and have not taken remedial actions with the required timeframe;
- Project owners are involved in any types of forced labor or child labor (under 16 years old) issues;
- Any project activity involving an entity that is currently not in compliance with the labor law and/or the requirements of ESS2 on terms and conditions of employment.
- Any project activity involving adverse impacts on ethnic minority communities that require free, prior and informed consent (FPIC).
- Activities located in a fault zone or a geological disaster-prone area;
- Activities that introduce alien species;
- Existing facilities that have major outstanding E&S issues that cannot be solved in the project lifecycle;
- Activities located in the core and key conservation areas of the Qinlin Mountains;
- Other activities that are not allowed by national laws and regulations.

3) E&S risks screening

For each subproject not falling into the exclusion list, the Shaanxi PMO will conduct E&S screening to determine the E&S risk level. Stakeholder engagement and information disclosure will be conduct at this stage to facilitate E&S identification and screening, and the determination of E&S management documents.

According to the Bank ESF, E&S risks of subprojects are classified into 4 levels, i.e., "High", "Substantial", "Moderate" and "Low". The national EIA classification system is different from the Bank's system. The E&S risk classification for the subprojects in the Project will follow the Bank's ESF system. See Appendixes 2 and 3.

Although the overall environmental risk rating of the Project is "Substantial", the overall social risk rating is "High", and the overall risk rating is "High", each subproject may have different risk levels proportionate to its actual E&S risks. The Shaanxi PMO will use the screening tool in Appendix 2 to propose a risk level for each subproject.

After preliminary screening, the Shaanxi PMO will prepare E&S ToRs, and submit to the Bank for review. Particularly, specific requirements on landfill closure activities which have high social risks, including legacy issues identification and appropriate corrective actions, shall be included in the ToRs. The ToRs will integrate screening results, E&S risks classification results and E&S documents.

4) Subproject preparation

Based on confirmation from the Bank on risk classification and E&S document preparation requirements, the Shaanxi PMO (or county / district PMOs and PIUs) will hire qualified consultants to prepare detailed ESA documents in accordance with the applicable ESSs in the Bank ESF.

For each subproject, ESA documents will be prepared according to the requirement confirmed by the Bank. During this process, stakeholder engagement and information disclosure will be conducted continuously in accordance with SEP.

The Bank requires that the depth and breadth of the ESA should be proportionate to the subproject's risk and impact level, the same requirement for stakeholder engagement and information disclosure. Depending on the actual conditions of specific subprojects, the corresponding ESA documents may take many forms.

Regardless of format, all subprojects' E&S documents must comply with the requirements of applicable ESSs.

The ESA will assess, in an integrated way, the E&S risks and impacts throughout out the project lifecycle, including direct, indirect and cumulative impacts.

The ESA will be based on current information, including accurate description and delineation of the Project and any associated aspects, to assess the potential E&S risks and impacts, analyze alternatives, identify ways of improving subproject selection, siting, planning,

design and implementation in order to apply mitigation hierarchy for adverse E&S impacts. In the case of pollutant emissions, consideration should be given to the remaining environmental capacity, the current and future land use, presence of important biodiversity areas nearby, cumulative impact and the impact of climate change. The ESA will include stakeholder engagement as an integral part of the assessment, in accordance with ESS10. Particularly, for landfill closure activities, adopt a consistent due diligence review and remedy approach for the legacy issues, as agreed by Shaanxi PMO and the county/district PMOs. As in the case of Batch 1, the social audit for following batches of the Project shall follow the steps of identifying issues, analyzing legacy circumstances, and agreeing on appropriate time-bound corrective actions. The remedy actions shall be completed prior to any direct on-the-ground investment activities.

The Bank requires to identify and assess, to the extent appropriate, the potential E&S risks and impacts of "associated facilities"[22]. The subproject should first demonstrate its actual influence and control level over the associated facilities, including legal, administrative and institutional aspects. If the borrower can only partial or cannot control or influence the associated facilities to meet the requirements of ESSs, the ESA documents should identify the risks and impacts that the Associated Facilities may present to the subproject. The Project's associated facilities do not include any large WTE plant or landfill.

According to the Bank's "ESS 2: Labor and Working Conditions" and "ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources", the ESA should also consider the relevant risks and impacts of Primary Suppliers[23]. The degree of this consideration is proportionate to the actual influence and control degree of the subproject owner on the primary suppliers.

The environmental audit is a tool for determining the nature and extent of all environmental issues of existing subprojects or activities. It gives and justifies appropriate measures to be taken to solve issues, estimates their costs, and proposes a timetable to implement such measures. An associated facility should fully comply with the Bank's ESF, and an ordinary supporting facility has just to comply with the applicable domestic requirements and standards.

It can be seen from Table 2-9 "Summary of Terminal Disposal Facilities" in Section 2.4.4 that the Project does not involve any associated facility, and just involves ordinary supporting facilities. Therefore, the Project has just to comply with the applicable domestic environmental requirements and standards.

See Appendix 10 for the outline of the Environmental Audit Report.

[22] Facilities that are not funded as part of the project, but (a) directly and significantly related to the project; (b) carried out or planned to be carried out contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.

[23] Primary suppliers are those suppliers who, on an ongoing basis, provide directly to the project goods and materials essential for the core functions of the project.

5) Subproject appraisal and approval

At this stage, the Shaanxi PMO will ensure the integrity and compliance of subprojects' E&S documents with the state E&S legal requirements and obtain necessary approvals from relevant authorities.

The PIU should select an EIA document (EIA report, EIA report form or EIA registration form) according to the Categorized Catalogue for Environmental Impact Assessment of Construction Projects based on the type, process and size of each subproject. EIA reports and report forms should be submitted to local ecology and environment bureaus for approval through the process shown in Table 5-2.

In addition, for any subproject for which an EIA report is to be prepared, the report should also be disclosed according to the Measures for Public Participation in Environmental Impact Assessment. See Table 5-3.

Table 5-2 Domestic Approval Process of EIA Documents

Type of EIA document	PIU			Ecology and environment bureau			
	First disclosure	Second disclosure	Third disclosure	Expert review	Acceptance	Pending approval	Disclosure approval
EIA report form	Not required	Not required	Not required	Required, passing expert review	Required, 10 working days	Required, 5 working days	Approved
EIA report	Required, within 7 working days after fixation of the EIA agency	Required, for not less than 10 working days after the draft for comment is prepared	Required, before submission to the ecology and environment bureau	Required, passing expert review	Required, 10 working days	Required, 5 working days	Approved

Table 5-3 Disclosure of EIA Public Participation Measures

Step	Time	Venue	Scope
First disclosure	Within 7 working days after fixation of the EIA agency	Contractor's website, local public media websites or local government websites	1) Name of the subproject, site or route, scope of construction; 2) Name and contact information of the contractor; 3) Name of the EIA agency; 4) Link to public opinion form; 5) Means for submission of public comments
Second disclosure	For not less than 10 working days after the draft for comment is prepared	1) Online platform; 2) newspaper; 3) poster	1) Link to the draft EIA report, and means of access to the hardcopy; 2) Scope of collection of comments; 3) Link to public opinion form; 4) Means for submission of public comments; 5) Period for collection of public comments
Third disclosure	Before submission to the ecology and environment bureau	Online platform	Draft EIA report, and note on public participation, including: 1) Public participation process and scope; 2) Collection and analysis of public comments; 3) Adopted public comments and feedback

All subprojects' ESA documents should be prepared according to the form acceptable to the Bank, and submitted to the Bank for prior review before implementation.

6) Subproject bidding and procurement

The Shaanxi PMO, county / district PMOs and PIUs should ensure that the measures in the ESCP and ESMP are included in the bidding documents and construction contracts, and implemented strictly.

7) Subproject implementation and supervision

Before subproject implementation, the PIU should obtain relevant approvals from the government, specially the land use permit. Any subproject should not be constructed without obtaining land approval and completing LAR compensation. For any subproject not involving LAR, the contractor should select its site in consultation with local residents.

After the subproject is approved, the Shaanxi PMO will continuously monitor the E&S management performance of the subproject as part of overall implementation supervision. Specific requirements include:

- For all the subprojects, implementation management should include monitoring and evaluation of the E&S management performance of the subproject. The Shaanxi PMO, county / district PMOs and PIUs will evaluate performance in accordance with the national laws/regulations applicable to the subproject and the requirements of the subproject's ESMP.
- The Shaanxi PMO will ensure that the relevant measures of the ESMP and ESCP (in the form of contractor ESMP (C-ESMP)) are included in the bidding documents and construction contracts, and implemented during implementation.
- As promised in the ESCP, the county / district PMOs and PIUs will ask contractors to submit monthly reports.
- The Shaanxi PMO, county / district PMOs and PIUs will monitor the compliance of contract performance and reflect this in semiannual reports submitted to the Bank.
- The Shaanxi PMO will establish E&S monitoring arrangements and ensure that the county / district PMOs and PIUs, contractors and supervising agencies involved in the implementation of the subproject establish an E&S management structure with assigned staff responsible for E&S management.
- For subprojects with High or Substantial risks, the Shaanxi PMO and owner will strengthen contractor management, monitoring and supervision.
- The Shaanxi PMO will engage third party consultants to conduct independent monitoring of the E&S management performance of the subproject and submit external monitoring reports regularly.

- If the Shaanxi PMO finds or is informed of any environmental or social accident that may have a significant adverse impact on the environment, communities, general public or workers in any subproject, it will notify the Bank within 48 hours and provide as much detailed information as possible about the accident, including measures taken or planned, and appropriate information provided by contractors and regulatory agencies. Subsequently, in accordance with the requirements of the Bank, the Shaanxi PMO will prepare a report on the accident and propose any measures to prevent its recurrence.
- The Shaanxi PMO will monitor the implementation of the actions in the ESCP, and include it in semiannual progress reports submitted to the Bank.

8) Construction completion and evaluation

As part of the evaluation of construction completion, the Shaanxi PMO will require the PIU of each subproject to review and evaluate the E&S management performance through the entire process of implementation after its completion. The purpose is to evaluate the actual E&S performance against relevant ESSs and the prepared E&S instruments, summarize experience and lessons, and provide inputs for the compilation of the completion report of the Project. The completion report should be comprised of the following contents (but not limited to): 1) an overview of the process for preparing, adopting and implementing E&S documents of the subproject, 2) performance and outcomes of implementation of relevant E&S documents (for instance, RAP, EIA, SIA, SEP, LMP, among others), 3) compliance status by subproject activities against the environmental and social commitment plan, relevant ESSs, domestic regulations, applicable E&S instruments, among others; 4) completion status of remedial actions (for instance for landfill legacy issues) and gap-filling measures (if any) that are agreed upon in the ESA and the E&S audits and 5) conclusions, successful experiences, and lessons learned.

9) Subproject operation (subsequent utilization)

At the operation stage, the county / district PMOs will ask the operating agencies to improve their E&S management systems as per this ESMF and other E&S management documents, and manage and report E&S management performance. The operating agencies will conduct information disclosure, stakeholder engagement and grievance redress as per the SEP.

5.4 SEF for Construction Subprojects

According to the Bank's ESS10, stakeholder engagement will run through the whole project lifecycle. The Shaanxi PMO, county / district PMOs and PIUs should ensure that the SEP is implemented in the project lifecycle, and includes a GRM.

6 E&S Risks and Impacts Management of TA Subprojects

6.1 Identification of Potential E&S Risks

TA subprojects mainly include the study on integrated urban and rural domestic waste planning, Shaanxi smart sanitation IT system, source reduction of domestic waste in remote areas, and selection and application of technical routes for local disposal, study on the integration mode for rural waste disposal and recycling systems, capacity building and international exchange, including 20 topical studies and capacity building activities in 10 categories, and do not involve construction. TA subprojects will not have direct negative environmental risks and impacts themselves. However, suggestions included in certain research findings under TA subprojects, if adopted and implemented, may pose potential downstream E&S risks and impacts.

According to the Bank's Advisory Note for TA and ESF, there are three types of TA activities[24], i.e.:

- **Type 1**—supporting the preparation of future investment projects (whether or not funded by the Bank);
- **Type 2**—Supporting the formulation of policies, programs, plans, strategies or legal frameworks;
- **Type 3**—Strengthening borrower capacity

The Project does not include any **Type 1** subproject. It should be noted that research findings under **Type 2** subprojects provide suggestions and references for policy making in relevant fields, and do not directly draft policies, regulations or action plans.

See Table 6-1.

[24]**Type 1**: Supporting the preparation of future investment projects (whether or not funded by the Bank). **Type 2**: Supporting the formulation of policies, programs, plans, strategies or legal frameworks. **Type 3:** Strengthening borrower capacity.

Table 6-1 Identification of E&S Risks and Impacts of TA Subprojects

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
1	Establishing an exchange mechanism on urban and rural plastic waste reduction between the central, provincial and municipal levels	Attending roundtables held by the Bank, National Development and Reform Commission, Ministry of Housing and Urban-Rural Development, Ministry of Agriculture, etc. to make exchanges on urban and rural plastic waste reduction; learning advanced experience from Ningbo and Chongqing, and compiling cases of plastic waste reduction, and relevant policies and information for reference	II	This is a theoretical topical study, and has little downstream environmental impact. The overall environmental risk rating is "Low".	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); This activity summarizes relevant experience, and has no significant downstream impact. The overall social risk rating is "Low".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including an information disclosure and stakeholder engagement strategy, etc.
2	Study on integrated urban and rural domestic waste planning	**1)Study on integrated urban and rural domestic waste management planning**: studying integrated urban and rural waste management plans suited to different areas of Shaanxi Province, including goals, routes, timing, duties, etc. for optimal planning to realize comprehensive coverage;	II	This activity will generate downstream environmental impacts once suggestions are adopted. However, this study does not support program preparation and implementation. The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); health and safety risks for researchers during fieldwork; potential downstream social risks; LAR risks arising from new facility construction once suggestions are adopted; impacts on upstream and downstream waste collection, transfer, disposal enterprises; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "High"	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, alternative analysis and quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
		2)Local waste management standard study: studying the framework of local standards for urban and rural domestic waste collection—transfer—disposal based on local conditions;	II	The study will have downstream environmental impacts if the recommendations are adopted in the development of the standards, such as upgrading or expansion of existing facilities. The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, research agencies, etc.); health and safety risks for researchers during fieldwork; potential downstream social risks; LAR risks arising from new facility construction once suggestions are adopted; impacts on upstream and downstream waste collection, transfer, disposal enterprises; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Substantial".	**TA subprojects:** Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
		3)Study on regional waste management layout and facility integration: studying waste management division by basin, management mechanism and organizational structure, facility sharing, and waste co-management, etc.;	II	The output of the study will be advice and suggestions for improvement of planning, including establishing new facilities such as collection, transfer and disposal facilities. This activity will generate downstream environmental impacts once suggestions are adopted. However, this study does not support program preparation and	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); potential downstream social risks; LAR risks arising from new facility construction once suggestions are adopted; unemployment of waste service workers; non-inclusion risks (vulnerable groups, minority residents). The overall social risk rating is "High".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, quick assessment of cumulative impacts, LAR

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
				implementation. The overall environmental risk rating is "Substantial"		risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
		4)Study on rural waste disposal funding and cost recovery mechanism: raising funds for rural waste disposal through government, bank and bond financing at the government level, and through charging and collective asset operation within village collectives, thereby solving the fund shortage problem; preparing a research report;	II	This activity will generate downstream environmental impacts, such as improvement of service performance and coverage, once suggestions are adopted. However, this study does not support program preparation and implementation. The overall environmental risk rating is "Moderate"	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); potential downstream social risks; increased living costs once suggestions are adopted; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Substantial".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, alternative analysis, quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
		5)Study on market operation mechanism and government-led mode for rural waste disposal services: studying and optimizing the mechanism and mode to provide experience for other areas;	II	This activity will generate downstream environmental impacts, such as institutional strengthening and performance improvement of service, once suggestions are adopted. However, this study does not support program preparation and	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); potential downstream social risks; potential change to waste collection, transfer and disposal modes, increased waste disposal charges, and unemployment of workers once suggestions are adopted; non-inclusion risks	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
				implementation. The overall environmental risk rating is "Moderate"	(vulnerable groups, minority residents) The overall social risk rating is "Moderate".	management suggestions for downstream E&S risks, including E&S impacts, option selection, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
		6)Implementation plan for rural domestic waste classified management: investigating rural residents' satisfaction with waste disposal and waste sorting behavior, and proposing an implementation plan to promote source reduction and recycling;	II	This activity will generate downstream environmental impacts, such as establishment of sorting and collection facilities, and recycling facilities, once suggestions are adopted. However, this study does not support program preparation and implementation. The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); health and safety risks for researchers during fieldwork; potential downstream social risks; LAR risks arising from new facility construction once suggestions are adopted; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Moderate".	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
		7)Following-up monitoring on plastic component and output of domestic waste: studying the analysis method of plastic component and output of urban and rural domestic waste, and developing a follow-up monitoring plan to capture accurate data;	II	This activity has no negative environmental impact. The overall environmental risk rating is "low"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); health and safety risks for researchers during fieldwork; This activity involves experience summarization and database establishment, and has no	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1,

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
					significant downstream impact. The overall social risk rating is "Moderate".	ESS2, ESS3, ESS6 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including an information disclosure and stakeholder engagement strategy, etc.
		8)Study on recyclable plastic recycling improvement and supporting policies: studying efficient and classified recovery, refined sorting and other techniques, as well as supporting policies and regulatory requirements on plastic waste recycling to improve the efficient recycling level of recyclable plastics	II	This activity will generate downstream environmental impacts, such as establishment of collection and sorting and recysling facilities, once suggestions are adopted. However, this study does not support program preparation and implementation. The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); health and safety risks for researchers during fieldwork; potential downstream social risks; LAR risks arising from new facility construction once suggestions are adopted; potential enterprise closedown and worker unemployment due to technical transformation; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Substantial".	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
3	Shaanxi smart sanitation IT system	Formulating a provincial standard and a provincial plan for smart sanitation IT system building, and establishing a provincial smart sanitation IT management platform to realize the real-time feedback and analysis of basic data on plastic waste, optimize facility layout and	II	This activity has no negative environmental impact. The overall environmental risk rating is "low"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); This activity summarizes relevant experience, and has no significant downstream impact.	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
		operation, and improve waste management efficiency				output should include a chapter on management suggestions for downstream E&S risks, including an information disclosure and stakeholder engagement strategy, etc.
4	Source reduction of domestic waste in remote areas, and selection and application of technical routes for local disposal	Studying advanced modes of local disposal of rural domestic waste in China, conducting trials on source reduction and local disposal of domestic waste in remote areas of Shaanxi Province, and preparing a research report for reference, thereby reducing the amount of waste transferred out of villages, reducing waste disposal costs, and improving the sustainability of rural domestic waste disposal	II	This activity will generate downstream environmental impacts, such as development of technical plan for treatment facilities, once suggestions are adopted. The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); health and safety risks for researchers during fieldwork; LAR and NIMBY risks; potential downstream social risks; potential LAR and NIMBY risks once suggestions are adopted; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Moderate".	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
5	Collaborative mechanism for urban and rural plastic pollution prevention and control	Establishing a collaborative mechanism for plastic pollution control from source reduction to terminal absorption, and establishing a routine joint conference mechanism to strengthen communication between competent authorities and summarize progress timely	II	This activity has no negative environmental impact. The overall environmental risk rating is "low"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); This activity summarizes relevant experience, and has no significant downstream impact. The overall social risk rating is "Low".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
						downstream E&S risks, including an information disclosure and stakeholder engagement strategy, etc.
6	Study on the integration mode for rural waste disposal and recycling systems	Exploring the integration of rural environmental sanitation and renewable resource systems in mechanisms, staff, logistics, facilities and platforms, and preparing a pilot program	II	This activity will generate downstream environmental impacts, such as development of a pilot plan for collection and transfer system, once suggestions are adopted. However, this study does not support program preparation and implementation. The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); health and safety risks for researchers during fieldwork; potential downstream social risks; potential impacts on enterprises, and job transfer or unemployment of workers once suggestions are adopted; outstanding issues in existing facilities (e.g., land use, communities health and safety); non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Substantial".	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, quick assessment of cumulative impacts, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
7	Residual mulch film M&E and recording	1)**Residual film M&E**: setting up a residual film monitoring site per 10,000 mu to monitor and evaluate ranges and modes of use, suitable crops, types used, recovery methods, residue, etc., and establishing a database and a recycling monitoring system	II	This activity will not involve physical investment. The overall environmental risk rating is "Low"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); This activity involves database and system establishment, and has no significant downstream impact. The overall social risk rating is "Low".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including an information disclosure and stakeholder

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
						engagement strategy, etc.
		2)**Mulch film use record information system**: establishing a provincial data management platform on mulch film use and recovery	II	This activity has no negative environmental impact. The overall environmental risk rating is "Low"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); This activity involves database and system establishment, and has no significant downstream impact. The overall social risk rating is "Low".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including an information disclosure and stakeholder engagement strategy, etc.
		3)**Thickened mulch film demonstration**: conducting trials in 3 counties / districts, with a pilot area of not less than 2,000 mu per county / district, and extending the application of 0.015 mm or above thickened high-strength mulch film to reduce use costs and ensure the recoverability of mulch film	II	This activity will increase the rate of used mulch collection, thus leading to new demand for collection, transfer and recycling/treatment. The overall environmental risk rating is "Moderate"	Inadequate stakeholder engagement (including government agencies, PIUs, farmers, cooperatives, etc.); This activity involves database and system establishment, and has no significant downstream impact. The overall social risk rating is "Moderate".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including an information disclosure and stakeholder engagement strategy, etc.
8	Implementation program for county / district mulch film recycling	Preparing a mulch film recovery program for each county / district, including recovery subsidization, and mulch film recovery and disposal system building	II	This activity will generate downstream environmental impacts, such as establishment of collection, transfer and recycling facilities once suggestions are adopted. However, this study does not support program	Inadequate stakeholder engagement (including government agencies, PIUs, low income residents, elders, etc.); health and safety risks for researchers during fieldwork; potential downstream social risks; impacts on existing mulch film production and disposal	**TA subprojects**: Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1,

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
				preparation and implementation. The overall environmental risk rating is "Substantial"	companies once suggestions are adopted; non-inclusion risks (vulnerable groups, minority residents) The overall social risk rating is "Substantial".	ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, including E&S impacts, option selection, LAR risks and management, ethnic minority development, an information disclosure and stakeholder engagement strategy, etc.
9	Carbon emissions of rural waste disposal and emission reduction strategy	Studying resource and energy consumption, and GHG emissions of waste disposal, and designing different waste disposal scenarios to study regulatory measures for low-carbon domestic waste disposal; analyzing the carbon reduction effect of the Project to provide a basis for decision-making on effective low-carbon urban and rural waste management	II	This activity will have downstream impacts oby suggesting technical plan for waste disposal, The overall environmental risk rating is "Substantial"	Inadequate stakeholder engagement (including government agencies, PIUs, etc.); This activity has no significant downstream impact. The overall social risk rating is "Low".	**TA subprojects**: Develop and implement a stakeholder engagement program. **Downstream E&S impacts**: Include E&S impact analysis in the ToRs, with focus on the requirements of ESS1, ESS2 and ESS10; As required in the ESMF, the subproject output should include a chapter on management suggestions for downstream E&S risks, alternative analysis, quick assessment of cumulative impacts including an information disclosure and stakeholder engagement strategy, etc.
10	Publicity	1)Conducting publicity on county / district rural domestic waste sorting and recycling by means of video, explanation, field visit, simulated game, training, broadcast and brochure, so that residents are aware of the whole process of domestic waste from generation, collection, transfer to terminal disposal, participate in waste sorting	III	This activity has no negative environmental impact. The overall environmental risk rating is "Low"	Inadequate stakeholder engagement, including minority residents, where cultural adaptability should be considered (language, customs, etc.); The overall social risk rating is "Low".	Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff.

No.	Subproject	Scope	TA type	Potential environmental risks/impacts	Potential social risks/impacts	Applicable E&S instruments
		more actively, and develop the habit of conserving resources				
		2)Preparing the Action Plan for Publicity and Education on Mulch Film Reduction of Shaanxi Province (2024-2029), and conducting publicity and education by means of slogan, brochure, meeting, door-to-door explanation, training, etc.	III	This activity has no negative environmental impact. The overall environmental risk rating is “Low”	Inadequate stakeholder engagement, including minority residents, where cultural adaptability should be considered (language, customs, etc.); The overall social risk rating is “Low”.	Develop and implement a stakeholder engagement program; offer training and education on traffic safety and health to the research staff.

6.2 E&S Risks and Impacts Analysis

TA subprojects under the Project are classified into two types:

1)Type 2 subprojects:

Such subprojects do not involve construction, and will not have direct negative environmental risks and impacts themselves. Based on the ESSs, their own social risks include: 1) inadequate stakeholder engagement; 2) labor risks for managers and researchers, such as travel safety and safety risks during fieldwork (including COVID-19), failure to pay sufficient travel subsidies, etc. In general, the overall E&S risks for the TA activities are classified "Substantial". The Shaanxi PMO will propose relevant requirements in ToRs of TA subprojects, and require that relevant staff attend E&S training (including health and safety management).

However, although TA subprojects have minor direct negative E&S impacts, there may still be downstream E&S impacts. Once suggestions under TA subprojects are adopted and implemented, new facilities may be constructed, leading to LAR, upstream and downstream waste collection, transfer and disposal enterprises may be affected, so that workers may be unemployed, and non-inclusion risks (for vulnerable groups, minority residents) may occur. The E&S risk rating of such TA subprojects is "High", and their downstream E&S risks may be "Low", "Moderate", "Substantial" and "High".

2)Type 3 subprojects:

Such subprojects mainly involve capacity building, and have no direct or indirect negative E&S risk. However, some risk factors should be considered, such as inadequate stakeholder engagement and COVID-19 control risks. In terms of COVID-19 control, China's central and local governments have established a complete and effective system of control measures, which has been well proven. In addition, the Shaanxi PMO will offer E&S training (including health and safety) to relevant staff. Therefore, the overall E&S risk rating of is "Low".

6.3 E&S Risks and Impacts Management Measures

Based on the above E&S risks, the following E&S management principles will be followed in design and implementation:

- Include the E&S objectives into the TA process.
- Promote extensive stakeholder engagement and information disclosure as per ESS10, especially at all key stages of planning.
- Promoting E&S capacity building for the agencies concerned or PIUs and other government agencies / NGOs through TA subprojects.

Based on the screening of E&S risks of TA subprojects, different management measures will be taken:

1)Type 2 subprojects:

Type 2 subprojects do not have high E&S risks and impacts themselves, but their potential downstream E&S risks and impacts should be assessed, and measures proposed accordingly, including:

- Ensure that ToRs include OHS requirements for workers of TA research agencies, analysis and assessment of downstream potential E&S risks, stakeholder engagement and information disclosure requirements, etc., and are submitted to the Bank for review;
- Offer OHS training to workers under TA subprojects (including managers and researchers, etc.), prepare appropriate ESA instruments, assess potential downstream direct, indirect and cumulative impacts, and propose suggestions (including on research findings and policies). Relevant E&S management instruments include an E&S analysis chapter, CIA[25], SESA[26], etc.
- Contents on E&S risk management in research findings of TA subprojects should meet the ESSs, and be approved by the Bank before final review.

In addition, in the whole implementation process of TA subprojects, effective stakeholder engagement should be ensured, including elders, women and other vulnerable groups. Therefore, stakeholders and their needs should be further identified as per the SEF, a separate stakeholder engagement program prepared, and information disclosure, public participation and feedback conducted. For capacity building activities in minority areas, cultural adaptability should be considered and included in the SEP.

2)Type 3 subprojects:

Type 3 subprojects are all capacity building activities, and have almost no environmental impact, but stakeholder engagement should be considered, including elders, women and other vulnerable groups. In addition, public health factors (e.g., COVID-19 prevention and control) should be considered in such activities.

OHS training should be offered to workers under TA subprojects (including managers and researchers, etc.) in advance. In the preparation of ToRs, the adequate participation of stakeholders (including vulnerable groups) should be considered. Before the start of each activity, a stakeholder engagement program should be prepared as per the SEF, and

[25]If multiple projects are to be implemented in the same geographic area or ecosystem, a cumulative impact assessment (CIA) should also be conducted, and measures proposed accordingly. The CIA is used to consider the project's cumulative impacts, including past, current and reasonably foreseeable impacts on development, and unplanned or predictable impacts arising from the project in the future or elsewhere. Typical conditions for a CIA include: 1) an activity affecting a water system or basin; 2) a water body with multiple catchments; 3) a project producing toxic or harmful gas emissions; 4) a rapidly growing city or industrial zone; 5) a project located in a habitat of an extensive / migratory species; 6) a regional / development plan, etc.

[26]A systematic investigation of E&S risks and impacts of a policy, plan or program at the national (or local) level

information disclosure, public participation and feedback conducted. In addition, COVID-19 prevention and control should be conducted in strict conformity with the applicable state and local regulations.

6.4 E&S Management Procedure

6.4.1 Overall Requirements

The following E&S risks management procedure has been designed for TA subprojects, as shown in Figure 6-1.

The Shaanxi PMO will manage E&S risks and impacts according to the ESCP, and submit semiannual progress reports to the Bank.

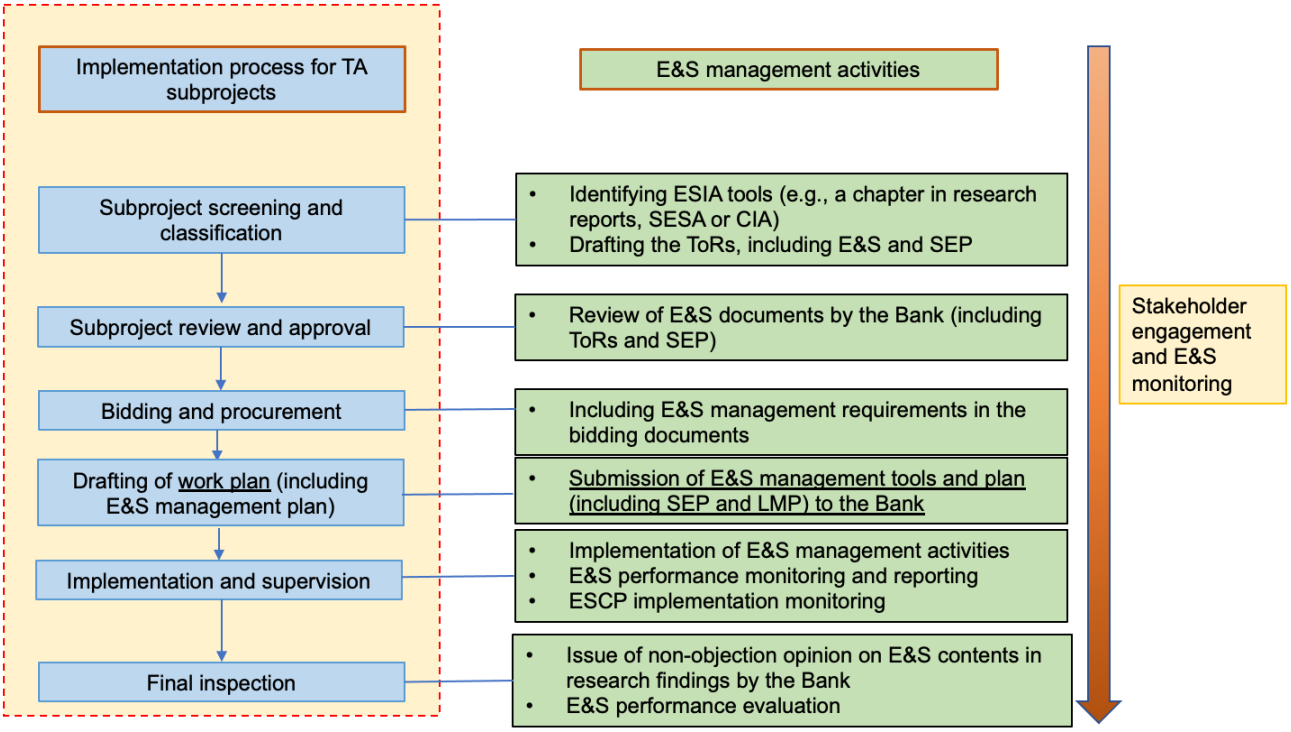


Figure 6-1 E&S Management Procedure for TA Subprojects

6.4.2 Specific Management Procedure

The E&S management procedure for TA subprojects is as follows:

1) The Shaanxi PMO will screen the proposed TA subprojects to determine the types of the TA subprojects, and identify appropriate E&S instruments (such as chapter on E&S assessment, CIA, SESA etc.) based on the TA scope and potential downstream E&S risks and impacts.

2) At the start of each TA2 subproject, the Shaanxi PMO is responsible for preparing ToRs (see **Appendix 5** for the basic requirements on E&S considerations), and submit it to the Bank for review to ensure that potential downstream E&S risks and impacts are fully evaluated as per the ESF and relevant mitigation measures are proposed properly in the research findings.

3) For each TA3 subproject, the Shaanxi PMO should provide detailed information about the subproject activities to the Bank to confirm the relevance of the ESSs. Once the applicability of certain ESSs is confirmed, a TOR, including requirements on stakeholder engagement, should be prepared accordingly.

4) The Shaanxi PMO should submit the above ToRs to the Bank for review and clearance prior to tendering process.

5) For each TA2 subproject, the research agency should carry out the research or design work in line with the ToR requirements and be responsible for conducting stakeholder engagement in compliance with the approved SEP implementation plan throughout the whole subproject lifecycle. A dedicated chapter of E&S assessment should be included in the research output report, screening the potential downstream E&S risks and impacts introduced by the implementation of the TA outputs, assessing such potential E&S risks and impacts, and proposing appropriate mitigation measures.

6) During the implementation of each TA2 subproject, the Shaanxi PMO is responsible for tracking and monitoring the progress of the research activities, including the progress of E&S risks and impacts assessment (including labor management performance analysis) at appropriate steps (such as intermediate outcome evaluation stage).

7) The output report of a TA2 subproject should be submitted to the Bank for review prior to domestic clearance in order that the Bank can confirm the compliance with the ESF in terms of assessment of potential downstream E&S risks/impacts and suggestions on proper mitigation measures. During the implementation of a TA subproject, the Shaanxi PMO should report to the Bank the progress of E&S management through periodic reports, including ESCP implementation.

8) Upon the completion of the Project, the Shaanxi PMO should prepare a dedicated chapter in the completion report to describe the Project's overall potential downstream E&S risks, and propose measures and suggestions accordingly.

6.5 SEP for TA Subprojects

A separate SEF has been prepared, which includes the stakeholder engagement procedure, scope and methods for TA subprojects, and will direct the PMOs and TA research agencies in information disclosure and meaningful public consultation at the research stage. See the SEF for details.

7 E&S Risks and Impacts Management of Mulch Film Management

The performance-based incentive financing mechanism (PBIFM) will support Sub-component 2B and will provide an incentive to enhance and change farmers' willingness and behavior to use thicker mulch film and collect and transport the used mulch to designated areas. The incentive will benefit farmers/farmers' associations/enterprises as follows: (a) the performance-based incentive financing mechanism will be offered against verified utilization of standard/thicker ground mulch by farmers and cooperatives; (b) the performance-based incentive financing mechanism will be offered against verified used mulch collected from farmland that is placed at designated collection points (from where the mulch will be transported for safe handling and treatment as part of the SWM system).

PBIFM for waste agricultural mulch film related activity under the Project is conducted using the "holistic research" approach, including part of the above TA subprojects, such as the implementation program for county / district mulch film recycling, residual mulch film M&E and recording, publicity, capacity building, etc., as well as PBIFM for mulch film management.

This chapter describes the E&S risks and impacts, and management procedure for PBIFM mulch film management.

PBIFM mulch film management will focus on mulch film transfer from fields to improve farmers' willingness to recycle mulch films, and change their behavior for proper disposal.

PBIFM mulch film management will be implemented by the county / district ARABs.

7.1 Identification and Analysis of E&S Risks and Impacts

In general, PBIFM mulch film management activities mainly involve two parts. One is establishing much film recovery, temporary storage, transfer and transport facilities and equipment, and the other is granting rewards to farmers to encourage them to use standard film and recover old film under PBIFM.

The main activities are increasing the proportion of mulch film recovered and increasing the amount of mulch film disposed of, involving the construction of mulch film recovery and transfer facilities, which are small in scale; downstream facilities are recovery enterprises or incineration plants, but are not associated facilities. The overall risk rating is "Moderate". The social risks mainly include:

- Lack of understanding among stakeholders (especially village committees and farmers) due to the lack of effective publicity;
- Inflexible mulch film recovery program, so that it cannot respond effectively to some farmers' needs;

- Insufficient inclusiveness, which may increase the workload of some stakeholders (e.g., village cleaners);
- Non-transparency of result verification and subsidy rates, leading to unfairness and dissatisfaction, and insufficient information disclosure;
- Potential need to coordinate field dumping sites

7.2 E&S Management Procedure

PBIFM for mulch film management's social risks will be mitigated in a participatory manner to fully motivate farmers for sustainable mulch film recovery. See Figure 7-1.

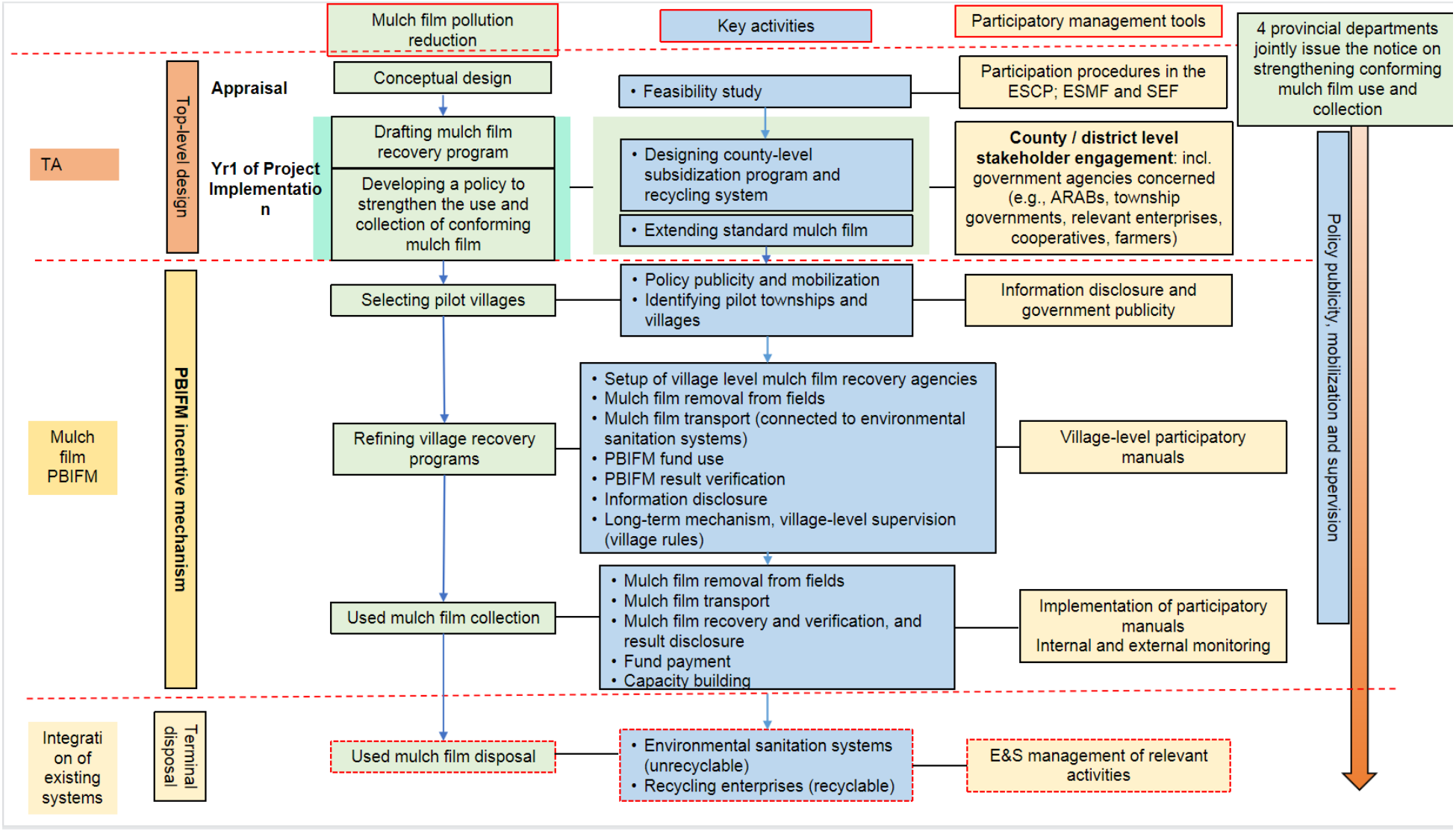


Figure 7-1 Conceptual Used Mulch Film Recovery Program and E&S Management Procedure

7.2.1 Rationale

PBIFM mulch film management will observe the following rationale:

1) Before a village is included, project information must be fully disclosed so that villagers make an informed decision;
2) At least 80% of villagers are willing to participate, which is a prerequisite to inclusion;
3) Villagers participate in the preparation of the PBIFM mulch film management program.

7.2.2 Participation Procedure

1)Preparation stage—pilot village selection

Step 1: The county / district ARAB conducts information disclosure and publicity to increase awareness and participation levels by means of media, brochure and bulletin board, covering environmental hazards of used mulch film, PBIFM policy, inclusion criteria, rights and obligations, long-term management mechanism, etc.

Step 2: The village committee holds a village congress to make a declaration decision.

Step 3: The county / district ARAB selects and discloses candidate villages.

Step 4: After villages are selected, the county / district ARAB conducts further publicity and mobilization.

Farmers may give feedback through the communication mechanism.

2)Preparation of village mulch film recovery program

The village committee holds a village meeting under the direction of the county / district ARAB and township government, and prepares a mulch film recovery program, which should include:

- Village organizational structure for mulch film recovery
- Mode of mulch film removal from fields
- Mulch film storage and transport
- PBIFM reward use
- PBIFM result verification method
- Information disclosure

- Long-term mechanism and village-level regulation (village rules)

After the village mulch film recovery program is prepared, the county / district ARAB and township government offer relevant training to the village recovery agency and its staff to lay a foundation for implementation.

3)Implementation and dynamic adjustment.

The village implements the mulch film recovery program. The county / district ARAB verifies mulch film removal from fields, recovery, etc., and grants a reward.

The county / district ARAB summarizes the implementation of the program regularly, proposes areas for improvement, and extends good practices.

4)Final evaluation

As part of the final evaluation of the Project, the Shaanxi PMO will summarize relevant experience and lessons (especially community participation and behavior change).

7.3 SEP and GRM for Mulch Film Management

According to ESS10, stakeholder engagement will run through the whole project lifecycle. The county / district ARABs should ensure that the SEP based on the SEF is implemented in the project lifecycle. A GRM should be included in the SEP.

8 Institutional Arrangements and Capacity Building

8.1 Organizational Structure and Responsibilities for E&S Management

8.1.1 Organizational Structure

To ensure that the Project's E&S risks and impacts are managed properly, the organizational structure for E&S management includes:

- Provincial Steering Committee (project leading group, PLG) and Shaanxi PMO
- County / district PLGs and PMOs
- PIUs
- Shaanxi PMO's E&S experts
- External E&S M&E agency

The organizational structure for E&S management is shown in Figure 8-1.

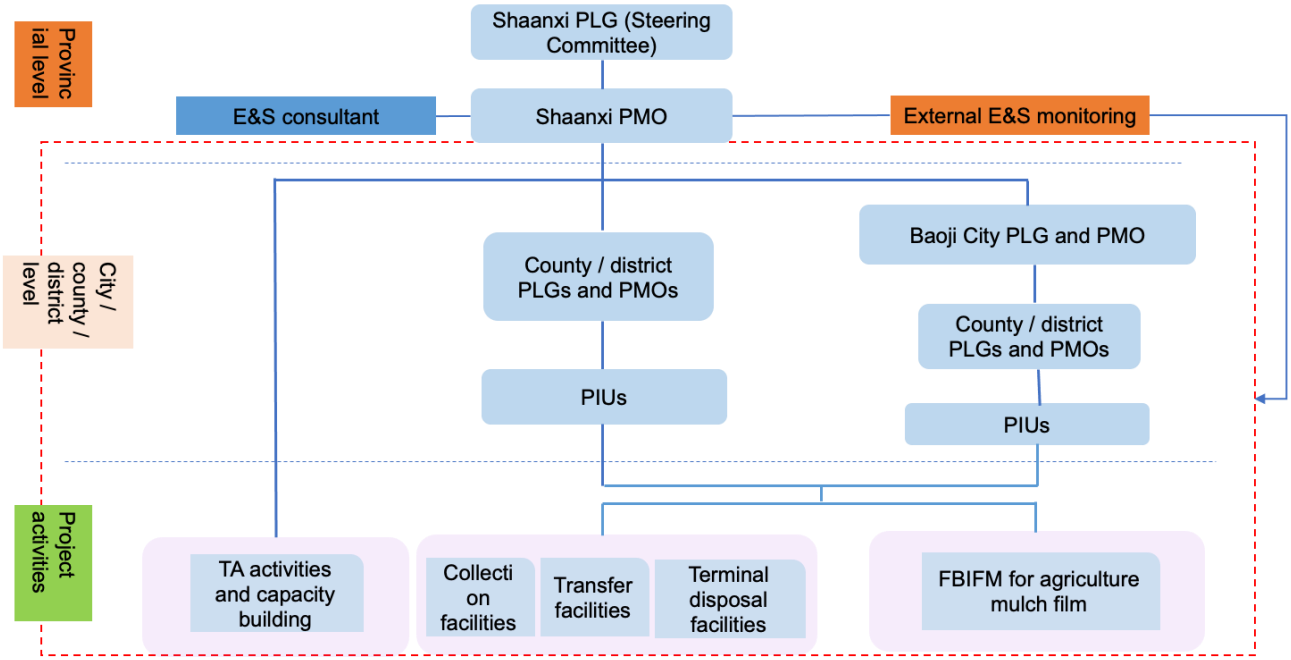


Figure 8-1 Organizational Structure for E&S Management

8.1.2 Organizational Responsibilities

- **Provincial Steering Committee**

The Shaanxi Project Leading Group (Steering Committee) has been established[27] (PLG)

[27]The Provincial Steering Committee consists of the provincial development and reform commission, finance department, ecology and environment department, housing and urban-rural development department, agriculture and rural affairs department, commerce department, rural revitalization bureau, and federation of

at the provincial development and reform commission to solve major issues in project construction. The Shaanxi PMO thereunder is responsible for project planning, guidance, coordination, implementation, management and supervision.

- **Shaanxi PMO**

1) Prepare this ESMF, guide and supervise the implementation of subprojects in accordance with the requirements of this ESMF to carry out relevant E&S management work of the subprojects;
2) Recruit at least one external environmental expert and one social external expert by Shaanxi PMO to assist in managing E&S activities, including occupational health and safety (OHS).
3) Assign at least one full-time environmental staff and one full-time social staff to coordinate and manage the implementation of this ESMF, and maintain contact with Bank E&S experts during the implementation period;
4) Ensure that relevant measures and requirements in the ESMP are included in the bidding documents;
5) Screen the E&S risk levels of subprojects with the assistance of an external expert group, review E&S safeguards documents, and submit them to the Bank for review as necessary;
6) Carry out E&S management capacity building for the PIUs;
7) Supervise the implementation of applicable E&S safeguards documents (ESCP, SEP, EMP, etc.);
8) Hire external E&S monitoring consultants to conduct external monitoring of the Project's E&S management and prepare external monitoring reports, and report to the Bank every 6 months.
9) Ensure funds for the preparation of E&S management documents, M&E, etc.

- **County / district PLGs**

The county / district governments have established county / district PLGs[28] to coordinate the implementation of the county / district subprojects. The county / district PMOs thereunder are responsible for subproject planning, guidance, coordination, implementation, management and supervision.

- **County / district PMOs**

supply and marketing cooperatives, and the participating prefecture-level cities (Baoji, Xianyang, Weinan, Yulin, Hanzhong and Ankang).

[28]The leading group of each district usually consists of the deputy district head in charge of environmental sanitation, development and reform bureau, finance bureau, ecology and environment bureau, housing and urban-rural development bureau, agriculture and rural affairs bureau, and urban administration and law enforcement bureau, township governments, etc.

1) Assign at least one environmental staff and one social staff responsible for the coordination and management for E&S related matters.
2) Fill out the E&S screening form for the subprojects to be implemented in accordance with the requirements of this ESMF, and report to the Shaanxi PMO for review;
3) Carry out ESA on subprojects as instructed by the Shaanxi PMO and the Bank;
4) Conduct stakeholder engagement activities in accordance with the ESMF and SEP;
5) Ensure that the measures in the ESMP are included in the bidding documents and construction contracts;
6) Supervise the implementation of E&S management measures;
7) Submit periodic subproject progress reports to the Shaanxi PMO.

- **County / district PIUs**

The county / district governments have established PIUs to implement county / district subprojects. The county / district PIUs will conduct bidding, procurement, construction and reimbursement in accordance with the applicable procedures of China and the Bank under the leadership of the Shaanxi PMO and county / district PMOs, including ESA, M&E and reporting.

1) Assign at least one environmental staff and one social staff responsible for coordination and management of relevant E&S matters;
2) Carry out ESA on subprojects as instructed by the county / district PMOs;
3) Conduct stakeholder engagement activities in accordance with the ESMF and SEP;
4) Ensure that the measures in the ESMP are included in the bidding documents and construction contracts;
5) Submit periodic subproject progress reports to the county / district PMOs.

- **E&S experts (to extend Shaanxi PMO's in-house E&S management capacity):**

1) The Shaanxi PMO will appoint a competent and experienced environmental expert and one social expert as their internal consultants to strengthen in-house E&S capacity;
2) Assist the Shaanxi PMO in preparing conforming E&S management documents;
3) Advise and assist the Shaanxi PMO in supporting the city/county/district PMOs in implementing E&S risks and impacts mitigation measures.

- **External E&S M&E agency/consultants:**

1) Supervising the preparation of E&S documents pursuant to the ESMF;
2) Supervising the implementation of E&S commitments pursuant to the ESCP;

3) Submit external monitoring reports to the Shaanxi PMO regularly (every 6 months)

4) As part of the external E&S monitoring, follow up, verify and report the status for remedying gaps and non-compliance identified through E&S audit and the external E&S monitoring.

8.2 Capacity Building Plan

Shaanxi Province has cooperated with the Bank for more than two decades and has carried out many environmental pollution control and urban infrastructure construction projects, all of which have achieved satisfactory results. Shaanxi's experience in the Bank project management and institutional capabilities is well recognized. Therefore, the Shaanxi PMO is very familiar and experienced with the previous E&S safeguards policies of the Bank.

The Project is the first project of Shaanxi under the Bank's ESF, and the overall risk rating is "High". Though Shaanxi has rich experience in the Bank's safeguards policies in the past, there is still a process of understanding and adaptation to the Bank's ESF. Therefore, it is particularly important to strengthen the understanding of the Bank's ESF and improve the E&S risk management capabilities of the county / district PMOs and PIUs. To this end, the following E&S management capacity building plan has been formulated. See Table 8-1.

E&S management capacity building will use the Shaanxi PMO's own funds and the institutional capacity building fund in the Bank loan.

The recruitment requirements are as follows: 1) The Shaanxi PMO and PIUs need a full-time environmental staff member each; 2) mastering basic computer skills and environmental engineering related discipline a plus, understanding EIA and its implementation procedure, and having relevant experience a plus; 3) excellent communication skills and teamwork.

Table 8-1 E&S Management Training Program

Trainees	Scope of training	Objective	Trainer	Persons /time	Mode	Day/time	Frequency
Shaanxi PMO, county / district PMOs (including E&S focal points and E&S experts engaged)	• Bank ESF; • This ESMF; • State E&S laws and regulations; • E&S mitigation measures and requirements; • Potential E&S risks screening; • SEP implementation; • Resettlement policy framework, LMP, etc. • OHS	Strengthen the understanding of the ESF by the PMO which can get familiar with the requirements of the ESMF, and improve project implementation capacity.	Experts with Bank project experience / Bank experts	40	Lecture	1	At Project launch; and once every year during implementation
PIUs (including E&S focal points and staff in change of E&S risks management)	• Bank ESF and this ESMF; • State E&S laws and regulations; • E&S mitigation measures and requirements; • SEP implementation; • LMP implementation; • OHS	Strengthen the ESMF implementation capabilities of the PIUs and their E&S management personnel	External E&S experts, other domestic and overseas experts	50~60	Seminar	1	Once every year during implementation
Environmental specialist	• Bank environmental policies, environmental regulations; • EMP and EMP implementation report; • Construction camp management plan; • Public participation plan and GRM; • Traffic management plan; • Community health and safety; • COVID-19 control measures; • Emergency response plan	Strengthen the ability to coordinate the implementation of the ESMF, and keep in touch with the Bank's E&S specialists during implementation.	Experts with Bank project experience / Bank experts	80	Lecture	1	At Project launch; and once every year during implementation
External E&S monitoring teams/consultants	• Bank ESF and this ESMF; • State E&S laws and regulations; • E&S mitigation measures and requirements; • SEP implementation; • LMP implementation;	Strengthen the knowledge and ability of external experts in E&S	Experts with Bank project experience	10	Classroom training seminars (high level)	1	Once every year during implementation

Trainees	Scope of training	Objective	Trainer	Persons /time	Mode	Day/time	Frequency
	• OHS						
Contractors and supervising agencies	• E&S mitigation measures and requirements; • LMP implementation • SEP implementation	Strengthen the understanding of E&S measures and requirements	Experts with Bank project experience / PMO staff	20	Consulting of external experts	1	Before construction; and once every year during implementation
Township governments, village / community committees	• E&S mitigation measures and requirements; • SEP implementation; • LMP implementation	Strengthen the understanding of E&S measures and requirements	Experts with Bank project experience / PMO staff, community reps.	2000~3000	Seminar	1	Before construction; and once every year during implementation

9 Monitoring and Reporting

9.1 Internal Monitoring

The Shaanxi PMO is responsible for monitoring the E&S management performance of the entire project implementation process. The dedicated E&S staff of the Shaanxi PMO shall be responsible for collecting and processing information related to E&S management in a timely manner, regularly tracking the implementation status of subprojects, inspecting the E&S management performance of subprojects on-site, identifying problems and making suggestions for improvement. At the same time, the Shaanxi PMO must give full play to the coordination role, require the county / district PMOs and PIUs and project implementation units of all districts to assume the responsibility in the E&S management performance of their subprojects, and ensure that relevant E&S impact mitigation measures are effectively implemented at the project level.

The County / district PMOs are responsible for the E&S performance of their subprojects, including setting up E&S departments with dedicated staff, supervising the implementation of mitigation measures in the ESMP, and submitting E&S progress reports to the Shaanxi PMO regularly.

The PIUs are responsible for the E&S management performance, including setting up E&S departments with dedicated staff, supervising the implementation of mitigation measures in the ESMP, and submitting E&S progress reports to the county / district PMOs regularly.

The supervising agencies will be hired for all construction activities to conduct construction supervision tasks, including the E&S measures as stipulated in the construction contracts. The supervision agencies will identify on-site E&S problems in a timely manner, put forward correction requirements, ensure that E&S management meets the contract requirements, and reflect the E&S management performance situation in their monthly supervision reports.

The contractors will appoint E&S managers to implement the ESMP, record E&S activities and performance, and report to the PIUs monthly.

9.2 External Monitoring

In addition to daily management and supervision of E&S management performance by the Shaanxi PMO and county / district PMOs, the Shaanxi PMO will also engage a third-party M&E agency to conduct independent monitoring on E&S management performance.

The external E&S M&E agency will be engaged by the PMO at the overall Project level to monitor the E&S management performance of all project activities. These consultants will prepare regular external E&S monitoring reports to the PMO. The responsibilities of the consultants are:

a) Review whether the construction organization design, environmental management plan, safety production plan, traffic management plan and other documents of the contractors meet the requirements of the approved E&S documents;

b) Monitor and inspect the contractor's on-site environmental management system and performance as well as the environmental performance of the supervising engineer, identify problems and propose rectification suggestions; if necessary, order temporary suspension of work and provide corrective measures or punishment suggestions;

c) Assist the Shaanxi PMO, county / district PMOs and PIUs to carry out E&S management training for contractors and supervising agencies;

d) According to the actual needs of specific subprojects, carry out necessary quantitative environmental monitoring (including wastewater discharge, noise impact, air quality, etc.) to verify the impact of project implementation on the environment;

e) Assist to investigate and deal with E&S emergencies or accidents;

f) Monitor the implementation of the resettlement action plan, social action plan and other social management documents, including consultation and investigation for the APs;

g) Conducting external E&S M&E pursuant to ESCP;

h) Periodically submit monitoring reports to the Shaanxi PMO.

In addition, **relevant government departments** will also have their regulatory monitoring over project construction and operation to help ensure the compliance of E&S management performance of the Project. These include on-site supervision on construction activities and pollution emission by environmental supervision brigades; supervision on city appearance, quality and safety of municipal engineering projects by comprehensive law enforcement bureaus; work safety inspection by emergence management bureaus, etc., labor management supervision by labor and social security bureaus; OHS inspection by health commissions, etc.

During project implementation, the Bank will also conduct regular field supervision missions to monitor the Project's E&S management performance.

Environmental Monitoring Plan see table 9-1 to 9-5 for details.

Table 9-1 Environmental Monitoring Plan of Transfer station/Rural organic waste disposal station

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
Transfer station/ Rural organic waste disposal station	Construction period	Waste gas	Around boundary	4 monitoring point	TSP	once a month	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	*The Limiting Value of Fugitive Dust Emissions from Construction Sites* (DB61/1078-2017)
		Noise	One meter outside the east, south, west and north boundary of the station	4 monitoring point	Equivalent continuous A-weighted sound pressure level	once a month				*The Emission Standard of Environmental Noise for Boundary of Construction Site* (GB12523-2011)
	Operation period	Waste gas	Fugitive emission monitoring (at boundary)	1 monitoring point in the upwind direction , 1 monitoring point in the downwind direction	NH_3, H_2S, odor concentration, particulate matter	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				*Integrated Emission Standard for Air Pollutants* (GB16297-1996) particulate matter ≤ 1.0mg/m^3; *Emission standard for odor pollutants* (GB14554-93) H_2S ≤ 0.06mg/m^3, NH_3 ≤ 1.5mg/ m^3, odor (dimensionless) ≤ 20
		Waste water	Outlet of biochemical tank	1 monitoring point	COD，SS，NH_3-N，Animal and vegetable oil	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three				*Integrated wastewater discharge standard* (GB8978-1996) class III standard value: COD≤500mg/L，SS ≤400mg/L， petroleum ≤ 30mg /L

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
						years				
			Outlet of wastewater treatment facilities	1 monitoring point	COD, SS, NH_3-N, Petroleum, total cadmium, total lead	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				*Integrated Wastewater Discharge* standard (GB8978 -1996) class III standard values: cod ≤ 500mg / L, SS ≤ 400mg / L, petroleum ≤ 30mg / L, total cadmium ≤ 0.1mg/l, total lead ≤ 1.0mg/l *Pollutant Standards in Table 2 of* Standard for Pollution Control on the Landfill Site of Municipal Solid Waste (GB16889-2008): cod ≤ 100mg / L, SS ≤ 30mg / L, ammonia nitrogen ≤ 25mg / L, total cadmium ≤ 0.01mg/l, total lead ≤ 0.1mg/l
		Rainfall	Rainwater outlet	1 monitoring point	COD, SS, NH_3-N, Petroleum, total cadmium, total lead	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				
		Noise	One meter outside the east, south, west and north boundary of the station	4 monitoring point	Equivalent continuous A-weighted sound pressure level	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				*Class Ⅱ* standard of *Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008)
			Sensitive points	Subject to the practical conditions	Equivalent continuous A-weighted sound pressure level	One time for acceptance, once a month within the first three years of				*Environmental Quality Standard For Noise*(GB3096-2008)

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
						the operation period, and once a quarter after three years				

Table 9-2 Environmental Monitoring Plan of Waste Landfill Closure Activities

Items	Contents	Monitoring items		Monitoring points	Monitoring items	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Executive Standards and specifications
Landfill Closure	Construct-ion period	Waste gas	2m above the work platform on waste pile	1 monitoring point	Methane	Once/month	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	The methane volume fraction meets the standard limit requirements in 9.2.1 of *the* Standard for Pollution Control on the Landfill Site of Municipal Solid Waste (GB16889-2008)
			Around the boundary of construction site	East, west, south and north plant boundaries 4 monitoring points	Particulate matter	Once/month				*Fugitive Dust Emission at Construction Site* (DB61 / 1078-2017)

Items	Contents	Monitoring items		Monitoring points	Monitoring items	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Executive Standards and specifications
			Main wind direction (sensitive receptors and site boundary)	East, west, south and north plant boundaries, and the nearest residential area nearby	Ammonia, H_2S, methyl mercaptan, odor concentration	Once/month				*Emission Standard for Odor Pollutants* (GB14554-93) $H_2S \leq$ 0.06mg/m3, $NH_3 \leq$ 1.5mg/m3 Odor concentration (dimensionless) ≤ 2000
		Construction noise		East, west, south and north plant boundaries 4 monitoring points	site boundary noise	Once/month				Local Ecological Environment Bureau
	After the closure	Waste gas	Centre of waste pile, entrance gate of management area	2 monitoring point	Ammonia, H_2S, TSP, methane, odor concentration	once a month within 3 years after site closure, and once a quarter after three years	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	*Emission Standard For Odor Pollutants* (GB14554-93) $H_2S \leq$ 0.06mg/m3, $NH_3 \leq$ 1.5mg/m3 Odor concentration (dimensionless) ≤ 2000
		Landfill gas	Emission outlet of Landfill gas collection system	1 monitoring point	Methane, carbon dioxide, oxygen, H_2S, ammonia	once a month within 3 years after site closure, and once a quarter after three years		Owner	Local Ecological Environment Bureau	
		Leachate monitoring	Inlet and outlet of leachate treatment facility	2 monitoring point	SS, COD, BOD5, NH_3-N, fecal Escherichia coli	2 times a year within 3 years after site closure, and the	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	Class III Standard Requirements Of *Integrated Wastewater*

Items	Contents	Monitoring items		Monitoring points	Monitoring items	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Executive Standards and specifications
						sampling frequency shall be determined according to the effluent quality after 3 years				*Discharge Standard* (GB8978-1996); Standard requirements for pollutants in Table 2 of Standard for Pollution Control on the Landfill Site of Municipal Solid Waste (GB16889-2008)
		Underground water	One baseline moinitoring borehole, two pollution diffusion observation boreholes, and one pollution monitoring borehole	4 monitoring point	PH, dissolved oxygen, sulfate, total dissolved solids, chloride, calcium and magnesium, volatile phenol, NH_3-N, nitrate nitrogen, nitrite nitrogen, total Escherichia coli, total bacterial count, hexavalent chromium, cadmium, total mercury, total arsenic	once a month within 3 years after site closure, and once a quarter after three years	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	Class III standard in *Environmental Quality Standard For Underground water* (GB / T 14848-2017)
		Surface subsidence	/	/	Subsidence of waste pile	monthly for 3 years after the closure; semi-annuall	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	*Technical Code For Geotechnical Engineering Of Domestic Waste*

Items	Contents	Monitoring items		Monitoring points	Monitoring items	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Executive Standards and specifications
						y after 3 years of closure until the waste pile becomes stable				*Sanitary Landfill* (CJJ176-2012)

Table 9-3Environmental monitoring schedule of the construction projects of bulky-item dissembling center/recyclable garbage sorting center

Monitoring items		Monitoring points	Monitoring items	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Executive Standards and specifications
Waste gas	Fugitive emission (during construction period)	Downwind direction of the construction site	Particulate matter	Once/month	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	Particulate matter should comply with the standard limits in *the Integrated Emission Standard for Air Pollutants* (GB16297-1996); The odor concentration standard limit in the *Emission Standard Of Odor Pollutants* (GB14544-93)
	Fugitive emissions (during operation period)	4 monitoring points around the site boundary	Concentration of particulate matter and odor	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				
Noise	Noise monitoring (during construction period)	4 monitoring points around the site boundary	Equivalent continuous sound pressure level-A	Once/month				*The Emission Standard of Environmental Noise for Boundary of Construction Site* (GB12523-2011)
	Noise monitoring (during operation period)	4 monitoring points around the site boundary,	Equivalent continuous sound pressure	One time for acceptance, once a month within the first three				*Class Ⅱ of Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008) and

		number of sensitive points subject to the practical conditions	level-A	years of the operation period, and once a quarter after three years				*Environmental Quality Standard For Noise (GB3096-2008)*

Table 9-4 Environmental monitoring schedule of kitchen waste treatment plant

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
Kitchen waste treatment plant	During construction period	Waste gas	All around the construction site	4 monitoring points	TSP	Once/month	A qualified institution entrusted by the owner	Owner	Local Ecological Environment Bureau	*The Limiting Value of Fugitive Dust Emissions from Construction Sites* (DB61/1078-2017)
		Noise	1m away from the boundary of construction site in the east, south, west and north	4 monitoring points	Equivalent continuous sound pressure level-A	Once/month				*The Emission Standard of Environmental Noise for Boundary of Construction Site*（GB12523-2011）
	During operation period	Waste gas	Exhaust funnel of the deodorization system	1 monitoring points	Blowing rate ,H_2S,NH_3,Methyl mercaptan,Trimethylamine,odor concentration	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				Relevant standard limiting values om *Emission standard for odor pollutants* (GB14554-93)
			Downwind directio	1 monitoring points	H_2S、NH_3、Methyl mercaptan.Tri	One time for acceptance, once a month within the				

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
			n of the construction site		methylamine,odor concentration	first three years of the operation period, and once a quarter after three years				
		Waste water	Main outlet of waste water drained out of the construction site	1 monitoring points	PH value, flow, suspended solids, five-day biochemical oxygen demand, chemical oxygen demand, ammonia nitrogen, total phosphorus, animal and vegetable oils	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				*Integrated wastewater discharge standard* （GB8978-1996） class III standard value
		Noise	1m away from the boundary of construction site in the east, south, west and north	4 monitoring points	Equivalent continuous sound pressure level-A	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				Class Ⅱ standard of *Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008)
		Atmosphere	Downwind direction of the construc	1 monitoring points	H_2S、NH_3、odor concentration	One time for acceptance, once a month within the first three years of the operation period,				Annex D of *Technical Guidelines for Environmental Impact Assessment: Atmospheric*

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
			tion site			and once a quarter after three years				*Environment* (HJ2.2-2018)
		Underground water	Down stream of the construction project site	1 monitoring points	K+、Na+、Ca^{2+}、Mg^{2+}、CO_3^{2-}、HCO_3^{2-}、Cl^-、SO_4^{2-}、PH value, hardness, total soluble solids, ammonia nitrogen, nitrate, nitrite, volatile phenol, cyanide, permanganate index, fluoride, total coliform group, total bacterial count, etc.	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				Class III standard of *The Quality Standard of Underground Water* （GB/T14848-2017）

Table 9-5 Environmental monitoring schedule of decoration waste landfill

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
Kitchen waste treatment plant	During constructi	Waste gas	All around the construction site	4 monitoring points	TSP	Once/month	A qualified institution entrusted by the	Owner	Local Ecological Environment Bureau	*The Limiting Value of Fugitive Dust Emissions from Construction Sites* (DB61/1078-2017)

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
	on period	Noise	1m away from the boundary of construction site in the east, south, west and north	4 monitoring points	Equivalent continuous sound pressure level-A	Once/month	owner			*The Emission Standard of Environmental Noise for Boundary of Construction Site*（GB12523-2011）
	During operation period	Waste gas	Exhaust funnel	1 monitoring points	Particulate matter	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				*Integrated Emission Standard of Air Pollutants* (GB16297-1996)
			Fugitive emission monitoring (at boundary)	1 monitoring point in the upwind direction , 1 monitoring point in the downwind direction	Particulate matter	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				
		Waste water	Outlet of biochemical tank	1 monitoring point	COD，SS，NH_3-N，petroleum,total cadmium, total lead	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				Class III Standard Requirements Of *Integrated Wastewater Discharge Standard* (GB8978-1996)
		Rainwater	Rainwater outlet	4 monitoring points	COD，SS	One time for acceptance, once a month during the				Class III Standard Requirements Of *Integrated Wastewater*

Items	Contents	Monitoring Items		Monitoring point	Monitoring indicators	Monitoring frequency	Monitoring organization	Responsible organization	Supervisory authority	Standards and specifications
						operation period, and once a quarter after three years				*Discharge Standard* (GB8978-1996)
		Noise	1m away from the boundary of construction site in the east, south, west and north	4 monitoring points	Equivalent continuous sound pressure level-A	One time for acceptance, once a month within the first three years of the operation period, and once a quarter after three years				Class Ⅱ standard of *Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008)

9.3 Reporting

The county / district PMOs and PIUs will prepare reports (once every 6 months) on the progress and performance of ESMP, ESCP, and other related plans (e.g., RAP), and submit to the Shaanxi PMO. The report will also verify and update the status of remedying gaps identified through the E&S audit and the periodic E&S external monitoring.

The Shaanxi PMO will summarize the overall E&S management performance and issues of all subprojects, prepare an E&S progress report every 6 months, and submit it to the Bank as part of project progress reports.

The external E&S M&E agency will prepare an external monitoring report every 6 months and submit to the Shaanxi PMO. These external reports will be provided to the Bank together with the Shaanxi PMO's semiannual progress reports.

The ToRs for the external reports will be developed in the early stage of the project implementation as a part of the bidding documents. At least, the report should include the information on the progress of project, the monitoring data, the evaluation of the environmental and social performance, and the institutional capacity establishment.

The external E&S monitoring will monitor and report the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to the implementation of this ESCP, status of preparation and implementation of environmental and social (E&S) instruments required under this ESCP, remedy of the gaps identified through the environmental and social audit, land acquisition and resettlement, labor management, community health and safety, stakeholder engagement activities, functioning of the grievance mechanisms, and E&S performance of associated facilities (if applicable).

As part of the regular monitoring, the external E&S consultants shall follow up, verify, and report that the gaps identified through the E&S audit and the external monitoring (for instance, in terms of labor, land, community health and safety, stakeholder engagement, among others) have been appropriately remedied per the timelines specified in relevant E&S documents.

The contractors will submit implementation reports on the environmental clauses in their contracts to the supervising agencies and PIUs, including the implementation of measures, internal monitoring data, etc.

The supervising agencies should submit quarterly reports to the PIUs, including supervision and evaluation results of the implementation of the environmental measures and clauses in the contractors' contracts, and relevant corrective measures.

Appendixes

Appendix 1 Summary of Construction Subprojects and Identification of Main Facilities

1)Details of construction subprojects

No.	City	County / district	Details		PIU	Note
1	Weinan	Linwei District	Collection	Rural: Constructing 510 waste collection sites (covering 281 villages, 9 waste bins each); Urban: Constructing 500 community waste sorting collection sites (7 waste bins each)	Weinan Municipal Linwei District ESC	Included in the Batch 1 subprojects
			Transfer	Constructing 5 WTSs (township level, 3 80t/d and 2 60t/d), and reconstructing 3 WTSs (1 200t/d and 2 100t/d); Purchasing 43 3t transfer trucks and 21 12t box hook arm trucks		
			Terminal disposal	Closing the Majiagou Landfill (5.1 million m^3); Constructing the Huashan Street sorting center (135t/d).		
2	Weinan	Chengcheng County	Collection	Purchasing 195 electric collection vehicles (4 waste bins)	Chengcheng County ARABs	Included in the Batch 1 subprojects
			Transfer	Constructing 1 fixed WTS (100t/d) and 8 mobile WTSs (30t/d) 46 2t hanging bucket trucks 8 box hook arm trucks 1 8t rear loading compression and transfer truck		
			Terminal disposal	Closing the Chengcheng Landfill (1.06 million m^3) Closing the Yaotou Landfill (220,000 m^3)		
3	Weinan	Pucheng County	Collection	Rural: Constructing 588 waste collection sites	Pucheng County ESC	Not in the Batch 1 subprojects
				275 waste collection vehicles		
				Urban: Constructing 305 waste sorting collection sites		
			Transfer	54 3t transfer trucks, 16 5t transfer trucks, 5 8t transfer trucks,		
				5 kitchen waste collection vehicles		
			Terminal disposal	Closing Zone 1 of the Pucheng County Landfill (650,000 m^3)		
				Bulk dismantling center (80t/d) and recyclable sorting center (including publicity and education Center), 3,200 m^2		
4	Weinan	Baishui County	Collection	225 electric collection vehicles in 123 villages, 1280 waste bins	Baishui County Urban Administration and Law Enforcement Bureau	Not in the Batch 1 subprojects
			Transfer	Constructing 1 fixed WTS (100t/d) and 7 mobile WTSs (30t/d) 19 2t hanging bucket trucks, 6 3t hanging bucket trucks, 8 8t box hook arm trucks 4 20t box hook arm trucks 5 kitchen waste collection vehicles		
			Terminal disposal	Closing the Zhangpo Landfill in Baishui County (1.07 million m^3)		

No.	City	County / district	Details		PIU	Note
				Constructing a bulk waste and recyclable dismantling and sorting center (daily processing capacity of 5t/d)		
/	Baoji		Terminal disposal	Management and closure of the Changshougou Landfill (5.11 million m^3)	Baoji Municipal Urban Administration and Law Enforcement Bureau	Included in the Batch 1 subprojects
				Waste plastic sorting center (15,000t/y)		
				Decoration waste recycling plant (300,000t/y)		
				Reconstructing and improving a kitchen waste disposal plant (100t/d)		
				Comprehensive Management Publicity and Education Center (construction area of 3000 ㎡).		
5	Baoji	Jintai District	Collection	**Rural** 23911 50L household waste bins 228 240L public waste bins, 150 garbage sorting publicity pavilions 99 collection trucks with buckets and 8 garbage trucks	Jintai District Urban Administration and Law Enforcement Bureau	Not in the Batch 1 subprojects
			Transfer	**Rural** Constructing 23 WTSs Constructing a compression WTS 1 8t hook arm truck 9 5t transfer trucks **Urban** Reconstructing 12 WTSs (30-50t/d) 12 8t hook arm trucks		
			Supporting facilities	Urban sorting equipment 3 5m^3 recyclable box trucks 1 5t hazardous waste truck 4 5t kitchen waste trucks Other A 4,000 m^2 parking lot, 15 charging piles		
			Terminal disposal	None		
6	Baoji	Weibin District	Collection	**Rural** 224 village collection sites 2,000 240L waste bins in collection sites 224 electric tricycles 1 centralized collection site (80 m^2) **Urban** 284 community collection sites 3,000 240L waste bins in collection sites Reconstructing 8 centralized collection sites	Weibin District Urban Administration and Law Enforcement Bureau	Not in the Batch 1 subprojects

No.	City	County / district	Details		PIU	Note
				20 electric three-wheeled pickers 300 fruit peel boxes in three categories		
			Transfer	**Rural** Constructing 2 compression WTSs (10t/d) Reconstructing a WTS 4 12t mobile compression boxes 2 12t hook arm trucks 6 electric tricycles 8 3t transfer trucks **Urban** Constructing 2 WTSs Reconstructing 2 WTSs 8 12t mobile compression boxes 2 12t hook arm trucks 5 18t compression trucks 20 2.0 sanitation electric tricycle; Supporting equipment of WTS (20 electric small washing trucks, 5 high-pressure washing vehicles, 20 high-pressure electric sprays); 1 large garbage collection vehicle; 1 hazardous garbage truck with a rated load capacity of 1495kg; 1 organic waste garbage truck with a rated load capacity of 1495kg.		
			Supporting facilities	A 4,300 m^2 parking lot, 20 charging piles		
			Terminal disposal	None		
7	Baoji	Fengxiang District	Collection	**Rural** Constructing 14 village collection sites reconstructing 140 collection sites 2,400 240L waste bins in collection sites 1,600 electric tricycles **Urban** 400 community collection sites 3,200 240L waste bins in collection sites 338 electric tricycles	Fengxiang District Urban Administration and Law Enforcement Bureau	Not in the Batch 1 subprojects
			Transfer	**Rural** 2 WTSs (fixed), 2 sets of compression equipment 4 15t hook arm trucks 15 5t transfer trucks **Urban**		

No.	City	County / district	Details		PIU	Note
				4 15t hook arm trucks 8 5t transfer trucks		
			Supporting facilities	Urban environmental sanitation management monitoring and publicity center, 5,400 m^2 (2 drones) **Purchasing equipment for bulk dismantling center** **1 5t hazardous waste transfer truck**		
			Terminal disposal	Fengxiang District Landfill closure (1287,000 m^3)		
8	Baoji	Chencang District	Collection	80,320 waste bins (73,000 50L and 7,320 240L), 170 village collection sites; 500 waste sorting pavilions; 500 bucket hanging waste collection vehicles; constructing 30 centralized collection sites; reconstructing 2 centralized collection sites	Chencang District Urban Administration and Law Enforcement Bureau	Included in the Batch 1 subprojects
			Transfer	2 fixed WTSs (urban: 1 80t/d and 1 45t/d); 3 mobile WTSs (township: 2 24t/d and 1 16t/d); 7 8T transfer trucks; 8 12T transfer trucks; 3 12T box hook arm trucks; 3 20T box hook arm trucks; 2 suction vehicles; 14 cleaning vehicles		
			Terminal disposal	1 decoration waste landfill		Not in the Batch 1 subprojects
			Supporting facilities	Constructing a transfer truck parking and maintenance center, kitchen-garden waste recycling facility, 6 cleaner resting sites and an education center (5,000 m^2)		Only the transfer truck parking and maintenance center included in the Batch 1 subprojects
9	Hanzhong	Nanzheng District	Collection	1) Rural: constructing 433 waste collection sites (20-30 m2) (with a waste bin each), 7794 240L waste bins; 12,000 sets of fruit peel boxes 2) Urban: constructing 200 community waste sorting pavilions (4 240L waste bins each, 4.5 m2 each), totaling 800 240L waste bins, 1700 sets of fruit peel boxes	Nanzheng District Urban Administration Bureau	Not in the Batch 1 subprojects
			Transfer	1) Constructing 8 WTSs: 40t/d~110t/d; 2) Reconstructing 2 WTSs: Qingshu Town WTS (70t/d); Chengdong WTS (60t/d) 2) Purchasing 10 3T rear loading transfer trucks, 26 8T rear loading transfer trucks, 16 12t hook arm transfer trucks and 6 22m^3 hook arm transfer trucks		
			Terminal disposal	1) Jiangnan Landfill closure; 2) 1 publicity and education center (300m2)		
10	Ankang	Hanbin District	Collection	100,000 50L village waste bins; 245 electric tricycles; 500 community waste sorting pavilions	Hanbin District Branch	Not in the Batch 1 subprojects

No.	City	County / district	Details		PIU	Note
			Transfer	Constructing 3 fixed WTSs (urban: 1 260t/d, 2 100t/d); constructing 13 mobile WTSs (township: 1 32t/d, 1 24t/d, 8 16t/d and 3 8t/d); 11 15t hook arm trucks, 16 8t hook arm trucks; 12 3t compression trucks, 30 2t compression trucks; 30 2t bucket hanging transfer trucks 10 kitchen waste transfer trucks	of the Ankang Municipal Urban Administration and Law Enforcement Bureau	
			Terminal disposal	Construction kitchen waste disposal plant (100t/d);		
11	Xianyang	Jingyang County	Terminal disposal	1) Constructing a organic waste disposal plant (100,000 t/y), 137 sets of equipment, including crushing trucks, dump trucks, sewage suction trucks, etc.; 2) Constructing a bulk waste dismantling center (5t/d) (including 300 ㎡ of publicity and education center), and purchase 14 sets of equipment.	Jingyang County ARAB	Not in the Batch 1 subprojects

2)Main facilities of construction subprojects

a)Landfill closure

No.	Landfill	City	County / district	Floor area (mu)	Land type	Land ownership	Land use mode	Newly constructed facility
1	Fengxiang District Landfill	Baoji	Fengxiang District	82	Collective construction land	Linzhenpo Village, Fanjiazhai Town	Lease	
2	Changshougou Landfill	Baoji	Jintai District	600	State-owned public facility land	Baoji Municipal Urban Administration Bureau	/	
3	Xiangshigai Landfill	Weinan	Pucheng County	232	Collective construction land	Fuyang Village, Yaoshan Town	Lease	
4	Zhangpo Landfill	Weinan	Baishui County	148	Collective construction land	Zhangpo Village, Chengguan Sub-district	Lease	Bulk dismantling center, recyclable sorting center \ county town waste sorting education center
5	Majiagou Landfill	Weinan	Linwei District	358	Collective construction land	Majia and Mengjia Villages, Xiangyang Sub-district	Lease	
6	Yaotou Landfill	Weinan	Chengcheng County	48	Collective construction land	Yaotou Village, Yaotou Town	Lease	
7	Chengcheng County Landfill	Weinan	Chengcheng County	38	State-owned public facility land	Chengcheng County ESC	/	
8	Hongnan Landfill in	Hanzhong	Nanzheng	220	State-owned public	Nanzheng District Urban	/	

	Hanzhong City		District		facility land	Administration Bureau		

2)Proposed major facilities

No.	Facility	City	County / district	Floor area (mu)	Land type	Land ownership	Land use mode	Remarks
1	Parking lot and monitoring center in Fengxiang District	Baoji	Fengxiang District	16.2	Collective construction land	Beidajie Community, Chengguan Town	LA	
2	Waste sorting education center in Chencang District	Baoji	Chencang District	5	State-owned construction land	Chencang District Government	Allocation	48 households involved in HD
3	Kitchen-garden waste recycling facility in Chencang District	Baoji	Chencang District	28	Collective construction land	Dongbao Village, Guozhen Sub-district	LA	
4	Decoration waste landfill in Chencang District	Baoji	Chencang District	30	Construction land	Baoji Tongda Architectural Materials Technology Co., Ltd	Direct use	
5	Garden waste disposal plant reconstruction in Chencang District	Baoji	Chencang District	10	Collective land	Dongbao Village, Guozhen Sub-district	LA	
6	Integrated management education center	Baoji	Jintai District	24	Construction land	Longfeng Village	LA	
7	Waste plastic sorting center	Baoji	Jintai District	3.5	Collective land (TBD)	Baoji City Environmental Sanitation Construction Co., Ltd.	Direct use	
8	Decoration waste recycling and disposal plant	Baoji	Chencang District	48	Collective land	Xiao'an Village, Boxi Town	Lease	In Zhangjiayao Village, Panlong Town, upgrading
9	Reconstruction of kitchen waste disposal center	Baoji	Jintai District	30	State-owned construction land	Baoji City Environmental Sanitation Construction Co., Ltd.	Direct use	In Baoling Village, Jinhe Town
10	Bulk dismantling and recyclable sorting center in Baishui County	Weinan	Baishui County	TBD	Zhangpo Landfill	Xipo and Dongpo Groups of Zhangpo Village	Lease	Intent only
11	County town waste sorting education center	Weinan	Baishui County	TBD				
12	Sorting center	Weinan	Pucheng County	8.4	State-owned construction land	Pucheng County ESC	Direct use	In Daijia Village, Zijing Sub-district
13	Bulk waste dismantling center	Weinan	Pucheng County					
14	Waste sorting education center	Weinan	Pucheng					

No.	Facility	City	County / district	Floor area (mu)	Land type	Land ownership	Land use mode	Remarks
			County					
15	Construction waste disposal recycling in Hanbin	Ankang	Hanbin District	32.93	Construction land	Wangkan Village, Wuli Town	to be acquired	The land type to be confirmed
16	Bulk dismantling center	Xianyang	Jingyang County	4	Construction land	Baiyang Village, Sanqu Town	to be acquired	The land type to be confirmed
17	Hazardous waste holding site	Hanzhong	Nanzheng District	50	Construction land	Gao Village, Anwu Town	to be acquired	The land type to be confirmed

Appendix 2 E&S Screening Form for Construction Subprojects

This form will be filled out by the Shaanxi PMO, and submitted to the Bank for confirmation.

Subproject: _____PIUs: _____

Screening factor	Y	N	Risk rating				Remarks / proposed actions
			L	M	S	H	
E&S Risks							
1. Is there "associated facilities" involved in the subproject? ("Associated Facilities" means facilities or activities that are not funded as part of the project and, in the judgment of the Bank, are: (a) directly and significantly related to the project; and (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.)							If Yes, then the same safeguards requirements for the subproject will apply to the "associated facilities".
2. Is the subproject based on the reconstruction or expansion of an existing facility?							If yes, a comprehensive E&S audit will be performed.
3. Is the subproject located in nature reserves (existing or planned), core and key conservation areas of the Qinling Mountains, scenic areas, core and key conservation areas of forest parks, protected water sources, or areas with high ecological value?							If yes, the subproject will not be supported.
4. Is the subproject area a natural habitat?							If yes, the subproject will not be supported.
5. Is the subproject area located in critical natural habitat? i.e. is there important, fragile or endangered wildlife species in the subproject area?							If yes, the subproject will not be supported.
6. Will the subproject implementation lead to impacts on non-critical natural habitat?							If yes, necessary impact assessment on biodiversity and mitigation measures should be included in the EIA document.
7. Will the project involve conversion of permanent basic farmland for establishing structures and facilities without prior approval by the natural resources department?							If yes, the subproject will not be supported.
8. Does the subproject require new LA or resettlement? If yes, please indicate how much.							If new LA or resettlement is involved, an RAP will be prepared.
9. Has LA been completed for a new subproject?							If yes, resettlement due diligence will be conducted as per ESS5.

Screening factor	Y	N	Risk rating				Remarks / proposed actions
			L	M	S	H	
10. Is there known archeological, historical, or cultural heritage site in the area of influence of the subproject?							If yes, the risk rating should be S or H, and ESS8 applies. The EIA document will include ESS8-related measures.
11. Has the local population or any NGOs expressed concern about or opposition to the subproject?							If yes, the SEP will include stakeholder engagement arrangements, and these opinions should be incorporated into the subproject design.
12. Will the subproject bring significant community health and safety risks?							If yes, an ESA will be performed, and an appropriate action plan prepared.
13. Will the subproject cause significant labor safety and health risks?							If yes, an ESA will be performed, and an appropriate action plan prepared.
14. Will the subproject involve forced labor or child labor?							If yes, the subproject will not be supported.
15. Is there any minority community in the subproject area?							If yes, an EMDP will be prepared as per ESS7.
16. Will the subproject have negative E&S impacts on ethnic minorities?							If yes, an EMDP will be prepared.
17. Will the subproject potentially give rise to certain degree of social conflict associated with perceptions of community endangerment and non-receipt of benefits?							If yes, an ESA will be performed, and an appropriate action plan prepared.
Legal Compliance							
18. Does the existing enterprise have a valid operating permit, license, approval, etc.?							If no, the risk rating should be S or H, and an action plan should be developed. Review of documents and permitting records
19. Does the existing enterprise meet all Chinese environmental regulations regarding air, noise, wastewater and solid waste management?							If no, the risk rating should be S or H, and an action plan should be developed. The subproject should not be started before the social audit and action plan (if any) are completed.
20. Does the existing enterprise have any significant outstanding environmental penalties or any other environmental liabilities (e.g. pending legal proceedings involving environmental issues)?							if, yes, the enterprise should prepare and submit a time-bound action plan for review and approval. Prior to the completion of the action plan implantation satisfactory to the Bank, the enterprises should not be eligible for the project.
21. Have there been any complaints raised by local affected groups or NGOs regarding environmental and social impacts?							If yes, an action plan will be developed, and submitted to the Bank for review. The subproject

Screening factor	Y	N	Risk rating				Remarks / proposed actions
			L	M	S	H	
							should not be started before the action plan is completed.
22. Does the proposed subproject obtain the EIA approval from relevant environmental authority or EIA registration form?							If no, the subproject should not be started before the approval document issued by the environmental protection authority is obtained or before it is registered.
23. Does the proposed subproject obtain land use right or land use approval from relevant land resource authority?							If no, the subproject should not be started before the land approval document is obtained.
24. Does the subproject require separate approval for safety, water conservation/soil erosion control, flood control, geo-hazard assessment? If yes, please indicate the approval status.							If yes, the subproject should not be started before the approval documents of the safety, water conservation / soil erosion control, flood control, and geo-hazard authorities are obtained.
25. Is there any major outstanding issue in the existing facility (e.g., legal dispute, land use compliance)? Can it be solved properly during implementation?							If no, the risk rating should be S or H, and an action plan should be developed. The subproject should not be started before the social audit and action plan (if any) are completed.
Overall E&S risk rating: (The overall risk rating is determined based on the highest rating of all above questions.)							

Appendix 3 Guidelines for E&S Risks Classification

Risk Level	Definition	Comparison with EIA classification in China	Applicable E&S instruments
High	The subproject may have a wide range of significant adverse risks and impacts on humans or the environment, some of which cannot be mitigated, or specific mitigation measures require complex and/or unproven mitigation, compensation measures or technologies.	According to the *Categorized Inventory of EIA for Construction Projects* in China (2018), a project with potential significant environmental impacts will be required to an EIA Report to comprehensively assess the potential impacts. Such subprojects may include domestic waste incineration facility, hazardous waste incineration facility etc.	ESA, ESMP, SEP, EMDP, SEA etc.
Substantial	Some E&S impacts of the subproject may be significant, but the design of mitigation and/or compensation measures may be easier and more reliable than high-risk projects.	According to the *Categorized Inventory of EIA for Construction Projects* in China (2018), a project with potential significant environmental impacts will be required to an EIA Report to comprehensively assess the potential impacts. Such subprojects may include expansion of existing landfill facilities	ESA, ESMP, SEP, EMDP, SEA, etc.
Moderate	Potential adverse E&S risks and impacts are unlikely to be significant and can be easily mitigated in a predictable manner	According to the *Categorized Inventory of EIA for Construction Projects* in China (2018), a project with potential moderate environmental impacts will be required to an EIA Form (a simplified EIA report). Such subproject may include sorting centers of recyclables, transfer stations of domestic waste etc. Also some TA activities with potentially moderate downstream E&S risks etc.	ESA, ESMP, SEP
Low	Potential adverse risks and impacts to humans and/or the environment may be little or negligible.	According to the *Categorized Inventory of EIA for Construction Projects* in China (2018), a simple EIA Registration Table is to be filed. Such as smart waste bins, software development, education and training, general research activities, etc.	SEP (depending on actual situation)

Appendix 4 General E&S Impacts Management Measures

Appendix 4.1 General E&S Impacts Management Measures

Influencing factors	Mitigation measures	Implementation unit	Supervision unit
Exhaust gas	1) In the construction organization design, a special plan for dust prevention and control on the construction site must be formulated, and a special person must be designated to implement it. Without a special plan, it is strictly forbidden to set up a continuous and closed construction 100% enclosure on the construction site to reduce the emission of dust; 2) The project department must formulate an emergency plan for heavy air pollution, and when the government issues an early warning of heavy air pollution, it will immediately start an emergency response. 3) The project department must provide training on prevention and control of dust on the construction site for all operators who enter the site, and it is forbidden to work without training. 4) The dust complaint reporting telephone numbers of general situation signs must be published at works site, which should include telephone numbers of construction enterprises and competent departments. 5) The construction site of the works under construction must be closed with 100% standard enclosure, and it is strictly forbidden to use lax enclosure or open construction. 6) Before the works starts, the entrance and exit of the construction site and the main roads in the site must be 100% hardened, and the rest of the site must be green or solidified. 7) The entrance and exit of the construction site must be equipped with vehicle washing facilities, so that the vehicles entering and leaving the site can be 100% washed and cleaned, so as to ensure that all vehicles come out clean, and it is strictly forbidden for vehicles to come out with mud. 8) The earthwork piled up in the construction site must be covered by 100%, and it is forbidden to be exposed with a dense mesh. At the same time, water should be sprinkled regularly to prevent dust. 9) Vehicles transporting earthwork and muck on the construction site must be 100% closed or covered, and it is forbidden to omit or throw along the road. 11) Cement and other dust-like building materials on the construction site must be stored or covered in a closed manner, and it is forbidden to place them in the open air. 12) The construction site must establish sprinkler cleaning system or atomization dust reduction measures, and there is a specialist in charge. 13) Construction waste on the construction floor must be removed in time in a closed way, and it is strictly forbidden to throw it in the air. 14) Video monitoring system must be installed on the construction site to monitor the construction dust in real time. 16) Demolition works must be isolated by enclosure, and 100% wet operation must be adopted. Sprinkling water or atomizing dust reduction measures must be carried out. Waste should be covered or removed in time. Open demolition is strictly prohibited. 16) In case of serious pollution days, earthwork operations and building demolition operations on construction sites are strictly prohibited.	Construction unit	Comprehensive Administrative Law Enforcement Department
Wastewater	1) The existing facilities around the construction project should be used as much as possible for the construction	Construction	Comprehensive

Influencing factors	Mitigation measures	Implementation unit	Supervision unit
	personnel to wash and go to the toilet, otherwise temporary septic tanks, grease traps and other sewage treatment facilities should be set. 2) The construction site is provided with a special washing area, ground hardening and seepage prevention, and water collection ditches and oil separation sedimentation tanks are set around it. After being treated by the set oil separation tanks and sedimentation tanks, the washing wastewater from construction vehicles and machinery is reused in the site to spray water to suppress dust or discharge up to standard. 3) The stacking of building materials, garbage and excavated earthwork must be set away from the water body, and anti-scour measures should be taken for the material yard, such as using bagged planting soil for enclosure, setting intercepting ditch around the yard and other measures to prevent its loss; 4) The construction unit should also carry out large-scale earth and stone excavation works to avoid the rainstorm season, and take necessary soil and water conservation measures for the temporary stacking sites of building materials and waste (slag) to keep the drainage system unobstructed for the construction site; 5) For domestic garbage, construction garbage and maintenance garbage, it is required to organize recycling, classification, storage and treatment due to the pollution caused by entering water. Among them, the available materials should be mainly utilized or recycled. For example, most of the paper, wood, metallic and vitreous garbage can be reused by the purchasing station, and those that cannot be utilized should be properly handled by the sanitation department.	unit	Administrative Law Enforcement Department
Noise	1) Reasonably arrange the construction time and time limit for a project, and try to avoid night construction; It is forbidden to construct high-noise machinery at night (22: 00 ~ 6: 00); If the construction process requires continuous operation at night, it shall apply to the local competent department of ecological environment before the construction operation and take corresponding noise prevention measures. Before the construction, it shall be announced at a prominent position in the surrounding villages that may be affected by noise. 2) Optimize the construction scheme and adopt advanced construction technology and low-noise equipment; 3) Strengthen the regular maintenance of equipment, strict operation procedures, and avoid abnormal equipment noise; 4) Temporary construction enclosures with noise reduction function (such as color steel plates, solid walls, etc.) should be set up when constructing near sensitive targets; Control the running speed of bulldozers, excavators, road rollers and other mechanical equipment, and it is forbidden to whistle; 5) Strengthen the management of transport vehicles and strictly control the honking of vehicles; 6) The transportation vehicles entering and leaving the site are arranged on the side away from sensitive points such as residential areas and schools. The strong noise equipment on the construction site shall be set on the far side away from residential areas, and noise reduction measures such as closing the strong noise equipment can be taken. 7) The construction site shall formulate noise reduction measures according to the requirements of *Emission Standard of Environmental Noise at Construction Site* Boundaries (GB12523-2011), and the noise at the construction site boundary shall be detected and recorded, and the noise emission shall not exceed the national standard.	Construction unit	Comprehensive Administrative Law Enforcement Department
Solid waste	1) Set up a fixed garbage storage area on the construction site, remove and dispose the garbage generated in the construction process in time to prevent environmental pollution;	Construction unit	Comprehensive Administrative

Influencing factors	Mitigation measures	Implementation unit	Supervision unit
	2) Keep the construction site clean and tidy. Garbage classification (domestic garbage and construction garbage) collection, centralized storage, centralized removal and disposal by the sanitation department; 3) During construction, the generation of construction solid waste should be reduced as much as possible, and solid waste resources should be reused. Solid wastes are classified and recycled as much as possible; 4) Make good use of earthwork allocation, and minimize the amount of waste soil (slag) generated by works construction;		Law Enforcement Department
Water and Soil Conservation	1) Strictly control the boundary of the construction plant and reduce the disturbance of surface vegetation; 2) For the exposed surface disturbed by construction, temporary covering measures should be taken to reduce soil erosion; 3) Earthwork excavation works should avoid rainy season, and avoid the exposed surface which is easily eroded or newly excavated from being directly washed by rain; 4) For temporary land used for construction; land remediation and greening shall be carried out in time after the construction; 5) The following measures shall be taken in the borrow yard/spoil yard: ① The borrow yard near the project should be used as much as possible to avoid opening new sites; ② The site selection of new quarries or borrow yards shall not be located in or near natural habitats and changed habitats with important biodiversity value; ③ Temporary soil and water conservation measures should be taken for borrow yards and stacking areas; ④ After use, the contractor shall ensure that all borrow yards are trimmed and tidy, and the slopes are stable, so as to carry out re-cultivation and restore natural waterways; ⑤ Local species should be given priority when replanting vegetation on the site; ⑥ Contractors should consult with the local government to see if they need to use the borrow yard for other production and living purposes, and try their best to meet their needs while meeting the national and local regulations on the nature of land. 6) The following measures should be taken for spoil yard: ① The contractor shall select the spoil yard according to the design documents and EIA report, and follow the design requirements; ② New spoil yard-avoid being located in or near natural habitats and changed habitats with important biodiversity value; Choose low-lying areas with large capacity as far as possible; Choose wasteland to avoid soil erosion as much as possible; Avoid setting along rivers and lakes, which cannot affect the flood discharge and irrigation functions of rivers, valleys, drainage and irrigation ditches; Ensure the safety of downstream farmland and buildings; Can't be upstream of residential areas (village houses, etc.); ③ The newly-opened spoil yard should be designed by the design unit. Retaining, slope protection, drainage and restoration schemes must be in place and approved by the environmental supervision engineer and/or relevant local departments; ④ 30cm of natural topsoil should be reserved, supplemented by correct retaining and retaining measures to control soil erosion. After the completion of the construction, backfill is used for re-cultivation;	Construction unit	Comprehensive Administrative Law Enforcement Department

Influencing factors	Mitigation measures	Implementation unit	Supervision unit
	⑤ It is necessary to build intercepting ditch and side ditch at the top of the slope to control surface soil erosion and keep the slope stable; ⑥ At the end of the spoil, comprehensive recovery work should be carried out immediately. The restoration work should include covering the local topsoil completely, greening it all, and making use of local species as much as possible.		
Ecological Environment	1) Train workers and define the requirements of wildlife protection measures; 2) Limit the scope of construction, and prohibit the destruction of vegetation outside the scope of construction; 3) Preserve the cultivated ripe soil of local agricultural land, collect and preserve the surface soil of permanently occupied land, temporarily occupied agricultural land and shrub grass during construction, and use it for site restoration and greening of the center and both sides of the road after completion; After the completion of construction, vegetation should be restored as soon as possible through greening; 4) Prohibit the use of herbicides and pesticides that are explicitly prohibited from being eliminated in the construction process; 5) In the process of construction, if any key protected plants are found, timely report them to the competent department for protection; 6) For places close to wildlife habitats, make a good construction organization plan, avoid noise construction at dawn and noon, and reduce the disturbance to wildlife; 7) Do a good job of ecological restoration as soon as possible after the completion of the works, and minimize the adverse effects of habitat destruction on animals.	Construction unit	Comprehensive Administrative Law Enforcement Department
Social impact	1) A bulletin board is set at the entrance of the construction site, indicating the works contractor, the construction supervision unit, the time limit for a project, the hotline number of the local eco-environmental bureau and the name of the contact person, so as to strive for the understanding and understanding of the temporary interference caused by the project construction by the affected people, and at the same time, it is convenient for the affected people to contact the relevant departments when they find that the construction unit is operating illegally; 2) Set clear traffic guidance signs, put forward the suggested traffic guidance scheme to the owner during the peak period of busy road construction, and submit it to the relevant departments for implementation by the owner; 3) Minimize the impact of construction on public services. If the impact is inevitable, report it to the owner in advance, notify the residents by the owner, and try to shorten the affected time; 4) Establish an effective complaint mechanism, and the contractor shall appoint a special person to take charge of reception; 5) At the request of the owner, the contractor shall attend the public participation meetings held regularly by the owner in the villages of the project affected area. At the meetings, the construction unit shall send people to explain the construction activities, the environmental protection measures that have been taken or will be taken, listen to the environmental problems and complaints that the public cares about, and respond to them.	Construction unit	Comprehensive Administrative Law Enforcement Department
Preservation of Cultural Relics	1) Make clear the distribution of surrounding cultural relics and requirements of protection measures before construction; 2) Works construction involving existing cultural relics protection units must be approved by the administrative	Construction unit	Culture, radio and television tourism

Influencing factors	Mitigation measures	Implementation unit	Supervision unit
	department of cultural relics protection in advance; 3) Strictly control the construction site boundary to avoid encroaching on the scope of cultural relics protection; 4) Carry out cultural relics protection training for construction personnel, and prohibit the destruction of cultural relics during construction; 5) Once the construction unit discovers cultural relics during the construction process, it shall immediately stop the construction, protect the site and inform the cultural relics management department;		department
Workers' safety and occupational health	1) The contractor shall prepare a safety and health management plan (including an emergency plan for safety accidents) before commencement, and submit it to the supervision unit/owner unit for approval; 2) The contractor's safety management organization, equipped with full-time safety management personnel, is responsible for the construction safety management; 3) Conduct occupational health and safety training for all construction personnel, and introduce them to the basic working rules and personal protection rules of the construction site and how to prevent other employees from being injured; 4) Provide construction personnel with appropriate personal protective equipment (gloves, helmets, protective shoes, etc.) to fully protect workers themselves, other workers and occasional visitors; 5) Appropriate first-aid equipment shall be provided at the construction site; There should be written emergency handling procedures in remote locations until patients can be transferred to appropriate medical institutions; 6) Dangerous areas, devices, materials, safety measures, emergency exits, etc. should be hung with correct signs; 7) The passage to the emergency exit should not be blocked by obstacles at any time. There should be a clear sign at the exit, which can be seen even in complete darkness. 8) Put warning signs on all powered electric devices and wires; 9) The construction site is equipped with sufficient fire-fighting facilities to meet the requirements of relevant laws and regulations on fire safety; 10) Operators of special vehicles/machinery must be trained in safe operation, equipped with necessary protective equipment and certified; 11) Install protective railings at the edges of vulnerable areas (should have a middle bar and peripheral baffles), and at the same time, overhead construction personnel should adopt fall prevention devices (including protective nets, safety belts and distance limiting lanyards); 12) The construction unit shall establish a safety log, which shall be recorded daily by the person in charge of safety; 13) The construction unit shall establish workers' health records and conduct regular physical examinations for workers; 14) Carry out health education for construction personnel, such as implementing information communication strategy, enhancing face-to-face consultation, solving systemic problems affecting individual behavior, and encouraging individuals to take protective measures; In addition, mosquito repellent, clothes, mosquito nets and other blocking methods are encouraged to prevent mosquito bites from spreading diseases;	Construction unit	Health, fire protection, emergency management, comprehensive administrative law enforcement and other departments

Appendix 4.2 Environmental Mitigation Measures in Runtime

Works name	Main environmental impact factors	Mitigation measures	Implementation unit	Supervision unit
Garbage transfer station	Exhaust gas	1) Transport waste gas ① Use clean fuel; ② Drivers adopt driving practices that can reduce accident risk and fuel consumption, including controlling acceleration rhythm and driving within safe speed limits; ③ Replace old cars with new ones with higher fuel efficiency; ④ On the premise of feasibility, use clean fuel vehicles; ⑤ And install and keep using emission control devices, such as catalytic converters; ⑥ Implement the vehicle regular maintenance system; ⑦ Choose the best transportation route to reduce greenhouse gas emissions. 2) Waste discharge gas ① Setting a plant liquid space spraying control system; ② The medium and large transfer stations (> 150t/d) are equipped with exhaust and deodorization devices, which will be discharged through the exhaust pipe after treatment; ③ Air curtain is set at the entrance and exit of the unloading hall; 3) The stench of leachate The leachate generated from garbage storage is collected in a closed manner, and the odor from the collection pool is collected and then led to the integrated dust removal and deodorization device for treatment, and then discharged through the exhaust pipe. 4) Management of dioxin in terminal waste incineration plant (incineration technology, combustion control, dioxin secondary generation control, flue gas treatment, emission control and monitoring, etc.)	Implementation unit	Ecological Environment Department
	Wastewater	1) Landfill leachate: After sealed collection, it is transported to a sewage treatment plant for treatment, and then discharged after the treatment reaches the standard; 2) Domestic sewage: Access to the municipal pipe network, and discharge it after being treated by sewage treatment plant.	Implementation unit	
	Solid waste	1) The deodorization tower packing shall be replaced and maintained regularly by the equipment manufacturer, and the general industrial solid waste after replacement may be entrusted to other units for comprehensive utilization or disposal; 2) Hazardous wastes such as waste engine oil generated during equipment maintenance shall be entrusted to qualified units for standardized disposal.		
	Soil	1) Source control measures ① Treat the wastewater generated in the factory area reasonably, and reduce the possible pollutants from the source as much as possible; Strictly do a good job in the construction of seepage control measures for ground partitions. ② In strict accordance with the requirements of relevant national codes, take corresponding measures for processes, pipelines, equipment and sewage storage, and implement sealing measures		

Works name	Main environmental impact factors	Mitigation measures	Implementation unit	Supervision unit
		for transport vehicles, so as to prevent and reduce the escape, emission, drip and leakage of possible pollutants, and minimize the environmental risk accidents caused by pollutant leakage. ③ Regularly monitor the downwind direction of the site and the soil quality at the downstream of the filtrate collection pool. If the pollution factors exceed the standard, effective measures should be taken to treat the damaged soil in time. 2) Process control measures During the works construction, the ground layout should be optimized as far as possible according to the topographic features of the project location and the distribution of surrounding sensitive targets, and measures such as artificial seepage control, ground hardening, cofferdam, etc. should be taken for structures in the plant area that may cause soil pollution.		
	Risk prevention	1) Enterprises should establish a strict fire control management system and set up fire-fighting equipment in the factory area; 2) The ground for garbage transfer station shall be hardened; and the sewage collection pool shall be impervious of ensure that the permeability coefficient is not less than 10^{-7}cm/s; so as of prevent groundwater pollution. 3) Strengthen the management of garbage transport vehicles, and prohibit leaking vehicles from going on the road. In case of accidents during transportation, relevant departments should be notified immediately and emergency measures should be taken to prevent the spread of pollution;	Implementation unit	Ecology, emergency management and other departments
Garbage sorting Center	Exhaust gas	1) In the process of plastic sorting, the parts with heavy local odor can be partially sealed and smoked, and then appropriate measures can be taken to deal with them. The tail gas emission must meet the requirements of *Integrated Emission Standard of Air Pollutants* (GB16297-1996) and *Emission Standard for Odor Pollutants* (GB14554-93). 2) Collect and remove dust in sorting workshop.	Implementation unit	Ecological Environment Department
	Wastewater	The production wastewater from waste plastics cleaning and ground flushing should be treated by appropriate measures. After reaching the standard of reclaimed water reuse, some of it will be reused in production, and the rest of the tail water will be transported to the sewage treatment plant through pipelines for treatment.	Implementation unit	Ecological Environment Department
	Noise	Low-noise equipment shall be adopted to ensure that the noise at the boundary of the factory meets the requirements of *Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008).		
	Solid waste	According to relevant regulations, if general industrial solid waste can be utilized, comprehensive utilization should be considered first; If it is unavailable but has a high calorific value, it will be sent to the waste incineration power plant for incineration; If it is unavailable and has low calorific value, other appropriate methods can be selected for disposal; Hazardous solid wastes are entrusted to qualified units for disposal.		
Closure of Landfill	Exhaust gas	1) Landfill gas The landfill area is provided with an exhaust layer and a vertical air duct. After the landfill is closed, the gas is collected and then ignited and discharged by a high-altitude torch or the landfill gas power	Implementation unit	Ecological Environment Department

Works name	Main environmental impact factors	Mitigation measures	Implementation unit	Supervision unit
		generation project is used for power generation. 2) Odor After the field is closed, the odor produced by the leachate collection pool is collected, treated by the integrated deodorization tower and then discharged.		
	Waste water pollution control	Leachate treatment ① After the site is closed and covered, the pile body shows that a drainage ditch is built, and a 5% flat slope is formed on the top surface. The rainwater on the slope of the site closure flows into the flood intercepting ditch and then is discharged into the flood intercepting ditch in time, so as to reduce the infiltration of rainwater from the catchment unit on the surface of the pile body; ② Set leachate regulating tank, which adopts HDPE film covering system, and the top surface of the covering film conducts rainwater drainage to prevent rainwater from entering landfill leachate; ③ Landfill leachate will enter the collection pool through the leachate guide and discharge system, be collected and then discharged into the leachate treatment station for treatment, and be discharged after meeting the standard limit of the *Standard for Pollution Control on the Landfill Site for Domestic Waste* (GB16889-2008).		
	Noise pollution control	Adopt low noise equipment and necessary vibration reduction measures to ensure that the noise at the boundary of the factory meets the requirements of *Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008).		
	Solid waste pollution control	After the site is closed, the sludge deposited in the leachate regulating tank will be cleaned regularly, and the cleaned sludge will be dewatered and sent to the waste incineration power plant for incineration.		
Construction waste treatment plant	Exhaust gas	As for the odor generated by the construction waste treatment plant, a gas collecting hood is set to collect it, and then it is treated by an integrated deodorization and purification tower, and then discharged through an exhaust pipe, so as to ensure that the exhaust gas meets the requirements of *Integrated Emission Standard of Air Pollutants* (GB16297-1996) and *Emission Standard for Odor Pollutants* (GB14554-1993).	Implementation unit	Ecological Environment Department
	Wastewater	Leachate produced in the composting process and waste water produced by ground flushing shall be set up in a leachate regulating tank, which shall be collected and transported to a sewage treatment plant for treatment, and then discharged after the treatment reaches the standard;		
	Noise	Low-noise equipment shall be adopted to ensure that the noise at the boundary of the factory meets the requirements of *Emission Standard for Industrial Enterprises Noise at Boundary* (GB12348-2008).		
	Solid waste	It is general domestic garbage, which shall be handed over to the sanitation department for unified treatment.	Implementation unit	Ecology, comprehensive administrative law enforcement and other departments

Appendix 4.3 Measures to mitigate social health and safety during operation

Influence Factor	Potential environmental and social risks/impacts	Suggested mitigation measures	Implementation unit	Period
Community health and safety	1) Traffic interference in and out of transport vehicles and the impact of road safety; 2) Risks caused by production accidents to surrounding communities;	1) Reduce the inventory of hazardous substances through inventory management and process modification in order to significantly reduce or eliminate the potential consequences of releasing hazardous substances outside the site; 2) Traffic safety: Emphasize safety rules for drivers; Improve driving skills and stipulate that drivers must have licenses; Limit driving time and arrange driver shift schedule to avoid excessive fatigue; Avoid dangerous roads and driving vehicles at dangerous times of the day, thus reducing the possibility of accidents; Adopt speed control device (speed controller) on transport vehicle, and remotely supervise the behavior of drivers; Regular maintenance of vehicles using manufacturer-approved components to avoid serious accidents due to equipment failure or premature failure of components. Cooperate with local communities and competent administrative departments to improve road signs, visibility and overall road safety, especially in roads near schools and other areas with children. Conduct traffic education and pedestrian safety education with local communities (such as publicity activities in schools); 3) Transportation of hazardous wastes, household harmful waste: Ensure that the volume, nature, integrity and protective performance of the packages and containers used for transportation conform to the types and quantities of dangerous substances transported, and conform to the adopted mode of transportation; Ensure that the specifications of transport vehicles are suitable; Train employees involved in the transportation of hazardous substances on how to correctly implement the shipping procedures and emergency handling procedures; Labels and signs (signs on the outside of transport vehicles) shall be adopted as required. 4) Keep a buffer zone around the project site or adopt other isolation methods to protect the public from the serious impact of hazardous substances accidents or process failures, and avoid unpleasant noise, odor and other emissions to the public.	Implementation unit	Operation period
OHS	Safe operation and health risks of workers	1) Set up signs and warning boards in dangerous areas and equipment, and indicate the danger level signals; 2) For rotating and moving equipment, during repair and maintenance, machines with exposed and moving parts with shields and machines with energy storage should be shut down, cut off, isolated and shut down according to relevant standards; 3) Establish a sound occupational health and safety training mechanism, regularly train employees in working skills, and improve their working level; 4) Workers should wear necessary protective tools when working; 5) Materials and equipment should be stacked in an orderly manner to ensure smooth roads, the used equipment should be cleared in time, and the surplus materials should be put back to the designated place in time; 6) Establish a sound hygiene system, and assign special personnel to disinfect the work area every day. 7) Take the temperature of the staff every day, and actively check and treat those who feel unwell.	Implementation unit	Operation period

Influence Factor	Potential environmental and social risks/impacts	Suggested mitigation measures	Implementation unit	Period
		8) Carry out comprehensive propaganda work on epidemic diseases, infectious diseases and COVID-19 epidemic among staff. 9) Make sure to set up hand washing facilities with soap, disposable paper towels and closed trash cans at key locations in the workplace. Key locations include the entrance/exit of the work area; Toilets, canteens, food distribution places or places where drinking water is provided; Public space. If there are no or insufficient hand washing facilities, adequate hand washing facilities should be provided. Alcohol hand sanitizer (containing 60-95% alcohol) can also be used.		

Appendix 4.4 Energy saving, traffic safety and construction camp management measures

Category	Measures	Implementation unit	Supervision unit
Energy conservation measures	1) Improve the organization. Establish an energy management leading group to manage and coordinate energy management in a unified way. 2) Establish a patrol inspection system for energy use. Discover the phenomenon of "steam steaming" in the use and operation of the equipment, and reduce the energy waste. The leakage of faucets in public toilets and office areas, and the leakage of water tanks in toilet bowls should be found and repaired in time; The phenomenon of "Ever-burning Lamps" and "Ever-running Water" in the logistics area is eliminated through patrol inspection. 3) Priority should be given to purchasing low-energy consumption facilities (equipment), and necessary energy-saving measures should be taken to build green energy-saving buildings. 4) Reduce the standby time of office equipment. After work, turn off all electrical equipment in the office in time. Minimize the use of air conditioners in offices and workshops, and keep the indoor air quality by opening windows and doors. 5) Establish correct equipment operation specifications. Formulate correct and detailed workshop equipment operation specifications, including equipment operation, maintenance, storage, handover and other aspects. Workers' correct operation of equipment can effectively avoid problems such as idling of equipment, "Use with Faults" and abuse of equipment. 6) Reduce the use of elevators. Employees should be actively encouraged to reduce the use of elevators in office buildings to reduce power consumption. It is recommended that many people take a elevator together or "when going up and down stairs, go up one floor and down two floors, and take the stairs"; When going downstairs, try not to take the elevator.	Manufacturer	Departments of construction, market supervision, industrial credit, etc.
Traffic safety management	1) General requirements ① All transportation departments should publicize and implement national, provincial and municipal transportation safety regulations, rules and regulations, and various safety management rules and measures of the company, rent houses regularly for safety study, and do a good job in safety education and management of employees; ② Keep in mind the idea of "Safety First" and always put safety work in the first place. The person in charge of the department is the first responsible person for the safety of transportation, so it is necessary to hold a safety work conference to analyze the safety risks existing in the transportation process, and make a safety risk assessment according to the unit's *Hazard Identification, Risk Assessment and Control Procedure* and the actual work.	Carrier	Traffic policeman

Category	Measures	Implementation unit	Supervision unit
	③ Set up safety officers according to the actual situation, and do a good job in safety publicity and safety precautions. ④ Insurance matters of all links in the transportation process shall be handled well. 2) Driver management ① Must work with certificates according to national requirements, abide by traffic laws and operating rules, resist illegal behaviors, maintain traffic order and ensure safe driving. ② Actively participate in various safety studies and activities, and improve the awareness and technical level of safe driving. ③ Strictly implement the company's safety management rules and regulations, observe the labor discipline, obey the dispatching command, and complete the transportation task on time and with good quality. ④ Abide by the vehicle management and warranty system, consciously do a good job in the "Three Clean and Guarantee" of vehicles, and keep the vehicles, tires, accessory equipment and on-board tools clean and tidy, and the license plates and certificates are complete and intact. ⑥ Familiar with vehicle performance, skilled driving skills, learn advanced experience, master driving rules, and strive to complete various technical and economic indicators. ⑦ Fulfill the team work procedures and do a good job in vehicle handover. ⑧ Obey the command and inspection of safety management personnel, and accept relevant tasks and training assigned by superiors. 3) Vehicle safety management ① Implement the vehicle management rules and regulations of the state and the company, do a good job in the annual inspection, technical filing and use management of vehicles, and timely, completely and accurately record relevant information such as vehicle operation, warranty and accident. ② Arrange the vehicle maintenance plan, and organize the maintenance and repair of safe vehicles and machinery on schedule.		
Management plan of construction camp	1) Camp management of project department refers to the management of office, living and entertainment places within the scope of project department, and also includes the management of camp fire protection, environmental sanitation, public entertainment, canteen and personnel. All employees must follow it carefully. 2) The general office or administration department is the responsible department in charge of camp management. 3) According to the requirements of plane layout, the planning of the camp is completed by the general office or the administrative department. Water supply, power supply, environmental sanitation, fire fighting and publicity facilities must be reasonably considered in the planning of the camp. It is strictly forbidden for any individual to build or dismantle temporary buildings and post slogans and advertisements without permission. 4) The layout of water supply and power supply in the camp must be neat and standardized, so as to meet the requirements of horizontal and vertical. No individual is allowed to connect privately. 5) Electrical equipment is set in the camp, which is planned and managed by the project department. It is strictly forbidden for individuals to add electrical appliances without permission to ensure the power supply load. 6) No inflammable, explosive, highly toxic, radioactive sources and other hazardous chemicals shall be stored in the living quarters. 7) Keeping the environment clean and tidy is the responsibility and obligation of every employee in the project department. The staffs of project department should respect the labor achievements of cleaning staff and jointly create a clean, beautiful and comfortable working and living environment.	Relevant departments and employees of the construction unit	Contractor

Category	Measures	Implementation unit	Supervision unit
	8) Environmental sanitation standard of the camp: Clean and tidy, the objects are placed in an orderly manner, and no sundries are allowed to hang around. There is no water, black odor, garbage and running water. 9) A boiling water room should be set in the camp, a heat insulation bucket and a boiling point should be set in the rest place of the construction site, and the tea bucket must be covered and locked. 10) Employees in canteens have an annual health check-up. New employees and temporary employees must have a health check-up before they can take part in the work. 11) Infected patients or pathogen carriers are not allowed to work in the canteen. Employees in canteens should leave their jobs immediately when they have cough, diarrhea, fever, vomiting and other diseases that hinder food hygiene. They can only be re-employed after finding out the cause, eliminating the diseases that hinder food hygiene or being cured. 12) Cooking staff must wear work clothes, hair hats, and "Three Whites" (white clothes, white hats, and white masks) when operating, and keep them clean and tidy, so as to operate in a civilized manner. They are not allowed to smoke, eat, or wear gold and silver jewelry. 13) The canteen staff should develop good hygiene habits and adhere to the "four-duty" (frequent bathing, frequent haircutting, frequent changing clothes and frequent nail cutting). Bad behaviors and hobbies that may not violate the hygiene of the catering industry. 14) The canteen should keep the internal and external environment clean and tidy, and take effective measures to eliminate rats, cockroaches, flies and other harmful insects and their breeding conditions. The layout of facilities and equipment in the canteen should be reasonable, with relatively independent food raw material storage rooms, food processing operation rooms and dining places. 16) Canteen managers must always check the safety and hygiene of canteens, and ensure the cleanliness of rooms, appliances and personnel. Need to disinfect related appliances. 16) The washing and disinfectant used must meet the hygiene standards or requirements, and have a fixed storage place and obvious marks. 17) For purchasing food, try to claim the certificate according to relevant regulations, and at the same time, the place where food is purchased should be relatively fixed to ensure its quality. 18) Food storage should be classified, divided into shelves, separated from the ground, regularly inspected, and food that has deteriorated or exceeded the shelf life should be treated in time. It is forbidden to store toxic and harmful substances and personal articles in food storage places. Raw food, semi-finished products and cooked food should be stored in separate cabinets. 19) The leftover food in the canteen must be refrigerated, but the refrigeration time should not exceed 24 hours. If it is confirmed that there is no deterioration, it must be thoroughly heated at high temperature before it can be eaten.		
	20) The project department should establish the leadership responsibility system in charge, and be equipped with full-time or part-time food hygiene management personnel to ensure the safety and hygiene of employees' meals. The project department shall establish an emergency handling mechanism for emergencies such as food poisoning or other food-borne diseases. Emergency measures should be taken in time after food poisoning or suspected food poisoning accident. To establish a food hygiene accountability system. 21) Employees are not allowed to sublet or lend part or all of the dormitory to others, nor are they allowed to stay with outsiders at		

Category	Measures	Implementation unit	Supervision unit
	will. 22) Management regulations for camp public security: ① There shall be no illegal activities disturbing public order in the camp. ② It is forbidden to store toxic, explosive and flammable materials in the dormitory, and it is forbidden to use fire fighting equipment and equipment casually. 23) Safety management requirements: ① Fire-fighting facilities shall be set up according to the requirements of fire safety, and regular inspection and inspection shall be conducted as required to ensure the effectiveness of the facilities. ② Sufficient fire fighting equipment and materials must be provided for key fire prevention parts, and fire safety inspection, supervision and management should be strengthened at the same time. Special fire prevention management system must be posted in key fire prevention areas to restrain the staff and other personnel who reach the key areas to contact with the work. Other people are not allowed to enter the key fire prevention areas. ③ The office comprehensively organizes various forms of fire safety education. The contents of fire safety training mainly include: a) Fire control regulations, fire control safety system and operation procedures for ensuring fire control safety. b) Fire hazard and fire prevention measures of project department and this position. c) Performance and usage of fire control facilities and equipment. d) Knowledge and skills of fire alarm, fire fighting and self-rescue and escape. 24) The project department shall organize a major fire safety inspection every quarter, and an inspection system must be established for key fire safety parts. 25) Fire prevention inspection (patrol) personnel shall promptly correct violations and properly handle fire hazards. If they cannot be handled on the spot, they shall immediately report to the competent department or the corresponding responsible person. The project management assesses the responsible person and rewards and punishments according to the divided area of responsibility. In case of violation of the above clauses, the project department will give certain penalties as appropriate; If it causes a safety accident, it shall be handled according to the accident treatment method; Public security cases shall be handled according to public security management regulations; Those who violate the law shall be handed over to judicial organs.		

Appendix 5 Essential E&S Elements of the ToRs for TA Subprojects

To ensure that TA activities are prepared for, implemented and completed in accordance with the ESMF, and the Bank's ESF and ESSs, the TORs should include (but not limited to) the following:

- Reviewing and confirming the relevance of the TA activities and their downstream E&S impacts with the Bank ESSs.
- Reviewing and confirming management tools proportionate to the TA activities and their downstream E&S impacts / risks, including an E&S analysis chapter, SESA, CIA, etc.; developing a detailed E&S impact research plan, conducting relevant studies, and proposing E&S risk mitigation measures.
- Developing the plan/arrangement for enforcing stakeholder engagement (as part of the TA work plan), conducting stakeholder engagement activities, releasing relevant information, and including stakeholder feedback in E&S outcomes.
- Monitoring and reporting the E&S performance of the TA activities; and
- Appointment, qualification requirements and input of E&S experts
- Requirements on management of labor risks of TA activities staff, such as:
    - Actions and measures to consider and address travel health and safety risks in connection with travel and the field studies for the pertinent TA activity;
    - Solid commitment to disbursing wages, benefits and travel subsidies in full and on time per the laws and regulations;
    - Arrangements for regular induction and health and safety training to workers.
    - Measures to prevent and control of communicable diseases, COVID-19;
    - Awareness campaign of workers in mitigating the contracting of communicable diseases, and the spread of COVID-19; and
    - Sound in-place grievance redress mechanism(s) to promptly respond to the grievances raised by the workers.

Appendix 6 Outline of the EIA and EMP

EIA Report Outline

1. Legal and institutional framework

1.1 State laws, regulations and policies
1.2 Bank ESF
1.3 EHSGs
1.4 Comparison between domestic environmental management systems and EHSGs
1.4.1 Comparison between state laws and regulations, and ESSs
1.4.2 Applicable standards
1.4.2.1 Environmental quality standards
1.4.2.2 Pollutant discharge standards
1.5 Environmental functional zoning
1.6 Scope and influencing factors
1.6.1 Screening of influencing factors
1.6.2 Scope
1.7 Environmental protection objectives

2. Project description

2.1 Project objectives
2.2 Scope of construction
2.3 Process
2.4 Construction period
2.5 investment and source

3. Baseline data

3.1 Current situation of natural environment
3.1.1 Geographic location
3.1.2 Topography
3.1.3 Weather
3.1.4 Geology
3.1.5 Hydrology
3.2 Current situation of ecological environment
3.2.1 Fauna and flora
3.2.2 Soil
3.2.3 Water loss and soil erosion
3.3 Current socioeconomic situation
3.3.1 Society
3.3.2 Water supply and drainage
3.3.3 Economy
3.3.4 Transport
3.3.5 Cultural relics
3.4 Current situation of solid waste management
3.4.1 Output and composition
3.4.2 Collection, transfer and disposal
3.4.3 Existing problems
3.5 Audit
3.6 Current situation of local environmental quality

3.6.1 Current situation of ambient air quality
3.6.2 Current situation of surface water environmental quality
3.6.3 Current situation of groundwater environmental quality
3.6.4 Current situation of sound environmental quality
3.6.5 Current situation of soil environmental quality

4. Environmental risks and impacts analysis

4.1 Analysis of environmental impacts at the design stage
4.2 Analysis of environmental impacts at the construction stage
4.2.1 Analysis of air environmental impacts
4.2.2 Analysis of water environmental impacts
4.2.3 Analysis of sound environmental impacts
4.2.4 Analysis of solid waste environmental impacts
4.2.5 Analysis of soil environmental impacts
4.2.6 Analysis of water loss and soil erosion impacts
4.2.7 Analysis of ecological environmental impacts
4.3 Analysis of environmental impacts at the operation stage
4.3.1 Analysis of air environmental impacts
4.3.2 Analysis of water environmental impacts
4.3.3 Analysis of sound environmental impacts
4.3.4 Analysis of solid waste environmental impacts
4.3.5 Analysis of soil environmental impacts
4.3.6 Analysis of water loss and soil erosion impacts
4.3.7 Analysis of ecological environmental impacts
4.3.8 Analysis of cumulative impacts
4.4 Analysis of environmental risks
4.5 Community health and safety
4.5.1 Traffic safety
4.5.2 Community health and safety
4.6 OHS
4.6.1 Construction stage
4.6.2 Operation stage
4.7 Water and energy consumption
4.7.1 Water saving evaluation
4.7.2 Energy saving evaluation
4.8 Chemical management

5. Mitigation measures

5.1 General environmental impacts management measures
5.1.1 General environmental impacts management measures at the design stage
5.1.2 General environmental impacts management measures at the construction stage
5.1.3 General environmental impacts management measures at the operation stage
5.2 Special environmental impacts management measures
5.2.1 Special environmental impacts management measures at the construction stage
5.2.2 Special environmental impacts management measures at the operation stage

6. Analysis of alternatives

6.1 Comparison with the no project scenario
6.2 Site comparison

6.3 Route comparison
6.4 Process comparison

7. Environmental Management Plan (EMP)
7.1 Institutional arrangements, capacity building and training program
7.1.1 Organizational structure
7.1.2 Capacity building and training
7.2 Environmental monitoring plan
7.2.1 Purpose of monitoring
7.2.2 Environmental monitoring plan
7.3 Estimated investment in environmental protection
7.4 File management and reporting
7.5 Environmental management against COVID-19
7.5.1 Purpose
7.5.2 Management requirements on COVID-19 control
7.5.3 Emergency response

Environmental management plan (EMP) Outline

- Institutional arrangements, capacity building and training program
- Organizational structure
- Capacity building and training
- Environmental mitigation plan
- Purpose of monitoring
- Environmental monitoring plan
- Estimated investment in environmental protection
- File management and reporting
- Environmental management against COVID-19
- Purpose
- Management requirements on COVID-19 control
- Emergency response

Appendix 7 Outline of the SIA and SMP

Executive Summary

[Concisely summarize the process of social risks and impact assessment and discuss the significant findings and recommended measures and actions (particularly the actions and measures that will be included in the project's Environmental and Social Commitment Plan (ESCP).]

1. Introduction

1.1 Project Baseline

[Insert here a brief description of the project (this should cover the purpose/need of the project) and a location map, preparation and implementation sequence, the project proponent, the purpose of this report, etc.]

1.2 Social Assessment Objectives

1.3 Impact Assessment Scope

[Insert here a short description of the scope and coverage of the impact assessment with regards to the Project and its Footprint. Very useful at this stage in the report to be clear about whether there are other phases/stages of the Project that are not covered by this impact assessment and if that is the case how they are to be handled in the future.]

1.4 Approach and Methodology

[Present here the impact assessment methodology that has been used in this social assessment. Below figure provides an indicative reference for consideration.]

1.5 Limitations

[Articulate here significant constraints and limitations for conducting the proposed impact assessment (for example, unavailability of certain baseline data, impacts from COVID-19, constraints for stakeholder engagement, key data gaps, and uncertainties associated with prediction, etc.]

1.6 Report Structure

2 Project Description

[General requirements extracted from ESF:
Concisely describes the proposed project and its geographic, environmental, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power supply, water supply, housing, and raw material and product storage facilities), as well as the project's primary suppliers.
Through consideration of the details of the project, indicates the need for any plan to meet the requirements of ESS1 through 10.
Includes a map of sufficient detail, showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts.]

2.1 Introduction

This section of the social assessment report presents information on components in sufficient detail in order to:

describe, at a level that can be understood by a lay person, the features and activities proposed by the Project Proponent; and
facilitate a comprehensive identification of the potential impacts on resources and receptors that could result from Project activities during the [pre-construction, construction, operation and decommissioning] stages.
[Useful to add here additional text related to the Baseline of the Project.]

a. Component 1
b. Component 2

3 Baselines Conditions

[General requirements extracted from ESF:
Sets out in detail the baseline data that is relevant to decisions about project location, design, operation, or mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well as information about dates surrounding project identification, planning and implementation.
Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions.
Based on current information, assesses the scope of the area to be studied and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences.
Takes into account current and proposed development activities within the project area but not directly connected to the project.]

3.1 Introduction

The baseline conditions within the Project Study Area have been characterized based on a consideration of secondary data from published sources as well as primary data collected in order to fill data gaps. This section of the social assessment report is organized by resource/receptor, with an initial discussion of the findings of the desktop review followed by an identification of key data gaps, the methods used to fill them and the findings of any primary data gathering exercises.

3.2 Regional Social Profiles

General Social Setting 1
General Social Setting 2
General Social Setting 3

3.3 Community/Household Level Baselines

Resources/Receptor 1
Resources/Receptor 2
Resources/Receptor 3

4 Relevant World Bank Environmental and Social Standards.

4.1 Legal Framework

[Analyzes the legal and institutional framework for the project, within which the environmental and social assessment is carried out, including the issues set out in ESS1, paragraph 26.]

4.2 World Bank ESF Requirements

[Briefly summarizes the key requirements for the relevant ESSs]

4.3 Gaps Analysis and Bridging Strategies

[Compares the Borrower's existing environmental and social framework and the ESSs and identifies the gaps between them.] [Please note: this sub-section can be consolidated into Section 4.3 if you like to.]

5 Social Risks and Impacts Screening

This chapter has screened the potential social impacts of the project as per the project description, desk-top review, social context reviewing, stakeholder engagement analysis, as well as the project proponent interviews, etc. The primary resources/receptors identified in the project includes [please insert all relevant dimensions].

5.1 Social Screening Approach

[Insert here a summary of the social screening approach. You can tailor the below approach a little bit to fit into the project's context.]

5.2 Results of Social Screening

[Requirements extracted from ESF: Takes into account all relevant environmental and social risks and impacts of the project. This will include the environmental and social risks and impacts specifically identified in ESS2–8, and any other environmental and social risks and impacts arising as a consequence of the specific nature and context of the project, including the risks and impacts identified in ESS1, paragraph 28.]

5.2.1 List of low/negligible social risk

5.2.2 List of Significant risk

[Please elaborate the basis for such determination for each of the potential risks and impacts]

Table: The Project's Social Intervention Matrix by Activities (tentative)

Project Phases and Activities		Potential Social Risks and Impacts (Please list all relevant social dimensions in ESF)		
		Resources/Receptor 1	Resources/Receptor 2	Resources/Receptor 3
Preparation				
Construction				
Operation				

5.3 Mitigations (Enhancement) Measures

An assessment of the magnitude and significance of the Impact;
Proposing differentiated mitigation measures by adopting mitigation hierarchy to minimize adverse impacts or to enhance beneficial effects as identified, so as that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable and they are not disadvantaged in sharing development benefits and opportunities resulting from the project;

Identifying significant negative residual impact which is expected to remain after implementation of the proposed mitigation measures and, to the extent possible, assesses the acceptability of those residual negative impacts;
Assessing the feasibility of mitigating the social impacts; the capital and recurrent costs of proposed mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the proposed mitigation measures

5.3.1 Social Risk/Impact #1 and mitigation measures:

5.3.2 Social Risk/Impact #2 and mitigation measures:

5.3.3 Social Risk/Impact #3 and mitigation measures:

5.3.4 Social Benefits #1 and enhancement measures:

6.Stakeholder Engagement

This Chapter can be extracted from the component SEP.

6.1 Introduction

Stakeholder engagement is a key element of the social assessment process. The purpose of stakeholder engagement is to allow for stakeholders to interact with the decision-making process, express their views and influence mitigation and technical solutions to concerns voiced during the process.
Stakeholder engagement is an inclusive and culturally appropriate process which involves sharing information and knowledge, seeking to understand the concerns of others and building relationships based on collaboration. It allows stakeholders to understand the risks, impacts and opportunities of the Project in order to achieve positive outcomes.

6.2 Main objectives of stakeholder engagement

- to ensure that adequate and timely information is provided to those affected by the Project;
- to provide these groups with sufficient opportunity to voice their opinions and concerns; and
- to ensure that comments are received in a timely manner so that they can be taken into account in Project decisions.

6.3 Stakeholder Identification and Analysis

[Identification of stakeholder group. Discussion on their level of interest in and influence on the Project and how they should be engaged]

6.4 Social Assessment Engagement Activities

[Description of activities undertaken through the social assessment to disclose information and engage with stakeholders.]

6.5 Key Findings for the Social Assessment

[Description of the overall level of engagement of the communities and level of support for the Project.]
[Description of key concerns / issues raised during engagement.]
[Stakeholder views should be referred to explicitly in the evaluation of impacts.]

[The social assessment should also document how the feedback has been taken into account in Project decision making. It is good practice to include a table in the social assessment detailing feedback and how it has been responded to by the Project. This is often held as an annex.]

6.5 Planning for Future Stakeholder Engagement

[A description of the activities that will be undertaken after the completion of the social assessment.]

7.Social Management Plan

7.1 Social Management Plan

See the tentative SMP outline table as below.

Indicative Template for Social Management Plan								
No.	Potential Impacts	Source of Actions	Specific Actions	Timing for Implementation	Responsible Persons for Ensuring Implementation	Timing and Frequency of M&E	Responsibility for M&E	Reporting
		In-place controls						
		Required Mitigations						

7.2 Key Actions and Measures for the ESCP

[Summarizes key measures and actions and the timeframe required for the project to meet the requirements of the ESSs. This will be used in developing the Environmental and Social Commitment Plan (ESCP).]

8.Implementation, Monitoring and Evaluation, and Budget Estimation

9.Institutional Arrangement and Capacity Building

[Draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level]
[Provides a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training.]
[Recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.]

9.1 Social M&E

[Outlines monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the SMP and ESCP.]

9.2 Budget Estimation

[List the budget estimation for implementing the SMP and ESCP in a tabular form.]

Annexes

- List of the individuals or organizations that prepared or contributed to the environmental and social assessment.
- References—setting out the written materials both published and unpublished, that have been used.
- Record of meetings, consultations and surveys with stakeholders, including those with affected people and other interested parties. The record specifies the means of such stakeholder engagement that were used to obtain the views of affected people and other interested parties.
- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports or plans.

Appendix 8 *Resettlement Framework*

1. Introduction

This Resettlement Framework (RF) is developed for the China Plastic Waste Reduction Project (Shaanxi) (P176989) (the Project) which will be Implemented by Shaanxi Provincial Government. The Shaanxi PMO, county PMOs, and PIUs has agreed to apply World Bank environmental and social framework in the design and implementation of this Project, including ***ESS5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement***.

At this stage, the specific subprojects are not known and will be identified during the project implementation by the PIUs. Accordingly, it is impossible to determine the extent of resettlement planning requirements. The purpose of the RF is to clarify resettlement principles, organizational arrangements, and design criteria to be applied to subprojects or project components to be prepared during project implementation. Once the subproject or individual project components are defined and the necessary information becomes available, such a framework will be expanded into a specific plan proportionate to potential risks and impacts. Project activities that will cause physical and/or economic displacement will not commence until such specific plans have been finalized and approved by the Bank.

2. Objective of Resettlement, Definitions and Key Principles

As mentioned above, this RF is prepared on basis of *ESS5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement*, and the overall objectives are:

- To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives.
- To avoid forced eviction
- To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by a) providing timely compensation for loss of assets at replacement cost and b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.
- To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities and security of tenure.
- To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to

enable displaced persons to benefit directly from the project, as the nature of the project may warrant.

- To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.

3. Preparation and Approval Procedures for Resettlement Plan

The Project is unlikely to involve in large-scale land acquisition and resettlement. The permanent land occupation will be likely induced by construction of facilities related to waste transfer and treatment stations.

In case where land acquisition and resettlement (LAR) has been undertaken and completed for the subprojects, a due diligence[29] shall be undertaken to determine whether the LAR undertaken is complied with national laws and regulations of China, and in case of non-compliance, a corrective plan shall be prepared that is acceptable to WB.

In case where the LAR will be undertaken by a subproject, a RP should be prepared and implemented according to national regulations and relevant requirements of ***ESS5***. The preparation and implementation of the RP (including the payment of all resettlement costs) will be the responsibility of the PIUs. Compensation, resettlement, and restoration will not begin until the RP is cleared by the WB prior to the commencement of civil works construction. The RP should be disclosed locally and on PIUs and World Bank's website and revised in accordance with feedbacks for the disclosure.

The main contents of RP should include:

a.**General description of the subproject**：general description of the subproject and identification of the subproject area.

b.**Identification of potential impacts of the subproject**, including:

- the project components or activities that give rise to displacement, explaining why the selected land must be acquired for use within the timeframe of the project;
- the zone of impact of such components or activities;
- the scope and scale of land acquisition and impacts on structures and other fixed assets;
- any project-imposed restrictions on use of, or access to, land or natural resources;
- alternatives considered to avoid or minimize displacement and why those

[29] The due diligence should review prior resettlement within a time frame of approximately three years close to specific subprojects but will consider of the context of specific subproject and significance of the prior resettlement case by case [25] Impacts are considered "minor" if the affected people are not physically displaced and less than 10% of their productive assets are lost.

were rejected; and

- the mechanisms established to minimize displacement, to the extent possible, during project implementation .

c.**Objectives**: the main objectives of the resettlement program;

d.**Census survey and baseline socioeconomic studies.** The findings of socioeconomic studies to be conducted in the early stages of project preparation and with the involvement of potentially displaced people, surveying land, structures and other fixed assets to be affected by the project. The census survey also serves other essential functions:

- identifying characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
- information on vulnerable groups or persons for whom special provisions may have to be made;
- identifying public or community infrastructure, property or services that may be affected;
- providing a basis for the design of, and budgeting for, the resettlement program;
- in conjunction with establishment of a cutoff date, providing a basis for excluding ineligible people from compensation and resettlement assistance; and
- establishing baseline conditions for monitoring and evaluation purposes.

e.**Legal framework**: The findings of an analysis of the legal framework, covering:

- the scope of the power of compulsory acquisition and imposition of land use restriction and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment;
- the applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal timeframe for such procedures, and any available grievance redress mechanisms that may be relevant to the project;
- laws and regulations relating to the agencies responsible for implementing resettlement activities; and
- gaps, if any, between local laws and practices covering compulsory acquisition, imposition of land use restrictions and provision of resettlement measures and ESS5, and the mechanisms to bridge such gaps.

f.**Institutional framework**: covering the identification of agencies responsible for resettlement activities that may have a role in project implementation; an assessment of their institutional capacity, and any steps that are proposed to enhance their institutional capacity;

g.**Eligibility**: Definition of displaced persons and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cutoff dates.

h.**Valuation of and compensation for losses**: The methodology to be used in valuing losses to determine their replacement cost; and a description of the proposed types and levels of compensation for land, natural resources and other assets under local law and such supplementary measures as are necessary to achieve replacement cost for them.

i.**Community participation.** Involvement of displaced persons (including host communities, where relevant):

- a description of the strategy for consultation with, and participation of, displaced persons in the design and implementation of the resettlement activities;
- a summary of the views expressed and how these views were taken into account in preparing the resettlement plan;
- a review of the resettlement alternatives presented, and the choices made by displaced persons regarding options available to them; and
- institutionalized arrangements by which displaced people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that such vulnerable groups as indigenous people, ethnic minorities, the landless, and women are adequately represented.

j.**Implementation schedule**. An implementation schedule providing anticipated dates for displacement, and estimated initiation and completion dates for all resettlement plan activities. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

k.**Costs and budget**. Tables showing categorized cost estimates for all resettlement activities, including allowances for inflation, population growth, and other contingencies; timetables for expenditures; sources of funds; and arrangements for timely flow of funds, and funding for resettlement, if any, in areas outside the jurisdiction of the implementing agencies.

l.**Grievance redress mechanism**. The plan describes affordable and accessible procedures for third-party settlement of disputes arising from displacement or resettlement; such grievance mechanisms should take into account the availability of judicial recourse and community and traditional dispute settlement mechanisms.

m.**Monitoring and evaluation**. Arrangements for monitoring of displacement and resettlement activities by the implementing agency, supplemented by third-party monitors as considered appropriate by the Bank, to ensure complete and objective information; performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities; involvement of the displaced persons in the monitoring process; evaluation of results for a reasonable period after all resettlement activities have been completed; using the results of resettlement monitoring to guide subsequent implementation .

n.**Arrangements for adaptive management**. The plan should include provisions for adapting resettlement implementation in response to unanticipated changes in project conditions, or unanticipated obstacles to achieving satisfactory resettlement outcomes.

Additional planning requirements where resettlement involves physical displacement: When project circumstances require the physical relocation of residents or businesses, resettlement plans require additional information and planning elements. Additional requirements include:

a.**Transitional assistance**. The plan describes assistance to be provided for relocation of household members and their possessions or business equipment and inventory. The plan describes any additional assistance to be provided for households choosing cash compensation and securing their own replacement housing, including construction of new housing. If planned relocation sites (for residences or businesses) are not ready for occupancy at the time of physical displacement, the plan establishes a transitional allowance sufficient to meet temporary rental expenses and other costs until occupancy is available.

b.**Site selection, site preparation, and relocation**. When planned relocation sites are to be prepared, the resettlement plan describes the alternative relocation sites considered and explains sites selected, covering:

- institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban, for which a combination of productive potential, locational advantages, and other factors is better or at least comparable to the advantages of the old sites, with an estimate of the time needed to acquire and transfer land and ancillary resources;
- identification and consideration of opportunities to improve local living standards by supplemental investment (or through establishment of project benefit-sharing arrangements) in infrastructure, facilities or services;
- any measures necessary to prevent land speculation or influx of ineligible persons at the selected sites;
- procedures for physical relocation under the project, including timetables for

site preparation and transfer; and

- legal arrangements for regularizing tenure and transferring titles to those resettled, including provision of security of tenure for those previously lacking full legal rights to land or structures.

c.**Housing, infrastructure, and social services**. Plans to provide (or to finance local community provision of) housing, infrastructure (e.g., water supply, feeder roads), and social services (e.g., schools, health services); plans to maintain or provide a comparable level of services to host populations; any necessary site development, engineering, and architectural designs for these facilities .

d.**Environmental protection and management**. A description of the boundaries of the planned relocation sites; and an assessment of the environmental impacts of the proposed resettlement and measures to mitigate and manage these impacts (coordinated as appropriate with the environmental assessment of the main investment requiring the resettlement).

e.**Consultation on relocation arrangements**. The plan describes methods of consultation with physically displaced persons on their preferences regarding relocation alternatives available to them, including, as relevant, choices related to forms of compensation and transitional assistance, to relocating as individual households families or with preexisting communities or kinship groups, to sustaining existing patterns of group organization, and for relocation of, or retaining access to, cultural property (e.g., places of worship, pilgrimage centers, cemeteries) .

f.. **Integration with host populations**. Measures to mitigate the impact of planned relocation sites on any host communities, including:

- consultations with host communities and local governments;
- arrangements for prompt tendering of any payment due the hosts for land or other assets provided in support of planned relocation sites;
- arrangements for identifying and addressing any conflict that may arise between those resettled and host communities; and
- any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to meet increased demands upon them, or to make them at least comparable to services available within planned relocation sites .

Additional planning requirements where resettlement involves economic displacement. If land acquisition or restrictions on use of, or access to, land or natural resources may cause significant economic displacement, arrangements to provide displaced persons with sufficient opportunity to improve, or at least restore, their livelihoods are also incorporated into the resettlement plan, or into a separate livelihoods improvement plan.

4. Legal Framework

The legal framework guiding the implementation of the RP of each subproject is based on the *ESS5 of WB ESF*, the applicable laws, regulations and ordinances of the PRC and Shaanxi Province, and counties/districts where subprojects are to be located.

The PRC has developed a complete legal framework and policy system on land acquisition, house demolition, resettlement and compensation, including the Land Administration Law of the PRC (LAL, effective on January 1, 2020), and the Regulation on the Expropriation of Buildings on Sate-owned Land and Compensation (Decree No.590 of the State Council) (January 21, 2011). Within the state legal and policy framework, local governments have promulgated relevant local regulations and policies to manage and direct local land acquisition, house demolition, resettlement and compensation work.

The key laws, regulations and ordinances of the PRC used to prepare this RF and ensure its legal validity are as follows:

- *Land Administration Law of the PRC (effective on January 1, 2020)*
- *Regulation on the Expropriation of Buildings on State-owned Land and Compensation (Decree No.590 of the State Council) (January 21, 2011)*
- *Regulations on the Implementation of the Land Administration Law of the PRC (effective from September 1, 2020)*
- *Forest Law of the PRC (effective from July 1, 2020)*
- *Regulations on the Implementation of the Forest Law of the PRC (effective from March 19, 2018)*
- *Farmland Occupation Law of the PRC (effective from September 1, 2019)*
- *Measures of Shaanxi Province for the Implementation of the Land Administration Law of the PRC (adopted at the 12th session of the Standing Committee of the 9th Shaanxi Provincial People's Congress on November 30, 1999, effective from January 1, 2000)*
- *Rules for the Implementation of the Basic Farmland Protection Regulations of Shaanxi Province (promulgated under Order No.30 of the Shaanxi Provincial Government on April 4, 1996)*
- *Measures for Uniform Land Acquisition for Construction Projects of Shaanxi Province (promulgated under Order No.78 of the Shaanxi Provincial Government January 8, 2002)*
- *Notice of the Shaanxi Provincial Government on Promulgating Block Comprehensive Land Prices for Farmland (SPG [2020] No.12)*

The purpose of preparing the RP is to ensure that the APs have sufficient opportunities to replace their lost assets and improve or at least restore their income level and living standard. To realize this purpose, all APs should be identified, and it should be ensured that all APs think the remedies defined in the RP are rational. In consideration of the main types of impact (e.g., land acquisition and occupation, demolition of residential houses (including rural and urban), and non-residential houses (including enterprises and commercial stores). Meanwhile, the RP prepared should include an entitlement matrix for the APs (see Table 2 for template of entitlement matrix).

In terms of resettlement impact, the following measures are usually taken:

1)Take possession of acquired land and related assets only after compensation in accordance with ESS5 has been made available, and, where applicable, displaced people have been resettled and moving allowances have been provided to the displaced persons in addition to compensation.

2)APs losing farmland will be entitled to the following compensation and restoration measures:

- Direct APs will receive land compensation fees and resettlement subsidies in full;
- Direct APs will receive young crop compensation fees in full.

3)Demolished houses and attachments will be compensated for as follows, and the following restoration measures will be taken:

- Supply of resettlement housing of equal value;
- Compensation at full replacement cost;
- Reconstruction or restoration of all affected facilities and services (e.g., roads, water and power supply, telephone, cable TV, schools);
- The subsidy during the transition period should ensure that all assets are relocated, or temporary housing is obtained.

4)Displaced persons losing business income (or employment income) will be entitled to the following restoration measures:

- Main mitigation measures for anyone losing business income include: (i) offering an optional commercial site with the same size and similar customer sources; (ii) granting cash compensation to the owner of the commercial property at the full replacement cost of such property and all facilities thereof; (iii) offering transitional compensation for all expenses and lost sales income related arising from relocation for the non-operating period.
- Main mitigation measures for anyone losing employment income include: (i) offering an optional job opportunity with the same pay; (ii) offering cash compensation at least equivalent to wage losses for three years; and

(iii) offering a transition subsidy for reemployment training and resettlement, or taking any other necessary measure to help him/her find a new job.

In general, the overarching objectives of the Chinese system are similar to WB's. However, there are a number of procedural differences. Differences are identified with mitigation measures in **Table 1**.

Table 1 Gaps between WB and PRC Policy regarding Land Acquisition and Resettlement

Note: The below gap analysis table is developed based on a comparison of the ESS5 and the LAL of the PRC (effective on January 1, 2020), and Shaanxi Provincial Regulations related to land use.

Main Elements for Borrower (a)	China's Regulatory Framework and Practice (b)	Gap-filling measures
Resettlement planning. When there is economic or physical displacement, prepare a resettlement plan proportionate to the risks and impacts associated with the projects. Describe how the objectives of ESS-5 can be achieved.	Formal resettlement plans are requested for medium and large hydropower and reservoir projects and prepared on the basis of a comprehensive set of technical standards. *For other projects, the law does not require the development a formal rese*ttlement plan.	Prepare a RP for each subproject in case of LAR by implementing agency with supports of qualified expert and be disclosed to the APs and other stakeholders.
Minimizing LAR. Demonstrate that involuntary land acquisition or restrictions on use are limited to direct project requirements for specified project purposes within a clear timeframe. Consider feasible alternative designs to avoid or minimize land acquisition, paying attention to displacement, gender impacts and impacts on vulnerable people.	The 2020 LAL reinforces control of conversion of agricultural land, which contributes to limiting land acquisition for urbanization and development purposes. The 2020 LAL enhances upfront identification of LAR needs: a comprehensive survey and SSRA are required. Public consultation and agreement are required in case of land acquisition and resettlement. This may act as an incentive to adjust project design to minimize LAR. *There are no explicit provisions on minimizing LAR in the law. The Government often coordinates Bank projects with other development projects also with LAR needs.*	Efforts are made to minimize LAR impacts during feasibility study and further efforts will be made during detailed design.
Eligibility. Affected persons include those who (1) have formal legal rights to land or assets; (2) do not have formal legal rights but have a recognized or recognizable claim: (3) have no recognizable legal rights or claim. Establish a census of eligible affected persons. Opportunistic settlers are disqualified.	The 2020 LAL requests a comprehensive upfront survey on the status quo of affected land to be affected, identifying eligible persons for compensation and assistance. *Eligibility criteria in the law are narrow. Customary or traditional rights are nonexistent. The law doesn't recognize (1) those without formal rights to land or assets, (2) claims for existing unauthorized constructions (often with vulnerable low-income groups).*	Establish a cutoff date for eligibility to compensation for each subproject; Provide compensation and assistance for any persons who are eligible to compensation.
Cut-off date. Establish a cut-off date for eligibility to compensation. It is most effective when it is well communicated, documented, and	The law does not have explicit provisions on cut-off date, except for hydropower and reservoir projects. *In practice, the date of acquisition notification usually serves*	The date of land acquisition notification will be a cut-off date for each subproject.

Main Elements for Borrower (a)	China's Regulatory Framework and Practice (b)	Gap-filling measures
disseminated, including by providing clear demarcation of designated areas. Fixed assets constructed or planted after the cut-off date are not eligible.	*the function of a cut-off date.* *In urban planning areas, entitlements are limited by "historic" cut-off dates, when the government demarcated the planning area or decided to develop certain plot areas even without direct linkage with a project.*	
Socio-economic survey. Establish baseline conditions for developing livelihood restoration strategies and monitoring and evaluation purposes.	*The law does not have requirements on socio-economic (baseline) survey of affected persons,* except in the case of hydropower and reservoir projects.	Conduct a socio-economic baseline survey and incorporate the analysis in the RP for each subproject.
Compensation. Offer affected persons compensation at replacement cost, and other assistance as necessary to help them improve or at least restore their standards of living or livelihoods. Compensation standards for categories of land and fixed assets will be disclosed and apply consistently. Compensation rates may be subject to upward adjustment where negotiation strategies are employed. Where livelihoods are land-based or land is collectively owned, offer an option for replacement land unless it can be demonstrated that equivalent replacement land is unavailable. Take possession of acquired land and related assets only after compensation has been made available.	The 2020 LAL sets up new principles of fair and reasonable compensation, and maintenance of living standards and long-term livelihoods. The "Output Value Multiple Method" is replaced with a higher "***Block Comprehensive Land Price***" based on original purposes land, resource conditions, output value, land location, supply versus demand, population, level of economic and social development and other factors. The government should additionally budget social security (i.e., social pensions and medical insurance) for affected persons. The local government should mobilize the LAR budget before applying for acquisition and make full compensation in advance of land acquisition and relocation. In urban areas, compensation rates are determined through a third-party valuation and should be no lower than the prevailing market prices of similar housing. *The 2020 LAL does not mention the principle of replacement cost and has few enhancements on land-for-land compensation. In rural areas, prices will continue to be issued by government.*	The compensation for any losses will be on the replacement cost basis; Specific rehabilitation and support measures will be included in the RP. Local government shall ensure APs can enjoy the urban pension system in time when they are qualified in age.
Physical displacement. Document all transactions to acquire land rights, provision of compensation and other assistance. Offer feasible resettlement options, including adequate replacement housing or cash compensation and relocation assistance. Provide resettlement sites	The 2020 LAL requests fair and reasonable compensation for housing. The 2011 Regulation on Acquisition and Compensation of Houses on the State-owned Land promotes valuation of affected houses by a third party. The 2020 LAL confirms current practice: the government usually offers a choice among allocating homestead plots for	The compensation for any losses will be in compliance with the replacement cost; No depreciation based on age will be permitted for house valuations; Further skill training and employment support shall be provided by local

Main Elements for Borrower (a)	China's Regulatory Framework and Practice (b)	Gap-filling measures
with at least equivalent living conditions or consistent with prevailing standards. Pay attention to gender aspects and needs of poor and vulnerable. Consult and take into account host communities in planning. Respect preferences for relocating in preexisting communities or in situ.	constructing new houses, access to purchase an apartment and cash compensation. Where land is in scarce, the law promotes non-land for land resettlement. In practice vulnerable households receive additional support to purchase or build a house with minimum standards. The compensation package for relocation typically includes compensation for affected houses, allowances for moving and temporary rental (when replacement housing is not immediately available after relocation), and compensation for business losses. Replacement housing will allow the displaced persons to access to basic infrastructure, market, and utility services. In practices, the affected households prefer to relocation in situ to maintain social connections.	government
Economic displacement. Beyond compensation, provide affected persons with opportunities to improve, or at least restore, their means of income-earning capacity, production levels, and standards of living. Pay attention to gender aspects and needs of poor and vulnerable. Monitor livelihood measures until completion audit.	The 2020 LAL newly highlights the principle of maintaining living standards and safeguarding long-term livelihoods. In practice, vocational training and employment opportunities are provided. Social security should cover all rural households who lose land. In practice, this has so far been pensions after retirement (60 for men, and 55 for women) and medical insurance. *Except for hydropower projects, there has been a lack of upfront planning for livelihood restoration, and local regulation do not require to follow up the outcomes of livelihood restoration measures.*	Formulate detailed livelihood restoration plan for APs in the RP of each subproject. Follow up the outcomes of livelihood restoration measures until completion audit.
Community engagement. Engage with affected communities, including host communities Resettlement and livelihood restoration will include options from which affected persons may chose. Disclose information for meaningful participation of affected communities and persons throughout planning, implementation,	The 2020 LAL substantially enhances information disclosure, during at least 30 days, on the scope of land acquisition, land status quo, land use purposes, compensation measures and arrangement for social security. Survey and registration of affected land and assets should be confirmed by displaced persons. The government should reach agreements with displaced persons before submitting the application of land	Follow WB procedural requirements for meaningful consultation and disclosure throughout planning, implementation, monitoring and evaluation of compensation process, livelihood restoration activities and relocation.

Main Elements for Borrower (a)	China's Regulatory Framework and Practice (b)	Gap-filling measures
monitoring and evaluation of compensation process, livelihood restoration activities and relocation.	acquisition. Resettlement must be planned and implemented with respect to the residents' willingness. *In the 2020 LAL, a public hearing may take place, but only in case affected persons perceive the LAR plan does not comply with regulations.*	
Vulnerable groups. Improve living conditions of poor or vulnerable persons who are physically displaced. The borrower will pay particular attention to the impacts on and the needs of the poor and vulnerable.	The 2020 LAL protects rural residents' right to residence in resettlement. In practice, affected households' cash, or access to purchasing an apartment, or a replacement house. Through the Government-led poverty reduction programs, the government-recognized poor households access targeted assistance. *The 2020 LAL does not require particular attention to the needs of the poor and vulnerable groups*	Identify the poor and vulnerable groups as early as screening process to ensure they can participate, and their concerns are taken into account during consultations and planning. Monitor the standards of living of the displaced poor and other vulnerable groups. Give priority to the poor and vulnerable groups of training and job opportunities, provided by the PIUs or relevant government authorities.
Grievance redress. Ensure that a grievance mechanism for the project is in place as early as possible to address specific concerns about compensation, relocation or livelihood restoration measures raised by displaced persons in a timely and impartial fashion.	China has increasingly enhanced enforcement of administrative review and administrative litigation to protect the displaced persons. Failing these, the displaced persons can resort to court. *The law does not require a project-specific grievance mechanism. The resolution of LAR grievances is through administrative or judicial channels.*	Establish or improve the GRM for each subproject.
M&E. Establish procedures to monitor and evaluate implementation of the plan and take corrective action as necessary during implementation to achieve the objectives of ESS5.	Allocation and usage of the LAR compensation fund will be supervised by the local natural resource department, in collaboration with country and township governments. *The law does not require the project to develop a system for external monitoring of the Project resettlement activities, except for hydropower and reservoir resettlement.*	Coordinate with local governments to properly monitor and supervise LAR activities. Disclose monitoring reports.
Completion audit. For projects with significant involuntary resettlement, commission an external completion audit of resettlement plans, to be	An audit is requested on financial management of compensation funds. *Regulations do not require a completion audit on resettlement*	For subprojects with significant involuntary resettlement, undertake an external completion audit of resettlement

Main Elements for Borrower (a)	China's Regulatory Framework and Practice (b)	Gap-filling measures
undertaken by competent resettlement professionals.	*and living standards restoration (except for hydropower and reservoir resettlement).*	plans by competent resettlement professionals.

Table 2 Indicative Template of Entitlement Matrix

Note: This below matrix, including the entitlement and compensation categories, is developed based on the RAP and social audit of Batch 1 Subprojects and an analysis of Shaanxi Province current policies on land acquisition and resettlement. Both the contents and format are indicative. The County/district PMOs and PIUs will be responsible for updating the information of the matrix in accordance with up-to-date policies and regulations while preparing the RP for a specific subproject for which ESS5 is relevant.

Type of impact	Impacts	Entitled person or entity		Entitlement and Compensation rate	Implementation Arrangements
Permanent LA for rural collective land	XXX mu of collective land in XXX village of XXX Town will be permanently acquired, among which XXX mu is cultivated land, XXX mu is house site, XXX mu is garden plot, XXX mu woodland, XXX mu is wasteland land. XXX people in XXX households, of which XXX persons will be eligible for conversion to urban residency	(i) land ownership of collective community (ii) farmers who have right to use the land	Specify who and how many people are eligible to compensation	Cut-off date is the date of land acquisition notification. Any individuals whose land is acquired will get land compensation fee, resettlement subsidy and compensation fee for young crops. The compensation rate is on the replacement cost basis. *Specify the rate for each category of compensation.* Land compensation fee is based on acquired land area regardless of land type.	(i) The PIU submits the urban and rural planning, general plans for land use, as well as topographic mapping and surveying and demarcating within the scope of LA to the district planning and natural resources bureau (PNRB) for preliminary examination. (ii) The district LA office is responsible for drafting the LA announcement on behalf of the district government and submitting it to the district PNRB for review before sending it to the district government for approval. (iii) The LA office discloses the announcement together with the town (street) in the town, village and village group for at least 30 days; during this period, social stability risk evaluation is conducted. (iv) The LA office mobilizes meetings to hear the opinions of the APs and hold a rehearing at the request of APs.
Rural household demolition and house	The house demolition will cover XXX m^2 with brick-concrete XXXm^2, brick-wood XXX m^2, earth-wood XXX m^2,	Owners of houses	Specify who and how many people are eligible to	Cut-off date is the date of land acquisition notification. Any house structures built before the cut-oof date will be eligible to	

Type of impact	Impacts	Entitled person or entity		Entitlement and Compensation rate	Implementation Arrangements
relocation	etc..		compensation	compensation. The compensation will be directly paid to the house owner. The compensation rate is on the replacement cost basis. The resettlement modes for the households affected by HD include self-construction on allocated land, cash compensation and preferential housing purchase under property swap. Specify the compensation rate for each resettlement mode.	(v) Detailed measurement and survey are conducted and disclosed. LA office signs compensation and resettlement agreement with APs. The LA should not be commenced until the more than two thirds of APs sign the agreement. (vi) All the compensation will be paid the APs. (vii) The LA office will be responsible for providing the swap apartments with preferential prices or coordinate house site with the town or villages for the self-construction of new houses.
Compensation for Affected enterprises or business shops	XXX private enterprises or business shops will be affected and XXXm^2 of structures will be demolished	Owners of enterprises	Specify who and how many people are eligible to compensation	Cut-off date is the date of land acquisition notification. Any assets built before the cut-oof date will be eligible to compensation. The affected enterprises will be compensated by cash in lump sum based on the market valuation conducted by a professional evaluation institution. The compensation rate is on the replacement cost basis. Specify the detailed compensation rate.	(i) The LA office will entrust a professional evaluation institution to conduct the preliminary evaluation of each enterprise. (ii) The related compensation and relocation methods will be discussed and negotiated between the LA office and enterprises. (iii) The affected workers will be reminded of the resettlement 3 months in advance so that the workers have enough time to seek for the new jobs. (iv) The affected enterprises will give the priority for the workers to be employed on the basis of the worker's willingness. (v) A training needs assessment will be conducted, and then relevant training will be provided for all the workers free of cost so they can be arranged in new jobs.

Type of impact	Impacts	Entitled person or entity		Entitlement and Compensation rate	Implementation Arrangements
Compensation for Affected land Attachments	land attachments on XXX mu of collective land to be permanently acquired	Owner of attachments	Specify who and how many people are eligible to compensation	Cut-off date is the date of land acquisition notification. Any land attachments built before cut-off date will be compensated. The compensation rate is on the replacement cost basis. Specify the compensation rate. In some circumstance, the compensation for land attachment is combined with the compensation of young crops.	The compensation for the land attachments owned by villagers will be directly paid to the individuals while the compensation for other attachments owned by collectives will be paid to the collectives.
People converted into urban status	XXX mu of collective land to be permanently acquired	All people converted into urban status	XXX people converted into urban status	APs due to the LAR can enjoy the urban pension systems and receive compensation in cash. For female aging over 55 years old and male over 60 years old, they can receive monthly pensions right from the month following the receipt of the LA approval.	Each village group determines who will be converted to urban status through the townhall meetings of villager representatives and submit the list of people to township government; The LA office is responsible for the determination of the eligibility and one-off payment of the basic insurance premium for the people to social security bureau. Social security bureau is responsible for the disbursement of social pension to the people who reaches the retirement age.
Vulnerable group	XXX vulnerable people identified, including: XXX poor, XXX disabled and illed, XXX old people, etc.	vulnerable people affected by the project	Specify who and how many people are eligible to compensation	Through the Government-led poverty reduction programs, the government-recognized poor households access targeted assistance.	Identify the poor and vulnerable groups as early as screening process to ensure they can participate, and their concerns are taken into account during consultations and planning. Monitor the standards of living of the displaced poor and other vulnerable groups. Give priority to the poor and vulnerable groups of training and job opportunities,

Type of impact	Impacts	Entitled person or entity		Entitlement and Compensation rate	Implementation Arrangements
					provided by the PIUs or relevant government authorities.

5. Institutional Arrangements

The institutions to be responsible for the planning, management, implementation and monitoring of the resettlement activities include:

- Shaanxi PMO
- County / district PMOs
- PIUs
- Land acquisition and resettlement offices of relevant district or county
- relevant township governments
- relevant villages or village groups
- Independent Resettlement Monitoring and Evaluation Institution

In the RP for each subproject, details should be presented on the responsibility, staff, relationship of these institutions, and detailed training programs that are required. Additional training for resettlement staff from each subproject will be included in the individual RP.

6 Public Consultation, Information Disclosure and Participation

Prior to implementing the Project, public consultation and information disclosure should be undertaken within the project area. Knowledge and acceptance of the proposed compensation policies and rehabilitation measures for the affected people is a precondition for approval of the RP. The RP of each subproject should be disclosed to the public during project preparation.

During project implementation, the prepared RP, including resettlement information booklets will be distributed to affected persons to provide details on impacts and compensation rates.

The public participation and consultation will be conducted during the overall resettlement process, especially during resettlement impacts surveys, establishment of resettlement policies and measure, and resettlement implementation etc.

The RP must describe all measures taken or to be taken, involve the APs in the proposed resettlement arrangements, and foster the sense of participation in livelihood and living standard improvement or restoration activities. To ensure that the APs' opinions and suggestions are fully considered, public participation should be prior to project design and the implementation of resettlement relief measures. Public participation must run through the whole RP planning, implementation and external monitoring process.

The final RP must be disclosed again after acceptance by the Bank.

7. Implementation Process

The RP should include an implementation schedule for all activities to be conducted. If necessary, compensation payment, other entitlement restoration measures (in cash or in kind) and resettlement should at least be completed one month before land acquisition. If full compensation is not paid or necessary assistance measures are not available before land acquisition, a transition subsidy should be provided.

8. Financial Arrangements

The PIUs will bear all costs related to land acquisition and resettlement. Any RP consistent with this RF must include estimated costs and a budget. Whether identified as affected persons at the RP preparation stage or not, and whether sufficient funds are available or not, all those adversely affected by land acquisition and house demolition are entitled to compensation or any other appropriate relief measure. For the above reason, the budget in the RP should include contingencies, which are usually 10% or more of the estimated resettlement budget in order to cover contingent resettlement costs.

The compensation rates specified in the RP provide a basis for the calculation of compensation fees for resettlement, which should be fully paid to individuals or collectives losing land or other assets and should not be deducted for any reason. The RP should describe by what means compensation fees are paid by the PIUs or LAR offices to the affected communities/villages or residents/villagers, entities and relevant right holders. A rationale is that the fund flow should be as direct as possible with minimum intermediate links.

9. Grievance Redressal Mechanism

The RP is prepared in accordance with the needs of the whole subproject. During implementation of the RP, APs complaints may arise because there have been some problems or change to the actual subproject implementation activities which had not been foreseen when the RP was prepared. In order to ensure that the affected people can voice their complaints when any problem arises for the land acquisition and/or resettlement of the APs, an appeal procedure is defined within this RF and in the RP. The purpose of this appeals procedure is to provide a mutually satisfactory means for rapid response to any APs complaint, to avoid any likelihood of a complicated legal procedure.

APs will be aware of their right to appeal through the participatory meetings and from the resettlement information booklet by following the new provisions in the land administration law and regulations. The project will also publicize information through the mass media and collect the APs opinions and suggestions, which will then be investigated and resolved through all necessary administrative levels in a timely manner. The PIUs or the LAR offices will make records of all appeals, and the resultant resolutions.

10. Monitoring and Evaluation

The County/district PMOs and PIUs will internally monitor the implementation of the RP. Monitoring results will be recorded in quarterly internal reports for submission to the Shaanxi PMO. The internal monitoring will include:

- Check implementation, including checking the baseline information, valuation of asset losses, and the implementation of compensation, resettlement and restoration rights according to the RF and the RP.
- Monitor if the RP is implemented as designed and approved.
- Check if the funds for RP implementation are appropriated timely and fully, and if such funds are used in a manner consistent with the RP.
- Record all appeals and their solutions and ensure that appeals are handled timely.

Meanwhile, the Shaanxi PMO will appoint independent agencies to perform periodic external M&E on the implementation of the RP. Such agencies may be academic or institutional organizations, or independent consulting firms, but must have qualified and experienced staff, and their terms of reference must be accepted by the Bank.

In adaptation to the internal monitoring information and reports checked, the external M&E agency will perform a sampling survey every six months of implementation of the RP. The main objectives are:

- To evaluate if the participation and compensation payment procedures, and restoration rights are implemented practically, and consistent with the RF and the RP;
- To evaluate if the RF objective of improving or at least maintaining the living standard and income level of the affected persons has been realized;
- To gather qualitative socioeconomic impact indicators of project implementation; and
- To propose suggestions for improving the implementation procedure of the RP in order to realize the principles and objectives of this RF.

Appendix 8-1 Indicative Outline of a RP

A. Executive summary

This section briefly describes the project's scope, key survey findings, entitlements and recommended actions.

B. Project description

This section makes describes components leading to LAR generally, identifies the range of the project area, and explains alternatives to avoid or minimize resettlement impacts.

C. LAR range

This section will:

1) Describe the project's potential impacts;
2) Describe the range of LA;
3) Summarize key resettlement impacts;
4) Provide details on public assets acquired.

D. Socioeconomic profile

This section will:

1) Define and identify affected persons and communities;
2) Describe impacts of land and asset acquisition on individuals and communities;
3) Describe the Project's impacts on the poor, ethnic minorities and other vulnerable groups;
4) Identify gender and resettlement impacts

E. Information disclosure, consultation and participation

This section will:

1) Identify stakeholders;
2) Describe consultation and participation mechanisms used at different stages;
3) Describe information disclosure modes;
4) Summarize consultation results;
5) Disclose the draft RAP to APs;
6) Describe measures of information disclosure and public consultation.

F.GRM

This section will describe APs' needs and grievances, and seek solutions.

G. Legal framework

This section will:

1) Describe state and local laws and regulations to be observed, their gaps from the Bank policies, and gap-filling measures;
2) Describe legal and policy responsibilities assumed by the PIUs;
3) Describe the eligibility for compensation and assistance;
4) Describe the LAR schedule

H. Entitlement and assistance

This section will:

1) Identify the entitlements of the APs and assistance measures;
2) Describe assistance for vulnerable groups, including women;
3) Describe benefit-gaining opportunities available to APs

I. Relocation

This section will:

1) Describe the relocation program;
2) Describe alternative resettlement sites;
3) Describe the relocation schedule;
4) Describe the legal procedure to obtain land use right and property right;
5) Describe supporting measures for relocation and reconstruction;
6) Describe the plan to construct living infrastructure;
7) Introduce integration measures with the host community

J. Income restoration and reconstruction

This section will:

1) Identify livelihood risks;
2) Describe the income restoration program;
3) Describe the social security system;
4) Describe special supporting measures for vulnerable groups;
5) Describe gender considerations;
6) Describe training activities

K. Budget

This section will:

1) Make a budget for all resettlement activities;
2) Describe fund flows;
3) Describe all basis of compensation calculation;
4) Describe funding sources

L. Organizational setup

This section will:

1) Describe the organization structure for implementing resettlement measures;
2) Describe capacity building, including TA if necessary;
3) Describe the role of NGOs in resettlement planning and management;
4) Describe how women participate in resettlement planning and management.

M. Implementation schedule

This section includes a detailed, time-bound implementation schedule that includes all resettlement and restoration activities.

N. Monitoring and reporting

This section describes the M&E mechanism and procedure.

Appendix 9 Outline of the Social Audit Report

The aim of the audit is to identify significant social issues in the existing project or activities, and assess their current status, specifically in terms of meeting the requirements of the ESSs.

(a) Executive Summary

- Concisely discusses significant findings and sets out recommended measures and actions and timeframes.

(b) Legal and Institutional Framework

- Analyzes the legal and institutional framework for the existing project or activities, including the issues set out in ESS1, paragraph 26, and (where relevant) any applicable social requirements of existing financiers.

(c) Project Description

- Concisely describes the existing project or activities, and the social, and temporal context and any Associated Facilities.
- Identifies the existence of any plans already developed to address specific social risks and impacts (e.g., land acquisition or resettlement plan, cultural heritage plan, biodiversity plan).
- Includes a map of sufficient detail, showing the site of the existing project or activities and the proposed site for the proposed project.

(d) Social Issues Associated with the Existing Project or Activities

- The review will consider the key risks and impacts relating to the existing project or activities. This will cover the risks and impacts identified in ESSs1-10, as relevant to the existing project or activities. According to the project nature and initial social impacts and risks screening, the audit should attach great importance to land use risk, community health and safety risk related to the closure of landfills. The audit will also review issues not covered by the ESSs, to the extent that they represent key risks and impacts in the circumstances of the project.
- For landfills to be closed or updated, special attentions shall be paid on the legacy issues of land use, especially if land of landfills is leased from villages or villagers.

(e) Social Analysis

- The audit will also assess (i) the potential impacts of the proposed project (taking into account the findings of the audit with regard to the existing project or activities); and (ii) the ability of the proposed project to meet the requirements of the ESSs.

(f) Proposed Social Measures

- Based on the findings of the audit, this section will set out the suggested measures to address such findings. These measures will be included in the Social Commitment Plan (SCP) for the proposed Project. Measures typically covered under this section include the following:
  - specific actions required to meet the requirements of the ESSs
  - corrective measures and actions to mitigate potentially significant social risks and impacts associated with the existing project or activities
  - measures to avoid or mitigate any potential adverse social risks or impacts associated with the proposed project.
  - particularly for landfills, appropriate time-bound corrective actions for the legacy issues, including: amending the land zoning for the landfill area, obtaining necessary approvals for land use, and timely compensating villages/villagers per the defined scenario (potential scenarios set out in the ESCP) for post-closure land use through full engagement with related villages/villagers.

Appendix 10 Outline of the Environmental Audit Report

1. **Abstract**
   - Briefly summarize the key findings, proposed actions and timetable.
2. **Introduction**
   - Background
   - Purpose and scope
   - Methods
3. **Legal framework**
   - Analyze the legal framework for the existing subprojects.
4. **Enterprise description**
   - Concisely describe the proposed subproject and its geographic, environmental, social, and temporal context, including any offsite investments that may be required;
   - Identify any plan developed for certain E&S risks and impacts (e.g., LAR, cultural heritage or biodiversity plan);
   - Include a map of sufficient detail, showing the subproject site and the area that may be affected by the subproject's direct, indirect, and cumulative impacts.
5. **Environmental due diligence on existing facilities**
   - Takes into account all relevant E&S risks and impacts of the subproject. This will include the E&S risks and impacts specifically identified in the ESSs, and any other E&S risks and impacts arising as a consequence of the specific nature and context of the subproject. The due diligence also address: i) the potential impacts of the proposed subproject; and ii) the ability of the proposed subproject to meet the ESSs.
   - The due diligence is focused on:

   1)ESMS
      - E&S management policies and regulations
      - E&S management organizational structure and staff
      - E&S management procedure and supervision mechanism
      - Staff training

   2)Pollution control and conforming discharge
      - Production of wastewater, waste gas and solid waste;
      - Operation of treatment facilities;
      - Conforming discharge of the enterprise;
      - Remedies taken by the enterprise for other nonconformities

   3)Work safety
      - Compliance of safety facilities;
      - Protective measures for workers;
      - Management of hazardous chemicals;
      - Training and certification;
      - Records of major accidents, measures and outstanding issues

   4)Energy and resource utilization
      - Water saving, energy saving and clean production

   5)Survey
      - Interview with competent authorities
      - Enterprise law violations
6. **Environmental correction plan**
   - This section proposes measures based on the findings, which will be incorporated into the ESCP, including:

- Actions for conforming to the ESSs;
- Corrective actions taken to mitigate potential major E&S risks and impacts;
- Measures taken to avoid or mitigate potential adverse E&S risks and impacts;
- Timetable and resources / capacity for implementing the action plan;
- The rectification plan shall be completed within one month and reported to the Shaanxi PMO and the local environmental protection bureau, and whether the rectification is in place shall be confirmed after on-site verification and monitoring.

Appendix 11 Labor Management Procedure Framework

User's guide: This Labor Management Procedure Framework (LMPF) is a guidance document for the preparation of subproject or activity specific labor management procedures (LMPs) during the implementation of future batches of subprojects under the Project. Such subprojects mainly include construction subprojects, technical assistance (TA) subprojects and performance-based incentive financing mechanism (PBIFM) mulch film management subprojects. Construction subprojects may involve direct workers, contracted and community workers; TA subprojects involve contracted workers mainly; mulch film management subprojects may involve community workers[30]. The LMPF was developed based on the World Bank LMP template, the LMP for the 1st batch of investments and risks and impacts screening for the subsequent batches of investments.

Since different types of workers have varying characteristics, and risks and impacts under the Project, and LMP requirements also vary. Therefore, this appendix includes the following three parts:

—Part A: assessing management practices of PMO workers, namely civil servants;

—Part B: assessing the management of contracted workers involved in TA subprojects;

—Part C: providing guidelines for PIUs to prepare LMPs for construction subprojects

Community workers that may be involved in mulch film management subprojects are mainly community workers in front end rural domestic waste collection and transfer systems, and will be analyzed in Part C. For mulch film management subprojects, it is not clear whether community workers are involved until the village mulch film recycling programs are finalized. Based on available information, mulch film disposal may be connected to domestic waste systems, and related community workers and waste collection/transfer workers have been included in construction subprojects, so it is not necessary to prepare a separate LMP for the mulch film management subprojects. Once any new types of worker labor are identified, it will be assessed based on the risk rating and relevant labor management policies, and if a separate LMP is to be prepared, the guidelines in Part C may be used as a reference.

A. Assessment of labor management practices of PMOs

The Shaanxi PMO is established at the Shaanxi Provincial Development and Reform Commission, and Baoji city PMO and three counties/districts PMOs are established at government agencies concerned, including urban administration and law enforcement bureaus, agriculture and rural affairs bureaus. Direct workers involved are all civil servants.

According to ESS2, where government civil servants are working in connection with the project, whether full-time or part-time, they will remain subject to the terms and conditions of their existing public sector employment agreement or arrangement, unless there has been an effective legal transfer of their employment or engagement to the project .ESS2 will not apply to such government civil servants, except for the provisions on "Protecting the Work Force" and "Occupational Health and Safety" (OHS).

Labor rights protection

The Labor Law stipulates that the minimum working age is 16 years, and underage workers aged 16-18 years are subject to special protection. The PMOs at all levels comply

[30] No primary supply worker has been identified in this stage. Further identification will be performed when information of future batches of subprojects is clear and during the process of social assessment for subsequent batch of investments.

strictly with the state policy on prohibiting child labor and forced labor, and neither child labor (under 16 years of age) nor forced labor are involved. Qualified workers should have received undergraduate or above education, and are aged at least 21-22 years. Taking into account the nature of the project occupations, there is no potential risk of child labor and underage workers aged 16-18 years.

OHS

OHS risks for civil servants working on the Project are health and safety potential risks (including COVID-19 risks) during fieldwork, and the risks are limited. According to the applicable laws and regulations, the PMOs at all levels have established sound OHS policies, and comply strictly with the state regulations and standards on OHS to prevent work-related accidents. Workers have the right to refuse if the management personnel of the employer illegally direct or force the employee to take a risky operation; Workers have the right to criticize, report or file charges against the acts endangering the safety of their life and health. For COVID-19 spreading risks, the Chinese government, and the PMOs at all levels have taken comprehensive and effective prevention and control measures.

Accordingly, since China has comprehensive legal provisions on labor protection, local governments keep strengthening labor supervision, the PMOs at all levels have established a labor management system for direct workers, including labor protection and OHS management, and such risks as forced labor, child labor and discrimination are not involved, the labor risk rating of direct workers is "low", and it is not necessary to prepare a separate LMP for the PMOs' direct workers.

B. Contracted worker management for TA subprojects

TA subprojects will be implemented under the direction of the Shaanxi PMO. The TA research agencies are usually large or medium research institutions or universities with sound labor management measures, a good working environment, a sound trade union and a sound worker GRM; their workers are well educated and can well protect their own interest. The labor risk rating is "low". For these workers, labor risks mainly include health and safety risks (including COVID-19 risks) during fieldwork, full and timely payment of travel subsidies, etc.

Although the Shaanxi PMO has established sound labor management system, and policies and procedures for direct workers, its existing labor management policies do not include management provisions for labor risks of contracted workers, so there are gaps from ESS2's requirements for contracted workers.

As an effective entry point to manage contracted workers, the Shaanxi PMO will include legally binding requirements proportionate to the labor risk rating in the ToRs, bidding documents and contracts to strengthen labor risk management, and protect contracted workers' health, safety and well-being. The TA research agencies should make clear actions to be taken (as part of their research plan) before project implementation to address potential labor risks. In addition, the Shaanxi PMO will ask relevant staff to attend E&S training to enhance management capacity, and conduct semiannual monitoring to track their labor management performance.

C. LMP Template for construction subprojects

This LMP template guides LMP preparation for future batches of construction subprojects according to the applicable state laws and regulations, and ESS2. LMP is a living document and will be prepared by relevant PIUs at the preparation stage, and reviewed and updated at the implementation stage.

1. Overview

A brief introduction to the batch of subprojects, including:

—Scope of construction, types and areas of subprojects;

—PIUs (by area / facility);

—Types and numbers of workers involved (in the form of Table 1).

According to ESS2, workers are divided into 4 main types, including:

- Direct workers: people employed or engaged directly by the Borrower (including the project PMOs and the PIUs) to work specifically in relation to the project, such as sanitation workers, operation and maintenance (O&M) workers employed by the PIUs, mainly including workers responsible for waste collection and transfer in urban public spaces, transfer station workers, and O&M workers after landfill closure;
- Contracted workers: people employed or engaged through third parties to perform work related to core functions of the project, mainly including contracted workers, and workers employed by third party service providers at the operation stage, such as landfill leachate treatment;
- Community workers: workers employed or engaged by relevant communities to work on the Project, such as village cleaners and transfer workers;
- Primary supply workers: workers employed or engaged by the suppliers who, on an ongoing basis, provide directly to the project goods or materials essential for the core function of the project.

Table 1 Main types and numbers of workers of construction subprojects by facility (example)

Division	Subproject type	Main activity	Construction stage workers		Operation stage workers	
			Type	Number	Type	Number
XXX District	Collection facilities	Waste collection sites and sorting pavilions	Direct		Direct	
			Contracted		Contracted	
			Community		Community	
	Transfer facilities	Construction of transfer stations and purchase of transfer trucks	Direct		Direct	
			Contracted		Contracted	
	Disposal facilities	Bulk waste dismantling center	Direct		Direct	
			Contracted		Contracted	
		Landfill closure	Direct		Direct	
			Contracted		Contracted	
		Rural organic waste disposal station	Direct		Direct	
			Contracted		Contracted	
		Kitchen waste disposal plants	Direct		Direct	
			Contracted		Contracted	
		Decoration waste recycling and disposal	Direct		Direct	
			Contracted		Contracted	
		Recyclable sorting center	Direct		Direct	

Division	Subproject type	Main activity	Construction stage workers		Operation stage workers	
			Type	Number	Type	Number
			Contracted		Contracted	
	Supporting facilities	Integrated management and education centers / bases	Direct		Direct	
			Contracted		Contracted	
		Transfer truck maintenance center	Direct		Direct	
			Contracted		Contracted	
		Construction / reconstruction of kitchen waste disposal plants	Direct		Direct	
			Contracted		Contracted	

Note: Specify the data source while preparing the subproject or activity specific LMP.

2. Potential risks and impacts

Firstly, describe the main risks and impacts of the batch of subprojects based on the social audit and SIA finding, and analyze which risks and impacts are relatively small and negligible, and which needs to be focused on.

Then the risks and impacts that workers need to focus on are described by facility, project stage, and labor type.

For example, for collection facilities of construction subprojects (see Table 3), the analysis process is as follows:

- Describe the types, scale and footprint of collection facilities, and if construction and equipment installation are involved;
- Types of workers at the construction stages, their jobs / work types, and risks and impacts respectively;
- Types of workers at the operation stages, their jobs / work types, and risks and impacts respectively.

Table2 Types of workers of collection facilities and main risks (example)

Stage	Area	Worker type	Main jobs	Number	Potential risks and impacts
XXX District					
Construction	Urban	Direct	Managers	2	Accidents (limited OHS risk)
		Contracted	Construction and installation workers	10	Construction accidents, salary non-payment
	Rural	Direct	Managers	2	Accidents (limited OHS risk)
		Contracted	Construction and installation workers	20	Construction accidents, salary non-payment
Operation	Urban	Direct	Cleaners	1463	Traffic accidents, working at high temperature, infection, insufficient

Stage	Area		Worker type	Main jobs	Number	Potential risks and impacts
						salaries and overtime pay
				Transfer workers	371	Traffic accidents
				Managers	140	Limited OHS risks
			Community	Community cleaners	1000	infection
	Rural	Townships	Direct	Cleaners	126	Traffic accidents, infection, insufficient salaries and overtime pay
				Transfer workers	48	Driving safety risks
			Contracted	Cleaners	12	Traffic accidents, infection, insufficient salaries and overtime pay
				Transfer workers	3	Traffic accidents, infection
		Villages	Community	Cleaners	2403	Traffic accidents, infection

Note: Specify the data source.

3. Overview of Chinese labor legislation

Outline China's relevant laws and regulations from the aspects of workers' terms and conditions, OHS, and the requirements of the World Bank's ESS2. The relevant analysis methods and contents of the LMP for the first batch may be used as a reference.

3.1. Terms and conditions

For different types of workers, describe the applicable provisions of the Labor Law, Labor Contract Law, etc. in terms of labor contract management, working hours, labor remuneration and benefits, GRM, etc., and the requirements in ESS2. Describe gaps and areas for improvement in terms of workers' terms and conditions for this batch of activities.

3.2. OHS

Describe the applicable provisions in the Law on the Prevention and Control of Occupational Diseases, Provisions on the Administration of Occupational Health at Workplaces, etc. in terms of OHS measure design, implementation procedure, workplace process, training, etc., and the requirements in ESS2. Describe gaps and areas for improvement in terms of OHS management for this batch of activities.

4. Agencies responsible, responsibilities and resources

For the PMOs at all levels and PIUs responsible for construction and implementation, responsibilities and resources in labor management should be defined. The following analysis is for reference only, and will be dynamically adjusted based on the actual situation.

4.1 Shaanxi PMO

The Shaanxi PMO will be responsible for project organization, coordination, supervision and guidance, including managing the performance of different types of workers in coordination with the PMO and PIUs, and report to the World Bank. The Shaanxi PMO's main responsibilities in labor management include:

- The Shaanxi PMO has promised to appoint an environmental and a social focal point

to coordinate the Project's overall E&S risk management, including the management of risks and impacts on workers;

- Appoint one qualified external environmental specialist and one qualified external social specialist, as part of the extended in-house capacity, to assist the Shaanxi PMO in managing E&S risks, and give directions to the PIUs on LMP implementation;
- Prepare a labor risk management training program for workers with the assistance of the external social specialist, prepare a budget to implement the measures and actions in the LMP in coordination with the PMOs and PIUs;
- Organize topical training on how to implement the measures and actions in the LMP for the PMOs, PIUs, contractors, different types of workers during the project implementation;
- Give guidance on including labor management requirements in relevant contracts during bidding and procurement to the city / county / district PMOs and PIUs for contracted worker management at the construction and operation stages;
- Appoint an external social consultant to conduct external social monitoring, covering the implementation of the measures and actions in the LMP and ESCP.

4.2 County / district PMOs

Based on available information, most of the county / district PMOs are established at county / district urban administration and law enforcement bureaus, and few at county / district agriculture and rural affairs bureaus. Their main responsibilities include:

- Appoint at least an environmental and a social focal person to coordinate and supervise social risk management (including labor management), and coordinate staff and budgets;
- Urge the PIUs to implement the measures and actions in the LMP and ESCP;
- Include the labor management requirements for contracted workers in the bidding documents, and set out relevant remedy provisions for non-compliance in the contract;
- Ask the PIUs to conduct internal monitoring on the implementation of social risk management (including the LMP), and report to the county / district PMOs regularly;
- Assist the external social monitor in conducting external monitoring on the implementation of social risk management implementation (including labor management performance), and reporting to the Shaanxi PMO.

4.3 PIUs

For construction subprojects, the PIUs include those at the construction and operation stages, mostly being the county / district urban administration and law enforcement bureaus or federations of supply and marketing cooperatives and subordinate agencies; the PIUs of mulch film management subprojects are the county / district agriculture and rural affairs bureaus. As the agencies responsible for labor management, these PIUs will appoint at least an environmental and a social focal point to perform labor management as per the LMP, and include adequate costs for labor risks management in their budgets.

The PIUs of this batch of construction subprojects and their main responsibilities are described below.

1)PIUs at the construction stage

Based on available information, the PIUs at the construction stage are mostly the county / district urban administration and law enforcement bureaus or their subordinate agencies, such as:

- The PIU of the **XXX District** subproject at the construction stage is a subordinate agency of the XXX District Urban Administration and Law Enforcement Bureau, namely the XXX District Environmental Sanitation Center (ESC);

During construction and landfill closure, the PIUs' main responsibilities are:

- Appoint dedicated staff to supervise LMP implementation at the construction stage;
- Include the labor management requirements for contracted workers in the bidding documents under the direction of the Shaanxi and county / district PMO, and set out relevant remedy provisions for non-compliance them in the contract;
- Assist in internal and external social monitoring on LMP implementation, and report to the county / district PMO;
- Depending on the organizational setup, some county / district PMOs (e.g., Chengcheng and Jingyang Counties) are established at agriculture and rural affairs bureaus other than county / district urban administration and law enforcement bureaus, and the relevant county / district PIUs should report labor management performance to the county / district PMOs;
- Baoji City has established a city PMO, and the PIUs of Jintai, Weibin, Chencang and Fengxiang Districts under its jurisdiction will report labor management performance to the Baoji City PMO through the district PMOs.

2)PIUs at the operation stage

Based on available information, the county / district environmental sanitation authorities are responsible for the O&M of transfer facilities, disposal facilities and supporting facilities in future batches of construction subprojects. In addition, township governments will be responsible for the O&M of rural front end collection facilities, and county / district federations of supply and marketing cooperatives for the O&M of sorting facilities and bulk waste dismantling centers. The responsibilities of the PIUs at the operation stage are described below by facility type.

Waste transfer and disposal facilities:

The PIUs responsible for the O&M of transfer and disposal facilities in this batch of subprojects are:

- **For the transfer facilities and closed landfill in XXX District**, the PIU at the operation stage is XXX under the XXX District Urban Administration and Law Enforcement Bureau;
- **For the bulk waste dismantling center in XXX County**, the PIU at the operation stage is XXX under the XXX County Federation of Supply and Marketing Cooperatives;
- ……

The main responsibilities of the PIUs at the operation stage are:

- Improve/establish relevant management positions and appoint dedicated staff to

implement the LMP at the operation stage, including labor contract, labor remuneration and working hours management, OHS, training, GRM improvement, etc.;

- If any third party service is involved (e.g., landfill leachate treatment and biogas power generation), include the labor management requirements for contracted workers in the bidding documents, and set out relevant remedy provisions for non-compliance in the contract;
- Consistent with the construction stage arrangements, report LMP implementation performance at the operation stage to the city / county / district PMO.

Front end collection and transfer systems

Township governments and village committees are responsible for the O&M of **rural front end systems**. Their responsibilities are:

- Township governments will improve/establish relevant management positions and appoint dedicated staff to supervise LMP implementation for direct workers at the operation stage;
- If any third party service is involved, township governments include the labor management requirements for contracted workers in the bidding documents under the direction of the county / district PMOs, and set out relevant remedy provisions for non-compliance in the contract;
- Township governments will report LMP implementation at the operation stage to the county / district PMOs regularly;
- Village committees are responsible for LMP implementation for community workers, and township governments and county / district environmental sanitation authorities are responsible for supervision;
- The environmental sanitation authorities of XXX District or County provide guidance and supervision to regulate the management of township direct and contracted workers, and village community workers.

District / county environmental sanitation authorities are responsible for the O&M of **urban front end systems**. Their responsibilities are:

- Improve/establish relevant management positions and appoint dedicated staff to implement the LMP at the operation stage;
- Report LMP implementation performance at the operation stage to the county / district PMOs regularly;
- Provide guidance and supervision to regulate the management of community workers.

The PIUs will establish/designate dedicated departments for labor management at the construction and operation stages, including employment terms and conditions (labor contract, labor remuneration, overtime pay, working hours, etc.), OHS, contracted worker management, grievance redress, etc.

5. Labor policies and procedures for PIUs

This section assesses existing policies and procedures of the PIUs in terms of employment terms, working conditions, OHS, grievance redress, etc. based on the social audit

and SIA findings, with focus on those to be improved. The PIUs should improve their policies and procedures at least within one month before the start of construction.

An example is given as follows:

1)XXX District ESC

The personnel and work safety management policies established by the XXX District ESC include:

- Measures for Sanitation Workers Recruitment and Employment
- Evaluation Measures for Refined Sanitation Management
- Quality Standard and SOP for Environmental Sanitation
- Work Safety System
- Landfill Machinery Management System
- Landfill Disinfection and Deodorization System
- Transfer Work Safety Management System
- Incentive Mechanism for Working Vehicle Drivers
- Reward and Punishment Measures for Drivers of the Transfer Squadron
- Contingency Plan for Environmental Emergencies

According to the applicable laws and regulations, and ESS2, and based on the social audit findings, the XXX District ESC should also establish or improve the following policies and procedures on labor management, designate/establish relevant management positions, and appoint dedicated staff for implementation:

- Improve the management policies and procedures on worker employment and working conditions: Add necessary clauses on labor contracts, ensure that labor remuneration is not lower than the local minimum salary standard, arrange flexible days off, and provide extra overtime pays as per the Labor Law, Labor Contract Law and Articles 10-12 of ESS2.
- Improve the management policies and procedures on OHS: Strengthen workplace OHS management, including the "three simultaneities" requirements for occupational protection facilities at the construction stage and occupational hazard screening at the operation stage, perform pre-job, on-the-job and post-job occupational health checkups for workers exposed to occupational hazards, offer regular OHS (including COVID-19 prevention and control) training, provide necessary PPE based on potential occupational hazards at the construction and operation stages as per the Law on the Prevention and Control of Occupational Diseases, the measures for "three simultaneities" supervision and management of occupational protection facilities, and Articles 24-30 of ESS2.
- Establish management policies and procedures on contractor labor management: Strengthen contractor labor management at the construction and operation stages by improving existing personnel policies or developing special policies as per the Labor Law and Articles 31-33 of ESS2.
- management policies and procedures on front end township and village cleaners: Direct and supervise the management of front end rural cleaners as per the

Administrative Measures for the Development of Public Welfare Jobs of Shaanxi Province and Articles 37 of ESS2.

- Improve worker GRMs: Improve worker GRMs, and ensure that GRMs include multiple channels, written records, disclosure and appeal procedures, etc. as per ESS2 and Appendix 1 to ESS10.
- Establish procedures on labor management performance monitoring and reporting: Monitor the labor management performance of contractors (including grievance redress) at the construction and operation stages, and report to the county / district PMOs regularly as per Articles 30, 32 and 37 of ESS2.

6. Age of employment

China's Labor Law (2018) defines minimum working age at 16, which is more stringent than the requirements of ESS 2 (14 years old).

Both China's Labor Law (2018) and Regulation on Special Protection for Juvenile Workers (1994) sets out specific protection for juvenile workers (aged from 16 to 18). Juvenile workers should be prohibited in working in a few hazardous positions such in unhealthy, hazardous or toxic circumstance, during the night, with dangerous machinery, equipment or tools, or involving handling or transport of heavy loads.

The PMOs/PIUs as well as their contractors and primary suppliers are required to verify the identity and age of all workers to assure no child labor will be employed or engaged with the subproject. This will require workers to provide official documentation, which could include a birth certificate, national identification card, or medical or school record.

The project shall strictly adhere to provisions to prevent the involvement of child labor (below 16 years old) and any form of forced labor. If a child under the minimum age is identified working on the project, measures will be taken to immediately terminate the employment or engagement of the child in a responsible manner, considering the best interest of the child.

The PMOs/PIUs shall not employ or engage underage workers (if any) in any of the specific conditions that are prohibited the legal provisions and ESS2 (Articles 18-19). All the juvenile workers should be registered with the local labor authority. A health examination will be carried out for a juvenile worker before onboarding, which will be carried regularly on a six-month basis until he/she reaches 18 years old.

7. Direct workers

According to the policies and procedures to be established or improved by the PIUs in Section 5, describe the specific requirements of the PIUs for the labor management of direct workers.

Where there are commonalities in the direct worker management requirements of different facilities, they can be explained in general terms first, and then supplemented for certain special requirements.

An example on the labor management of middle and rear end facilities in the Batch 1 subprojects is as follows for reference:

General requirements

First, improve employment terms and working conditions:

Strengthen labor contract management: Sign a labor contract with all direct workers, and its clauses (e.g., scope of work, workplace, remuneration, labor protection, working conditions, occupational hazard protection) should match the position, and be consistent with the Labor Law, Labor Contract Law and ESS2; for jobs involving occupational hazards, potential occupational hazards and their consequences, occupational protection measures, remuneration, etc. should be notified to workers when a labor contract is signed.

Set reasonable salary levels and benefits: Ensure that salaries of all workers are not lower than the prevailing local minimum salary standards, and offer reasonable overtime pays.

Arrange days off flexibly. Appropriate days off are arranged for workers by providing sufficient staff and conducting rotation based on actual work arrangements as per the Labor Contract Law, and provide reasonable overtime pays for work beyond 8 hours or overtime on legal holidays.

Second, strengthen OHS management.

Conduct "three simultaneities" management for occupational protection facilities at the construction stage, and designate a qualified agency to identify and test potential occupational hazards at the operation stage;

Set up a bulletin board at an easily visible place to disclose rules and regulations on occupational disease prevention and control, occupational hazard rescue, and occupational hazard screening results;

Implement a routine occupational hazard monitoring policy;

Provide free pre-job, on-the-job and post-job occupational health checkups to workers;

Provide PPE and relevant regular training to workers.

Third, improve the GRM.

Establish or improve internal GRMs, and extend to the county / district environmental sanitation authorities or competent authorities;

Each facility site sets up dedicated positions and staff responsible, keep records properly, and report to the county / district environmental sanitation authorities or competent authorities regularly;

Notify GRM processes and contact information to workers before project construction.

Special requirements:

The PIUs of landfill closure should take adequate occupational disease prevention and control as set out in the design, and closure and post-closure management plans, and safety protection measures, including developing measures against landslides, fires, explosions during closure, and offering safety training, including safe excavation of waste dump, landfill gas dispersion and explosion, and safe compaction of slopes, thereby protecting workers' OHS.

8. Contractor management

This section briefly describes potential contractors at the construction and operation stages, and their management requirements based on the social audit and SIA findings.

The Project may involve the following types of contractors:

- Construction contractors;

- Waste collection and transfer service providers; and
- Pollutant treatment service providers of landfills, such as leachate treatment plants and biogas power generation plants.

In general, contracted workers of similar facilities have similar risks and impacts, so common responsibilities of contractors of different facilities are described generally, followed by special requirements set out in the social audit and SIA to manage the risks.. For the PMOs and PIUs, their responsibilities for contractor selection, management and performance monitoring, and relevant resource arrangements should be described.

An example on the management of contractors involved in the Batch 1 subprojects is as follows:

1)Contractor responsibility requirements

General responsibility requirements:

Contractors and subcontractors (if any) should assume the following responsibilities (without limitation):

- Develop and implement an LMP and an OHS plan in accordance with the ESS2, including non-discrimination principles in hiring practices and worker orientation (please see below the template of the code of conduct), which will be submitted to the PIUs for approval;
- Keep contracted worker recruitment and employment records;
- Notify job descriptions and working conditions to contracted workers;
- Establish and implement a GRM for contracted workers;
- Implement prevention and control measures for infectious diseases (e.g., COVID-19);
- Monitor, supervise and report health and safety issues related to infectious diseases (e.g., COVID-19);
- Strengthen worker awareness and training, and prevent and reduce spreading risks of infectious diseases (e.g., COVID-19);
- Strengthen worker awareness and training, and prevent and reduce SH/SEA;
- Establish a regular OHS performance review and reporting policy;
- Offer regular induction and OHS education and training to workers;
- Ensure that workers employed by all contractors have learned their job requirements before work;
- Update the LMP if necessary.
- Contractors should report the labor management performance of contracted workers to the PIUs monthly.

Special responsibility requirements for some special contractors:

For some facilities with different types of E&S risks or a higher risk rating, contractors should also assume certain other responsibilities, such as:

For landfill closure contractors: Establish a mechanism to avoid, minimize and manage the workplace OHS, including normative requirements for design and supervision, preparing a construction organization plan, designing safe construction processes and monitoring plans, and contingencies plans for landslides, fires, explosions, etc. offering pre-job safety training, taking construction quality assurance measures (e.g., prohibiting fires), providing sufficient fire-fighting, drainage and monitoring facilities, and strengthening safety management on both sides of the access road.

For rural collection service providers: Sign a formal labor contract with workers, and cover social insurance for eligible workers.

For third party companies for landfill pollutant disposal: Have a valid work safety permit, a pollutant disposal qualification, and equipment and professional skills required to perform the contract; conduct occupational disease prevention and control properly, perform occupational hazard testing regularly, and provide occupational health checkups, PPE and trainings to workers exposed to occupational hazards.

2)Contractors management by PMOs and PIUs

The PMOs will review contractor qualifications, and ask all contractors to operate as per ESS2 and the ESCP.

Qualification review

As part of the process to select construction contractors who will engage contracted workers, the relevant PMOs will review the following information:

- Business licenses, registrations, permits, and approvals;
- Documents relating to a labor management system, including OHS issues, for example, LMPs and code of conduct (please see below the template of the code of conduct), including non-discrimination principles, provisions on prevention of SEA/SH at workplace, and accommodation of workers in the case of presence in local communities;
- Identification of labor management, safety, and health personnel, their qualifications, and certifications;
- Sample labor contracts;
- Worker payroll records, including hours worked and pay received;
- Records of worker benefits;
- Workers' certifications/permits/training to perform required work;
- Records of safety and health violations, and responses;
- Accident and fatality records and notifications to authorities;
- Information in public records, for example, corporate registers and public documents relating to violations of applicable labor law, including reports from labor inspectorates and other enforcement bodies;
- Copies of previous contracts with contractors and suppliers, showing inclusion of provisions and terms reflecting ESS2.

Any contractor using child labor or with historic child labor use should not be eligible for biding.

Box: Code of Conduct Template

Code of Conduct (Template) for Contractors

Message from the Top Management

Include a message about the contractor's commitment to ethics and the importance of the code of conduct.

Introduction

Provide information on how to use the code of conduct.

For example:

Who does it apply to?

Does this code apply to contractors and primary supply workers as well?

Ethical Principles and Core Values

Provide an explanation of the contractor's core beliefs and values.

For example:

- *Honesty*
- *Integrity*
- *Trustworthiness*
- *Respect for others*
- *Accountability*
- *Obedience to the law*
- *Empathy*
- *Teamwork*

Grievance Redress Mechanism (GRM)

In this section, insert the Worker GRM, in addition to clearly indicate the contact numbers and communication channels, for example:

To report a concern:

- *Talk to your manager*
- *Website:*
- *E-mail:*
- *Phone number:*
- *Address:*
- *Other specific and accessible channels*

Outline the company's non-retaliation policy and the commitment of everyone to ensuring there is no retaliation for reporting concerns of any kind. State the company's position on punishment for retaliatory behavior. Make sure that the meaning of retaliation is clearly explained.

For example:

Workers who report a concern in good faith cannot be subjected to any adverse employment action including:

- *Unfair dismissal or suspension*
- *Unfair denial of a promotion or other employment benefit*
- *Bullying and harassment, either in person or online*

Discrimination

Outline the contractor's commitment to protecting workers' equal opportunity without discrimination.

For example:

The employment of project workers will be based on the principle of equal opportunity and fair treatment.

No discrimination with respect to any aspects of the employment relationship, including recruitment and hiring, wages and benefits, working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, or disciplinary practices.

Sexual Exploiting and Abuse (SEA) / Sexual Harassment (SA)

Explain the contractor's zero tolerance policy on SEA/SA at workplace

For example:

Treat all fellow employees, customers, business partners and other stakeholders with dignity and respect at all times.

Any type of harassment, including physical, sexual, verbal or other, is prohibited and can result in disciplinary action up to, and including, termination.

Harassment can include actions, language, written words or objects that create an intimidating or hostile work environment, such as:

- *Yelling at or humiliating someone*
- *Physical violence or intimidation*
- *Unwanted sexual advances, invitations or comments*
- *Physical conduct including assault or unwanted touching*
- *Minimize noise, disruption and inconvenience to residents;*
- *Respect and respond appropriately to residents' culture;*

Community Health and Safety

Outline the contractor's commitment to protecting the health & safety of the surrounding communities

For example:

The site should operate in a way that will not cause any harm to the health and safety of the communities. you should adopt the following measures at all times:

- *Disclose information about the project, GRM and regular monitoring reports;*
- *Conduct consultation with residents, including vulnerable residents;*
- *Be polite and courteous at all times;*

YOU MUST NOT:

- *Use offensive language, or engage in loud or boisterous behavior;*
- *Comment on the property, the residents or their lifestyles;*
- *Interfere with or mistreat residents' animals or pets;*
- *Block private or common driveways, access paths, crossings, residents' parking areas or vehicles, without prior permission and not for longer than necessary;*
- *Enter or remain in occupied premises if the resident is not present, without prior permission from the resident;*
- *Leave dangerous items, such as electrical wires, exposed;*
- *Remain calm and polite in situations of disputes and refer any problems to us. Please call ……*

Occupational Health and Safety

Outline the company's commitment to providing employees with a safe and

healthy workplace.

For example:

The company operates in accordance with applicable health and safety requirements consistent with domestic requirements and ESS2 and strives for continuous improvement in its health and safety policies and procedures.

All employees are expected to perform their work in compliance with applicable health and safety laws, regulations, policies and procedures and apply safe work practices at all times in all locations.

Applicable safety and health requirements must be communicated to visitors or contractors at any company location.

Employees are required to immediately report workplace injuries, illnesses or unsafe conditions.

Environment and **Social Risk Management**

Outline the company's commitment to minimizing the environmental and social impact of all of its activities.

For example:

The company is committed to operating in an environmentally responsible manner, from the waste transportation, to the waste transfer and disposal, selection of suppliers and other activities.

The company complies with all applicable environmental laws and regulations as well as self-directed commitments to sustainable practices and environmental protection.

Forced Labor: The company and its suppliers shall employ all employees under their own free will with no one being subjected to forced labor.

Child Labor: The company shall not employ any people under the minimum legal working age of the country in which they work (16 years old in this project case).

Code of Conduct Acknowledgement

By certifying to the company code of conduct, you acknowledge that:

For example:

- *You have read the entire code of conduct and understand your responsibilities related to it.*
- *You have had the opportunity to ask questions to clarify any unclear aspects of the code.*
- *You agree to abide by its principles.*
- *You agree to report to the company any violations of the code.*

You agree to cooperate in any investigations of violations of the code.

Note: The PMO/PIUs, with the support of social consultant, can adopt relevant elements to suit for the particular context and needs for specific subproject or activity.

Procurement and contract management

The contracts with selected contractors will include provisions related to labor and occupational health and safety, as set out in ESS2 and China's regulations.

The PMOs will direct the PIUs to prepare labor management clauses in the bidding documents as per ESS2, such as the above responsibilities of contractors in contracted worker management, including workers employment terms and working conditions, OHS (including COVID-19 prevention and control measures), and GRM, and include relevant provisions in contract management (including remedies for relevant noncompliance). In case of subcontracting, the borrower will cause third parties to include equivalent requirements and nonconformity remedies in the contract with the subcontractor.

Monitoring

Contractors' labor management performance, including GRM establishment and implementation, will be subject to internal monitoring by the PIUs and external monitoring by the PMOs.

The PMOs will manage and supervise the performance of contractors, with focus on their contract compliance, possibly including regular auditing, on-site inspection and/or record review. Contractors' labor management records and reports may include (but not limited to):

- A representative sample of employment contracts or arrangements between third parties and contracted workers;
- Salary payment records;
- Days off;
- PPE distribution records;
- Records of training provided for contracted workers to explain labor and working conditions, and OHS;
- For facilities with occupational hazards, procedure of notifying workers of occupational hazards, occupational hazard screening results, and records on free occupational health checkups offered to workers exposed to occupational hazards;
- Records relating to grievances received and their resolution (including the records for appropriately handling SEA/SH allegations);
- Reports relating to safety inspections, including fatalities and incidents and implementation of corrective actions.
- Trainings provided.

9. Community workers

This section briefly describes community workers that may be involved in the Batch 1 subprojects based on the social audit and SIA findings, with focus on contract management, safety risk management and GRM, such as:

- Ensure that community workers work voluntarily;
- Strengthen labor contract management: XXX (agency responsible) should sign a labor contract with all community workers, and the terms and conditions thereof (e.g., scope of work, workplace, working hours, remuneration, labor protection, working conditions, occupational hazard protection) should be consistent with the Labor Law, Labor Contract Law and ESS2;
- Strengthen labor safety risk management: Cover personal accident insurance for community workers, distribute sufficient PPE regularly, and provide community workers with sufficient training (including COVID-19 prevention);
- Designate /establish management positions and assign qualified employees to manage and supervise the performance of community workers;
- Monitor, supervise and report health and safety issues (for instances, traffic accidents, COVID-19 prevention and control);
- Ensure that a GRM is available to community workers, and supervise its implementation;

- Implement relevant provisions in this LMP.

10. GRM

According to ESS10, the scope, scale and type of a GRM should match the nature and scale of a project's potential impacts and risks, including channels, written records, procedure disclosure, transparent decision-making, appeal procedure, etc. Existing GRMs may be utilized if appropriate. Since details of the construction subprojects are unknown, principled requirements for GRM establishment are defined here. Once the construction subprojects are identified, the PIUs should establish and implement effective GRMs accordingly. The GRMs shall be designed to match the nature and scale of a project's potential impacts and risks, including channels, written records, procedure disclosure, transparent decision-making, appeal procedure, etc while complying with principles of confidentiality, data privacy and transparency. The final design of the GRMs will be validated and adjusted as needed during project implementation in consultation with relevant stakeholders to ensure its relevance and ease of use.

The GRM for workers should include the following two types of channels, where project workers may file an appeal through any one or both of these channels.

1)Internal channels

The PIUs should improve their internal GRMs, appoint dedicated departments and staff to handle worker grievances, and keep written records.

For direct workers, existing GRMs of its teams (front end cleaners) and facilities (transfer and terminal disposal facilities) should be extended to the PIUs and competent authorities.

For contracted workers, contractors are required to establish internal GRMs, such as level by level reporting, or reporting to on-site managers, and coordinate with the PIUs' grievance redress departments.

For community workers, the county / district environmental sanitation authorities should extend their responsibilities to direct and supervise the management of community workers, including grievance redress.

2)External channels

External channels include local human resources and social security authorities, women's federations, federations of trade unions, etc. Appeal modes include hotline, online platform, letter / visit, etc. with feedback given to the PIUs.

All appeal channels will be disclosed on websites of government authorities and PIUs, and at internal worker meetings; different appeal modes should be provided, including personal delivery, or filing by mobile phone, text message, mail, e-mail and website.

Each agency should appoint a full-time officer to record appeals in appeal logs, and investigate them. Once the investigation is completed, the officer will notify the appellant of the resolution in writing, by phone or text message, including the date of receipt, appellant's name, brief description, measures taken (including remedies, resolutions and results), and date of resolution. All records and arising resolutions will be reflected in annual E&S monitoring reports.

Project workers may also use the mediation procedure stipulated in the Labor Law:

Stage 1: The party proposing arbitration should file a written application to the labor dispute mediation committee within 60 days. Generally, the committee should make a

decision within 60 days after receipt. If the parties have no objection to such decision, such decision will apply. The committee is composed of representatives of the labor authority, trade unions of the same level, and employers, and chaired by the representative of the labor authority.

Stage 2: If any party has an objection to the decision, it may file a suit in a people's court within 15 days after receipt.

For SEA/SH-related grievances, the PMO/PIU will ensure the GRM having specific procedures to receive such grievances anonymously and addressed in a confidential manner. The PIU will have a male and female staff member available for such grievances, so that employees can choose to whom they wish to speak.

The PIU/PMO and contractors are committed to protecting the confidentiality of the grievances raised by workers and they will take the following measures to ensure that confidentiality of data be preserved properly, which are:

- To establish data confidentiality mechanism at all levels from community to the PMO to ensure data security,
- To conduct appropriate data protection training for employees who have permanent or frequent access to relevant data.
- To establish a reward and sanction mechanism for data protection

Direct workers, contracted workers and community workers who believe that they are adversely affected by the Project may submit complaints to the project-level GRMs or they can seek help from the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Workers may submit their complaint to the Bank's independent Inspection Panel. For information on how to submit complaints to the Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the Bank's Inspection Panel, please visit www.inspectionpanel.org.

All grievances should be monitored by Shaanxi PMO in order to verify the process. The semi-annual E&S monitoring reports will be developed to keep track of all grievances submitted. PIUs will conduct internal grievance monitoring and report to PMOs quarterly, which shall include an analysis for the following indicators:

- Number of monthly received grievances (disaggregated by channel, gender, age);
- Categories of grievance received;
- Number of grievances resolved;
- Number of unresolved complaints;
- Timeframe for responding to or resolving complaints, etc.

11. primary supply worker

Based on available information, the Project does not involve primary supply workers. Shaanxi PMO and city/county/district PMOs will follow up on it during the subproject implementation. In case primary supply workers involved in the future, relevant provisions of ESS2 will apply.

12. Project-related facilities

Make clear project-related facilities involved in future batches of subprojects based on the social audit, and establish a labor management monitoring system for the project-related facilities. As part of the project social monitoring, the PMOs shall arrange sufficient resources for monitoring ton ensure that the management of different types of workers involved in project-related facilities is conforming with domestic regulations and ESS2 and will not pose any risk or particular uncertainty to the project operation.

Appendix 12 Traffic Management Plan Template

1. Introduction

This Traffic Management Plant (TMP) sets out a set of generic requirements for the traffic management during the construction of the Project. It is designed as general guidelines which can be adapted to the project-specific traffic management plan as part of the Environmental and Social Management Plan (ESMP) or other relevant safeguards documents of the specific project.

The objectives of this TMP are to establish general requirements of traffic management to be implemented by the project contractor to avoid and minimize traffic disturbance and ensure the safety of public and project workers during the project construction.

This TMP is intended to be used for traffic management during the construction stage of a project which may have potential impacts on road traffic and related public/worker safety concerns caused by road traffic. These include e.g. direct road construction or maintenance, construction activities occupying road or sidewalk, construction vehicles/equipment entering public roads, and construction vehicles/equipment through local community roads, etc.

During the preparation of a specific World Bank project in Shannxi, a project-specific traffic management plan using this TMP as a general framework, taking into account project-specific situation and demand, will be developed as part of the project's ESMP or other safeguards documents as appropriate. During the implementation of the project, this TMP (or the project specific TMP) will be incorporated into the bidding documents and latterly the construction contracts, as part of the environmental and social management specifications.

The key mitigation measures of the TMP as arranged in the following structure:

2. Traffic Management Measures

2.0 Contractor's Traffic Management Plan

The Contractor is required develop a detailed Contractor's Traffic Management Plan (C-TMP) prior to the commencement of the construction. The C-TMP shall specify detailed measures to avoid and minimize traffic disturbance, and how road users (particularly vulnerable cyclists and pedestrians) will be directed around a work site or other temporary road disruption, to minimize inconvenience while providing safe conditions for both road users and the project construction workers.

The C-TMP shall be reviewed and approved by the Supervision Engineer and the project proponent before it is implemented.

When the construction activities will affect the traffic of public roads, such C-TMP shall be submitted to the local traffic management authority for approval.

The Contractor shall designate a dedicated staff in charge of the implementation of its traffic management plan (can be combined with the ESHS management staff), whose responsibility is to enforce the implementation of C-TMP measures, monitor the compliance, report the performance (and accidents) to Supervision Engineer and project proponent, organize safety training to workers, and engage local communities as necessary for traffic management and community safety issues, etc.

2.1 Road Closure/Partial Occupation of Public Roads

When construction works requires closure or partial occupation of public roads, the C-TMP shall be submitted to the local traffic management authority for approval prior to the commencement of construction.

The contractor shall publicize the notice of road closure/partial occupation and temporary traffic diversion arrangement to the public through appropriate media, e.g. local radio, TV, newspaper, and poster notices in near communities before the commencement of construction. Traffic diversion sign/map shall be established on both ends of the closed/occupied road to inform the public of the road closure and diversion arrangement.

Construction activities shall be properly scheduled according to local traffic status, e.g. avoid material transportation during rush hour,

Traffic management signs and facilities installed by the contractor for the construction site must comply with relevant national standards and technical specifications.

For road closure, adequate fencing of the closed construction site shall be established with proper control arrangement at entrance and exit gates, e.g. closed gate, guard rail, and/or dedicated staff for entrance/exit control. No public shall be allowed to pass through the closed construction site.

For partial road occupation, separation between construction zone and public traffic must be ensured with fences, barriers, warning columns etc. Separation of pedestrian/cyclist and vehicle traffic around the construction site shall also be provided to protect the safety of pedestrian and cyclists.

Temporary path for pedestrian/cyclists shall be provided to ensure the accessibility of local public with adequate safety facilities.

The contractor shall assign traffic safety staff on both ends of affected road section to direct the through traffic affected by the partial road occupation of the construction activity.

Adequate lighting facilities and reflective safety signs shall be installed around the construction site for night-time safety of diverted traffic and pedestrian/cyclists.

Temporary access for road side shops shall be provided whenever possible with adequate safety measures to minimize the disturbance of local business.

Where new access road is built for the project construction purpose, strict access control should be in place to prevent non-construction related users (vehicles/pedestrian) entering such roads. Necessary signs (e.g. speed limits, public road crossing) and measures (e.g. speed bumps) shall be put in place to ensure the traffic safety of such roads.

2.2 Pedestrian/Cyclist Safety

Contractor shall make utmost efforts and take measures to the extent possible to ensure the safety of pedestrian/cyclists within the area of impacts from the construction activities.

Safe temporary paths shall be guaranteed with proper separation from construction zone and vehicle traffic zone (where possible) using e.g. fences, guard rails, warning pole, warning flag/tape, etc.

Temporary pedestrian/cyclist paths shall be well lit during night-time to ensure that the paths are clearly visible for the pedestrian/cyclists.

In case construction activities may temporarily occupy these paths (e.g. material hauling and loading/unloading, moving of large construction equipment etc.), contractor shall assign on-site staff to direct the pedestrian/cyclists safely passing through the area without threatened by the potential risks.

2.3 Safety of Construction Workers

Contractor shall provide necessary personal safety protection equipment to all workers, including reflective vest/clothes and helmet, and enforce the wearing such equipment all the time in the construction sites and public roads during construction hours.

Provide safety training (including traffic safety) to all workers prior to the commencement of construction, and repeatedly (at least monthly) throughout the construction period.

2.4 Construction Vehicle/Equipment Management

Contractor shall ensure that drivers or operators for construction vehicles and equipment have proper licenses and qualifications as required by national and local laws/regulations.

Provide traffic safety training to the drivers and operators of construction vehicles and equipment prior to the commencement of construction, and repeatedly (at least monthly) throughout the construction period.

Routes and schedule of material/spoil transportation on public roads shall be prior planned to minimize the traffic disturbance. Where applicable, such plan shall be prior approved by the local authority.

Contractor shall plan separate traffic routes and/or entrance/exit for construction vehicles/equipment and workers at the construction site where possible.

Use traffic controllers, mirrors, stop signs or warning devices at site exits to make sure drivers can see or are aware of pedestrians before driving out onto public roads.

Designate specific parking areas for construction vehicles and equipment, avoiding the occupation of public roads or interference with pedestrian paths.

Construction vehicles and mobile equipment shall equip reserving warning alarms, flashing lights, sensors or cameras to ensure the safety for reversing operation. A signal person wearing high visibility clothing shall be assigned when the driver cannot see clearly behind the vehicle/equipment during backward operation on public roads and in the construction site.

When over-sized construction vehicle and special equipment are to be put on the public roads, ensure adequate safety measures such as clear warning signs, visible markers or flash lights are well equipped. Speed limit shall be strictly enforced.

Overloading of construction vehicles for material or spoil transportation shall be strictly prohibited.

2.5 Community Relations

Contractor shall engage local communities and relevant authorities when developing its C-TMP through stakeholder consultation process, so that the local demand of accessibility and safety concerns are incorporated into the C-TMP.

Where public roads are closed or partially blocked for construction, public notice shall be announced through local medias prior to the road closure and blockage.

Public grievance redress information shall be disclosed on-site, with specific contact person names and contact numbers open to public to receive public complaints.

Consultation with local communities, road users and relevant government authorities shall be conducted regularly throughout the construction period of the project. Feedbacks from such consultations shall inform the continuous improvement of the C-TMP.

2.6 Accident Reporting and Emergency Response Plan

Contractor shall develop an emergency response plan, as part of its C-TMP, to address the traffic related accidents happen in/near the project construction sites. This response plan should clearly specify the communication/reporting procedures, key contact persons to be immediately informed, contacts of relevant response agencies (e.g. traffic police, firefighting department, medical service etc.), and emergency response measures (e.g. road closure, traffic diversion etc.).

Contractor shall immediately report any traffic accident related to project construction to the Supervision Engineer and project proponent, including time and location of accidents, any fatality or serious injury, any spills of known and unknown chemicals, significant adverse impacts on traffic and community environment, and response measures taken on-site, etc. Full details of such accidents report shall be provided to the Supervision Engineer and project proponent with the timeframe agreed by the Supervision Engineer and project proponent.

Provide traffic accident emergency response training to all workers and management staff of the contractor as part of the overall safety training program.

Appendix 13 Ethnic Minority Development Framework

1. Purpose of the EMDF

At this stage, the specific subprojects are not known and will be identified during the project implementation by the PIUs. ESS7 under WB ESF applies whenever ethnic minority communities are present in, or have collective attachment to a proposed project area, as determined during the environmental and social assessment, regardless of the communities are affected positively or negatively, and regardless of the significance of any such impacts. The EMDF is consequently prepared which will serve as a basis to guide prepare Ethnic Minority Development Plan (EMDP) for each subproject if ESS7 is triggered.

This EMDF has been prepared in accordance with the applicable PRC laws and regulations, and ESS7:

- To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of ethnic minority communities.
- To avoid adverse impacts of projects on ethnic minority communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts.
- To promote sustainable development benefits and opportunities for ethnic minority communities in a manner that is accessible, culturally appropriate and inclusive.
- To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the ethnic minority communities affected by a project throughout the project's life-cycle.
- To obtain the Free, Prior, and Informed Consent (FPIC) of affected ethnic minority people in the three circumstances described in this ESS.
- To recognize, respect and preserve the culture, knowledge, and practices of ethnic minority people, and to provide them with an opportunity to adapt to changing conditions in a manner and in a timeframe acceptable to them.

2. Preparation and Approval of the EMDP

1) Identification and screening of ethnic minorities

The criteria for identification: An "ethnic minority" means a unique, vulnerable social and cultural group with the following features to varying degrees:

- Self-identification as a member of a unique social and cultural group, and such a feature is recognized by others;
- Collective attachment to a geographically distinct habitats, ancestral territories, or areas of seasonal use or occupation, as well as to the natural resources in these areas;
- Customary cultural, economic, social or political institutions that are distinct or separate from those of the mainstream society or culture;
- A distinct language or dialect, often different from the official language or languages of the country or region in which they reside.

Methods of identification: (i) fieldwork—learning local population, ethnic composition and identifying any ethnic minority village or habitat; (ii) data collection and literature review—collecting statistical yearbooks, reports, annuals and other literature reflecting local population, ethnic groups, culture, customs, etc. to learn production and living differences between ethnic minorities and the Han people.

Screening: At the early preparation stage, the PIUs will conduct screening to see if the ethnic minority communities in the project area or if any ethnic minority community is attached collectively to the project area, and then determine the requirements for the preparation of social security documents and report them to the World Bank for recording and spot check.

If, based on the screening, the PIUs concludes that ethnic minority communities are present in, or have collective attachment to, the project area, the PIUs will undertake a social assessment (as a part of social impact assessment of the subproject) to evaluate the project's potential positive and adverse effects on the ethnic minority communities, and to examine project alternatives where adverse impacts may be significant. The breadth, depth, and type of analysis in the social assessment are proportional to the nature and scale of the proposed project's potential impacts on the ethnic minority communities, whether such impacts are positive or adverse.

To promote effective project design, to build local project support or ownership, and to reduce the risk of project-related delays or controversies, the PMO/PIUs will undertake an engagement process with affected ethnic minorities, as required in ESS10. This engagement process will include stakeholder analysis and engagement planning, disclosure of information, and meaningful consultation, in a culturally appropriate and gender and inter-generationally inclusive manner.

The SEF has set out specific provisions and procedural requirements, consistent with ESS7 and ESS10, to identify EM's special needs and interests, and set out culturally appropriate measures to promote information disclosure and meaningful stakeholder engagement with EMs to respond to their special needs and interests, which should include:

- Ethnic minorities in the subproject areas shall be identified and the project's impacts to EMs shall be analyzed taking into account their particular vulnerabilities and needs;
- Ethnic minority community's customs and languages shall be respected;
- Ethnic minority communities are encouraged to participate and are effectively and inclusively involved in the process of subproject design and TA activities to contribute to risks identification and mitigation;
- Ethnic minority customs and taboos are respected, and staff learning ethnic minority customs and languages assigned for information disclosure and communication;
- Ethnic minority communities are given sufficient time for decision-making; and
- An understandable language should be used at information disclosure and consultation meetings;
- Times and venues of consultation meetings should be selected in consideration of their availability;
- Traffic arrangements leading to the closest venue are provided to ethnic minority residents in remote areas if needed.

Based on the SIA for the Batch 1 subprojects, and the preliminary screening of the Project, the Project will not trigger the circumstances that require free, prior and informed consents (FPIC) as set out in ESS7. The project exclusion list includes explicit provisions to exclude any subproject or activities that that will trigger the circumstances requiring FPIC with ethnic minorities. The PMOs and the social consultant will further screen the impacts on ethnic minorities for the subsequent batch of investments when more information is available.

4) EMDP preparation

If the subproject is located at an ethnic minority area, the PIUs will conduct social assessment to evaluate the potential negative impacts on such ethnic minority and prepare an EMDP as appropriate following the ESS7. The EMDP will document the process of meaningful consultation with as well as free, prior and informed consent with the affected ethnic minorities.

The PIUs will determine whether affected minority communities can provide extensive support to the subproject based on SA, and free, prior and informed consultation. If such support is available, the PIUs should prepare an EMDP. As necessary, the EMDP will include the following:

- An information summary: reviewing a legal and institutional framework suited to ethnic minority residents on a scale appropriate to the Project; collecting baseline information on the population, social, cultural and political features of affected ethnic minority communities, land and estates traditionally owned, used or occupied by them, and natural resources on which they rely;
- A summary of the results of the meaningful consultation tailored to ethnic minority community, and if the project involves the three circumstances specified above, then the outcome of the process of FPIC carried out with the affected ethnic minority community during project preparation.
- A framework for meaningful consultation tailored to the affected ethnic minority communities at the implementation stage;
- An action plan to ensure that ethnic minority residents receive culturally appropriate social and economic benefits, including measures to improve the capacity of the IAs if necessary;
- An appropriate action plan to avoid, minimize or compensate for potential negative impacts on ethnic minority residents;
- The cost estimate, financing plan, schedule and roles and responsibilities for implementing the EMDP;
- An appropriate and understandable grievance redress procedure for ethnic minority communities, established by reference to common local judicial recourse and dispute settlement mechanisms.
- Mechanisms and benchmarks appropriate to the project for monitoring, evaluating, and reporting on the implementation of the EMDP.

5) EMDP approval

The completed EMDP, after being reviewed and endorsed by the PIUs, will be submitted to the Bank for review and clearance as part of subproject preparation documents along with other project documents, such as technical report, environmental documents, among others.

The EMDP should be disclosed locally and on Bank's website and revised in accordance with feedbacks for the disclosure.

3. Prevailing Ethnic Minority Policy Framework

The EMDP should be prepared in accordance with the applicable state and provincial laws and regulations, and ESS7.

Both PRC and Bank policies have the same goal in respect of ethnic minorities, namely fully respecting their dignity, power, economy, and culture, promoting their equality and development, and paying special attention in their economic, social and cultural development to protect their rights and interests, and improve their social and economic status.

Both PRC and Bank policies lay stress on the public participation of ethnic minority communities, and the action plan across all stages, the provision of all relevant information in a culturally appropriate manner, and the collection of comments, attitudes and expectations of ethnic minority residents to win their extensive support.

Both PRC and Bank policies emphasize that a series of measures be taken to ensure that affected ethnic minority residents receive social and economic benefits suited to their cultural customs, and measures are taken to avoid, minimize or compensate for negative impacts on ethnic minority residents.

However, there are still some differences between PRC and Bank policies. Differences are identified with mitigation measures in Table 1.

Table 1 Gap Analysis of Ethnic Minority Policy of PRC and WB

No	ESS7	Comparison with PRC Policies/Regulations	Gap-filling Measures
1	WB requires that an ethnic minority development plan (EMDP) needs to be prepared if ethnic minorities are adversely affected.	There is no requirement in PRC to prepare EMDP for a project. Local government is responsible for implementing some development projects for local ethnic minority people. If the project will bring some negative impacts to the local ethnic people, the mitigation measures also will be developed and implemented.	The project implementing agency needs to conduct social impact assessment with the assistance of qualified and experienced experts and that draw on ethnic minorities' knowledge and participation by the affected ethnic minority communities. Mitigation measures with sufficient fund need to be discussed with local government.
2	The project is required to undertake meaningful consultations with affected ethnic minority communities and concerned ethnic minority organization. For special circumstances, free, prior and informed consent of ethnic minorities should be obtained.	Consultation with local ethnic minority communities is always commenced after the project proposal is approved.	Consultation with ethnic minority people should be implemented through the whole progress of the Subproject. In Subproject preparation, implementation and monitoring phases, the subproject enterprise needs to actively solicit the views, attitudes and expectations of ethnic minorities. The process of meaningful consultation and free, prior and informed consent should be carried out following the requirements of ESS7 and ESS10 and be documented.
3	Monitoring and evaluation on the implementation of EMDP.	There is no follow-up monitoring to assess whether they (i) receive culturally appropriate social and economic benefits, (ii) do not suffer adverse impacts as a result of projects.	A regular monitoring and evaluation process, including internal and independent (external) processes needs to be established.

4. Implementation Process

The EMDP should propose a specific implementation schedule for all required activities, appoint agencies responsibly, and fix funding sources. At the implementation stage, the PIUs will be

responsible for the implementation of the EMDP and take appropriate measures to enhance the positive benefits and mitigate its negative impacts.

5. Financial Arrangements

All measures are going to be financed by the PIUs or local government. Based on types of measures, some of them will be financed by existing government program or funds; and some of them will be financed by the subproject budget as part of subproject resettlement program or environment mitigation measures.

6. Public Participation

The EMDP is the final outcome of a social assessment and consultation process which aims to ensure that ethnic minorities are well informed, consulted and mobilized to participate in the subproject to be supported by the World Bank. Their participation can either provide them the benefits with more certainty or protect them from any potential adverse impacts like land acquisition and resettlement. In the social assessment, the subproject areas will be visited by the PIUs, relevant county agencies, particularly agencies in charge of ethnic minority and poverty affairs, and consultants. During the visit, the community leaders and other participants will present their views with regards to the subproject. In addition, social consultant will conduct separate group discussions among male and female participants followed by key informants' interviews and sample household survey. The main purpose of such survey is to develop a social economic profile among ethnic minority beneficiaries, conduct stakeholder analysis and collect their views on both benefits and potential impacts of the project, as well as mitigation measures.

7. Grievance Redress Mechanism

During implementation of EMDP, complaints may arise because there have been some problems or change to the actual subproject implementation activities which had not been foreseen when the EMDP is prepared. In order to ensure that the affected people can voice their concerns during EMDP implementation, an appeal procedure is defined within in EMDP. The purpose of this appeals procedure is to provide a mutually satisfactory means for rapid response to any complaint, to avoid any likelihood of a complicated legal procedure. The detailed procedure is as follows:

- If any affected person has issue or concern with activities under EMDP, he/she can voice their complaint to the village/resident committee. The village committee should keep records, consult with the township government and provide a reply to the affected people.
- If the affected person is not satisfied with the reply, they can appeal to the township/subdistrict government, which will take records, consult with local country government and provide a solution to the affected person.
- If the affected person still does not accept the proposed resolution, then they can appeal directly to the local district/county government, which is the main organization responsible for the whole subproject. The county government should make a record of any appeal and provide a resolution.
- If the dispute still cannot be resolved, then the affected person can go through an administrative appeal according to the "Administrative Procedure Law of People's Republic of China" or go directly to the People's Court.

APs will be aware of their right to appeal through the participatory meetings and from the resettlement information booklet by following the new provisions in the land administration law and

regulations. The project will also publicize information through the mass media and collect the APs opinions and suggestions, which will then be investigated and resolved through all necessary administrative levels in a timely manner. The PIUs will make records of all appeals, and the resultant resolutions.

8. Monitoring and Evaluation

Monitoring and evaluation (M&E) of the EMDP is required to ensure the plan is implemented properly and meets the objectives specified. The final M&E plan will be formulated shortly before project implementation. The World Bank through PMO will provide assistance to the PIUs in formulating the M&E plan.

Appendix 14 Cultural Relics Chance Find Procedure

1. Introduction

This chance find procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. It will be included in all contracts relating to construction of the project, including excavations, demolition, movement of earth, flooding or other changes in the physical environment.

This chance find procedure sets out how chance find associated with the project will be managed. The procedure also includes a requirement to notify relevant authorities of found objects or sites by cultural heritage specialists; to fence-off the area of finds or sites to avoid further disturbance; to conduct an assessment of found objects or sites by cultural heritage specialists; to identify and implement actions consistent with the requirements of relevant laws and regulations, as well as the World Bank ESS8; and to train project personnel and project workers on chance find procedures.

2. Regulation and Standards

According to Article 2 of the *Cultural Relics Protection Law of the PRC (amended in 2013)*, the following cultural relics of historical, artistic or scientific value within the boundaries of the People's Republic of China are under national level protection:

- Sites of ancient culture, ancient tombs, ancient architectural structures, cave temples and stone carvings that are of historical, artistic or scientific value;
- Buildings, memorial sites and memorial objects related to major historical events, revolutionary movements or famous people that are highly memorable or are of great significance for education or for the preservation of historical data;
- Valuable works of art and handicraft articles dating from various historical periods;
- Important revolutionary documents as well as manuscripts and ancient or old books and materials, etc., that are of historical, artistic or scientific value;
- Typical material objects reflecting the social system, social production or the life of various nationalities in different historical periods.

In addition, Article 3 of the *Interim Management Measure for Identification of Cultural Relics (2009)* stipulates that county-level or higher-level cultural relics administration departments are responsible for the assertion of cultural relics. In case of any dispute about the assertion of cultural relics, the provincial level cultural relics authority will make a ruling.

As per the World Bank Environmental and Social Standard 8 (ESS), the term 'cultural heritage' encompasses tangible and intangible heritage, which may be recognized and valued at a local, regional, national or global level, as follows:

- Tangible cultural heritage, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Tangible cultural heritage may be located in urban or rural settings, and may be above or below land or under the water;
- Intangible cultural heritage, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artifacts and cultural spaces associated therewith— that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history.

3. Objectives

Below are the objectives of this procedure:

- To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- To address cultural heritage as an integral aspect of sustainable development.
- To promote meaningful consultation with stakeholders regarding cultural heritage.
- To promote the equitable sharing of benefits from the use of cultural heritage.

4. Applicability

This Cultural Relics Chance-Find Procedure is applicable to all project activities, where archaeological/cultural relics are unexpectedly found and are likely to have risks or impacts on cultural heritage. This will include a project which:

(a) Involves excavations, demolition, movement of earth, flooding or other changes in the physical environment;

(b) Is located within a legally protected area or a legally defined buffer zone;

(c) Is located in, or in the vicinity of, a recognized cultural heritage site; or

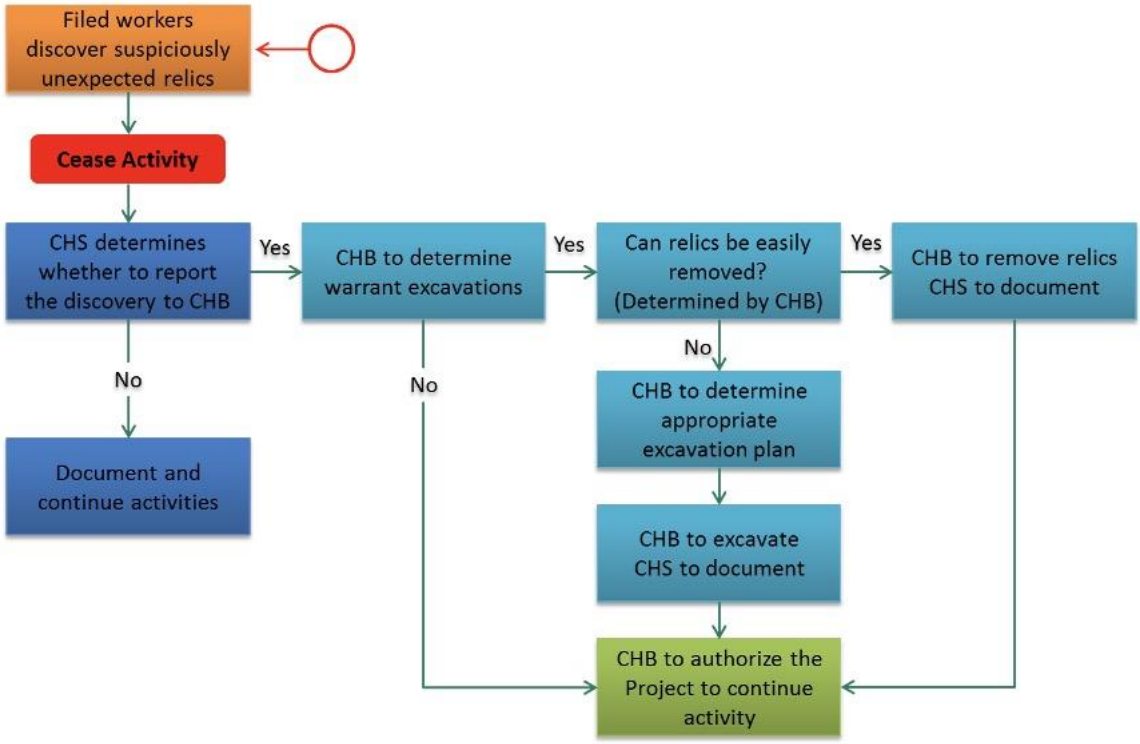
(d) Is specifically designed to support the conservation, management and use of cultural heritage.

It is considered possible that cultural relics will be encountered during project construction, site. It is important to ensure that the Project Contractors are properly trained in the importance of recognizing and reporting archaeological/paleontological finds. This is the key to ensuring an effective management plan. The workforce should receive a short and basis awareness training on finds and procedures before commencement of drilling and construction works.

It is recommended that the Project provides relevant training to a social specialist or assigns an appropriate archaeological knowledge as a Cultural Heritage Supervisor (CHS). The CHS would be responsible for ensuring compliance with this *Cultural Relics Chance-Find Procedure*, including awareness training prior to construction, documenting chance find as they arise and acting as the primary contact between the Project and its contractors and the Cultural Heritage Bureau (CHB).

Graves and tombs identified during asset inventories for impact surveys which are either relocated or compensated are not subject to this Cultural Relics Chance-Find Procedure but the Resettlement Plan.

5. Chance Find Procedure



Filed workers discovering or suspecting that they have discovered unexpected archaeological or paleontological remains should:

- stop work immediately and report to CHS;
- not disturb or remove the finds;

The CHS should then:

- Identify whether the objects are cultural relics or not. If not, construction activity will continue under the supervision of CHS. If yes, provide protection measures, including necessary covering, arranging personnel to supervise the site under the guidance of CHS; and
- Inform the CHB of the discovery immediately.

The CHB shall determine the necessity of subsequent actions. Where a rescue excavation is deemed necessary, the following shall occur:

- Generally, after receiving the cultural relic discovery report, the CHB will inspect the site within 24 hours and formulate a salvage plan if deemed necessary. This may include site surveying and the removal of remains, according to guidelines established by the CHB. If required, the CRB may inform the local police station to seek help to protect the cultural relics. Decisions on how to deal with the cultural relics will be made within 7 days by CHB.
- In order to proceed with major rescue excavation works (to be determined by the CHB), it may be necessary to submit an Excavation Work Plan, including a map of the area to be investigated, and methodology to retrieve relics.
- Upon completion of the rescue excavation, a report with an inventory and description of the finds shall be prepared, and the finds shall be delivered to the CHB. Construction may then continue in that area.
- All archaeological finds shall be documented by the CHS.

Appendix 15 Outline for E&S management performance Evaluation

Note: The Shaanxi PMO will submit an annual E&S performance monitoring report to the Bank to evaluate ESMF and E&S instruments implementation, E&S performance and potential gaps, and propose improvement measures.

1 Report preparer

Report prepared by: (name and title)
Telephone:
E-mail:
Report date:

2 Organizational structure and E&S document preparation

Describe the following information (but not limited to)

1) Describe the organizational structure for E&S management.
2) List the persons in charge of E&S and their contact information (name, address, telephone number and e-mail address).
3) List the training on the ESF, ESMF and SEF offered to the Shaanxi PMO and subproject implementation agency.
4) List the preparation activities for the subprojects, and E&S documents prepared, including TORs, stakeholder engagement activities, etc.

See attached table, Summary of E&S Document Preparation, and Implementation, for reference.

3 Implemented project activities and E&S performance

This section should present the following information (but not limited to)

1) Provide a complete list of implemented project activities and the E&S instruments prepared, adopted, and implemented by project activities.
2) Describe the E&S performance against site specific E&S documents, national standards, and ESCP, etc.
3) Describe the implementation of the ESCP;
4) Summarize E&S issues (like E&S incidents/accidents) that affect project implementation, remedial measures implemented and their effects.
5) Summarize compliance status of ESCP, ESSs and China's laws and regulations, etc. by project activities.
6) Summarize the non-compliance status, if any from domestic permits and standards, relevant ESSs, legal action against the project (in addition to grievances) and present the agreed time-bound corrective actions;
7) Present project suspensions/delays (if any) and any outstanding complaints/grievances/community concerns due to environmental, social or H&S issues, protests, strikes (basically any incidents, accidents, events as described in the Loan Agreement or Project Agreement)s.

4 Stakeholder engagement and GRM

Please list all information disclosure and public participation activities in the reporting period.

Please list any effective grievance or dispute (including court action) regarding E&S complaints received by each subproject during the reporting period. Describe how these were addressed and their status.

5 Challenges in E&S instruments implementation

Please describe the main challenges and difficulties in E&S instruments implementation.

6 Conclusion and suggestions

Attached Table: Summary of E&S Document Preparation and Implementation

Cut-off date: _____ (MM/YY)

No.	subproject	Subproject county	Starting time	Expected time of completion	E&S document requirements	E&S document preparation	Any significant E&S event[31] during the reporting period? If yes, please specify	Current E&S status/any changes since last report	Other

[31] Examples of significant incidents such as: chemical and/or hydrocarbon materials spills; fire, explosion of unplanned releases, including during transportation; ecological damage/destruction; local population impact, complaint or protest; failure of emissions or effluent treatment; legal/administrative notice of violation; penalties, fines or increase in pollution charges; negative media attention; chance cultural finds; labor unrest or disputes; or local community concerns.