Environmental Safeguard Systems Assessment

PUBLIC

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People's Republic of China: Chongqing Gaoxin District Green and Low-Carbon Urban Development Program

ABBREVIATIONS

ACGD	–	Administration of Chongqing Gaoxin District
ADB	–	Asian Development Bank
APMO	–	Administration of Chongqing Gaoxin District Program Management Office
CGD	–	Chongqing Gaoxin District
CGDG	–	Chongqing Gaoxin Development and Construction Investment Group Co., Ltd.
CMG	–	Chongqing Municipal Government
CPMO	–	Chongqing Project Management Office
DDR	–	due diligence report
DLI	–	disbursement-linked indicator
EEB	–	ecology and environment bureau
EED	–	ecology and environment department
EHS	–	environment, health, and safety
EIA	–	environmental impact assessment
EIRF	–	environmental impact registration form
EIS	–	environmental impact statement
EIT	–	tabular environmental impact report
EMP	–	environmental management plan
GRM	–	grievance redress mechanism
LIEC	–	loan implementation environmental consultant
MEE	–	Ministry of Ecology and Environment
PIC	–	program implementation consultant
PIU	–	program implementation unit
PRC	–	People's Republic of China
PSSA	–	program safeguard systems assessment
RBL	–	results-based lending
SPS	–	Safeguard Policy Statement
WWTP	–	wastewater treatment plant

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I. INTRODUCTION

A. Program Background

1. The proposed Chongqing Gaoxin District Green and Low-Carbon Urban Development Program (the program) will demonstrate green, nature-based, low-carbon, climate-resilient, and intersectoral urban development in Chongqing Gaoxin District (CGD), Chongqing Municipality of the People's Republic of China (PRC). Institutional strengthening will build the capacity of the Administration of Chongqing Gaoxin District (ACGD) to significantly enhance the facilitation, implementation, and monitoring of green, low-carbon and sustainable development initiatives and policies in CGD. The program adopts an integrated urban development approach, ensuring cohesive planning and inclusive municipal services, which will lead to a more sustainable use of resources, improved connectivity, and a better quality of life for residents. The program's knowledge management action plan will support widespread sharing of innovative features and knowledge solutions.

B. Program Description

2. **Results-based lending program scope.** The results-based lending (RBL) program covers 7 years, 2024─2030. The geographic slice is the entire CGD, including 3 subdistricts and 7 townships. The sector slice is focusing on urban–rural public services on green buildings, Green Eco-district, wastewater collection and treatment, reuse of reclaimed wastewater, river rehabilitation with nature-based solutions, green space, sustainable infrastructure development applying sponge city principles, renewable energy-powered district heating and cooling supply, public awareness raising and participation, and institutional strengthening.

3. The RBL program's impact will be green, low-carbon, and nature-based city established and CGD's contribution to carbon dioxide (CO_2) peaking and carbon neutrality target supported. The outcome will be green and low-carbon urban development in CGD improved. The primary beneficiaries will be the residents in 3 subdistricts and 7 townships in CGD. The proposed outputs to achieve the outcome will be:

(i) Output 1: Institutional capacity and human capital enhanced for green and low-carbon urban development;
(ii) Output 2: Green and low-carbon urban infrastructure and services in CGD established, and;
(iii) Output 3: Urban ecology and climate resilience enhanced using nature-based solutions.

4. The RBL program and its activity types are summarized and in Table 1.

Table 1: Program Scope

Item	Broader Government Program	Results-Based Lending Program
Outcome	Green and low-carbon urban development in CGD established	Green and low-carbon urban development in CGD improved
Key outputs	• Capacity enhancement and systems support • Green and low-carbon livable environment • Eco-friendliness and climate resilience	• Output 1: Institutional capacity and human capital enhanced for green and low-carbon urban development • Output 2: Green and low-carbon urban infrastructure and services in CGD established

Item	Broader Government Program	Results-Based Lending Program
		• Output 3: Urban ecology and climate resilience enhanced using nature-based solutions
Activity types	• Enhancement of policies, scientific and technological innovation support, collaboration mechanisms, digitization, green financing, and public participation • Green and low-carbon urban and rural development • Green and low-carbon transition of energy • Industry symbiosis • Green and low-carbon transportation • Improve capacity of carbon sequestration of ecosystem	• Institutional strengthening, human capital development, awareness raising, and participation • Green and low-carbon urban and rural development (green buildings and ultra-low energy buildings, Green Eco-district, wastewater collection and treatment, reuse of reclaimed wastewater, renewable energy-powered district heating and cooling) • Sustainable and climate-resilient infrastructure development with nature-based solutions and sponge city principles (surface water quality improvement, flood risk management, urban green spaces)
Expenditure size	$8.16 billion (CNY 59.00 billion)	$829.33 million
Main financiers and their respective total amounts	Government: $7.96 billion ADB: $0.2 billion	Government: $629.33 million ADB: $200 million
Geographic coverage	CGD	CGD
Implementation period	13 years, 2023–2035	7 years, 2024–2030

ADB = Asian Development Bank, CGD = Chongqing Gaoxin District.
Source: ADB estimates.

5. **Implementation arrangements**. Chongqing Municipal Government (CMG) will be the executing agency with overall policy guidance and supervision. The CMG's Chongqing Foreign Loan Project Management Office (CPMO) oversees Chongqing's internationally financed loan projects and programs and will provide overall municipal-level coordination, guidance, and oversight of the proposed RBL program. ACGD is the implementing agency with a dedicated ACGD Program Management Office (APMO) for the RBL program implementation established in February 2024. The APMO is responsible for day-to-day supervision, coordination, and guidance of program preparation and implementation. The program implementation unit (PIU) is the Chongqing Gaoxin Development and Construction Investment Group Co., Ltd. (CGDG), responsible for procurement, contract and construction management, operation and maintenance of the program infrastructure and facilities. Additional bureaus or agencies such as ACGD's Construction Bureau, Urban Development Affairs Center, Ecology and Environment Bureau, and Government Affairs Service Center will also be involved in some program activities and sector development, such as capacity building and institutional strengthening.

C. ADB Safeguard Policy Requirements

6. As defined in the policy paper on RBL of the Asian Development Bank (ADB),[1] the ADB Safeguard Policy Statement (SPS, 2009) applies to RBL programs. Specifically, for environment safeguards, the RBL program must be designed to adhere to the policy principles of the SPS. The implementation of the RBL program must follow the same policy objectives and principles in the SPS, but not its policy delivery process and operational procedures. The RBL policy provides the safeguard policy delivery process for RBL programs.

[1] ADB. 2021. Results-Based Lending for Programs. *Operations Manual*. OM D18. Manila.

7. This environmental safeguard systems assessment (ESSA) report was prepared for the proposed program. The program is adopting the RBL modality, requiring the preparation of a program safeguard systems assessment (PSSA). This ESSA is developed to provide inputs to the PSSA document.

8. This program ESSA aims to (i) assess potential program environmental risks; (ii) assess the environmental safeguard systems of the PRC and Chongqing, as well as related implementation practices and institutional capacity, in relation to ADB SPS; and (iii) recommend safeguard program actions where gaps and weaknesses are found.

9. The methodology for the ESSA followed the guidance provided by ADB.[2] This ESSA was conducted by a team of qualified consultants (international and national) with ADB staff support, through (i) a desk review of relevant PRC environmental laws, regulations, and policies, as well as the implementing agency implementation capacity and safeguard management systems; (ii) visits to potential candidate sites with completed, ongoing, or planned activities; and (iii) consultation with key stakeholders via meetings and interviews during January–April 2024. The assessment includes (i) screening of the program's environmental impacts; (ii) an assessment of which SPS environmental policy principles will be triggered by the program; (iii) an equivalence assessment between national, provincial, and local environmental regulations and the triggered SPS environment safeguard policy principles; (iv) an adequacy assessment of existing environmental assessment and management practices; (v) identification of procedural gaps relating to environmental impact assessment, environmental management plan (EMP) implementation, information disclosure, public consultation, grievance redress, and environmental monitoring and reporting; and (vi) recommendations on safeguard program actions to address gaps and weaknesses.

II. SCREENING OF PROGRAM'S ENVIRONMENTAL IMPACTS

A. Anticipated Environmental Impacts

10. The proposed program will involve physical activities including (i) reclaimed water reuse facilities; (ii) separating stormwater and sewage collection pipelines; (iii) energy efficiency building and green buildings; (iv) clean heating and cooling; (v) Green Eco-district; (v) ecology and river rehabilitation; and (vi) green spaces. Likely impacts from construction and operation of facilities to be supported by the program are described below. No other activities will trigger the environment safeguard policy.

11. Potential adverse environmental impacts during construction phase are mainly related to building construction, including (i) noise and vibration may be caused by the operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes and the transportation of materials and equipment; (ii) soil erosion may be caused by exposure of soil surface to rain and wind during site clearing, earth moving, and excavation activities; (iii) emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind; (iv) exhaust from diesel engines of earth moving equipment; (v) wastewater and site runoff affecting public drainage systems; (vi) inappropriate disposal of solid wastes from the construction sites, including hazardous and non-hazardous waste; (vii) occupational health and safety risks for site construction workers; and (viii) potential risk to public health and safety. These impacts are short-

[2] ADB. 2023. *Technical Staff Guidance for Results-Based Lending for Programs*. Manila.

term and site-specific, and can be mitigated through application of standard construction management practices.

12. No significant operation phase environmental impacts are anticipated during the operation of facilities to be supported under the program. During operation, the municipal solid waste, wastewater, etc., from facilities, buildings, Green Eco-district, clean heating and cooling stations and pipelines can easily be addressed by integrating those facilities into the region's municipal services (water supply, solid waste, and sewer collection and disposal).

13. Overall, the program's impacts can be effectively mitigated through application of standard construction and operation management practices. Based on the program scope and due diligence conducted during program preparation, potential subprojects to be financed under the program will be environment category B and the program will not finance environment category A subprojects.

B. Due Diligence of the Existing Facilities and Associated Facilities

14. Expansion of the existing wastewater treatment plants (WWTPs) is likely to be included in the program. The existing WWTPs are identified as existing facilities. Due diligence of the existing facilities will be conducted during program implementation.

15. In addition, any associated facilities will also be identified during program implementation and due diligence will be undertaken.

III. PRC ENVIRONMENTAL MANAGEMENT

A. PRC Environmental Management System

16. Since the promulgation of the Environmental Protection Law in 1969, PRC has established an integrated legal framework for environmental protection, and pollution prevention and control gradually. This framework includes over 80 laws, 120 department bylaws, and over 1,000 technical standards at the state level, and constitutes the main regulatory framework for the environmental risks and impacts involved in the program activities.

17. Major environmental and natural resource management laws include the Environmental Protection Law (*RenDa* [1989, amended 2014]);[3] Environmental Impact Assessment (EIA) Law (*Renda* [2003, amended 2018]);[4] Water Law (*RenDa* [2002, amended 2016]);[5] Water Pollution Prevention and Control Law (*RenDa* [2008, amended 2017]);[6] Air Pollution Prevention and Control Law (*Renda* [2000, amended 2018]);[7] Solid Waste Pollution Prevention and Control Law

[3] The Standing Committee of the National People's Congress of the PRC. 2014. *Environment Protection Law of the PRC*. Beijing (in Chinese).
[4] The Standing Committee of the National People's Congress of the PRC. 2018. *Environmental Impact Assessment Law of the PRC*. Beijing (in Chinese).
[5] The Standing Committee of the National People's Congress of the PRC. 2016. *PRC's Water Law.* Beijing (in Chinese).
[6] The Standing Committee of the National People's Congress of the PRC. 2017. *PRC's Water Pollution Prevention and Control Law*. Beijing (in Chinese).
[7] The Standing Committee of the National People's Congress of the PRC. 2018. *PRC's Air Pollution Prevention and Control Law*. Beijing (in Chinese).

(*Renda* [2005, amended 2020]);[8] Soil Erosion Control Law (*Renda* [1991, amended 2010]);[9] Marine Environment Protection Law (*Renda* [2000, amended 2023]);[10] Law of Protection of Wild Fauna (*Renda* [2004, amended 2022]);[11] Flood Prevention Law (*Renda* [1998, amended 2016]);[12] Fishery Law (*Renda* [1987, amended 2013]);[13] Forest Law (*Renda* [1984, amended 2019]);[14] Land Administration Law (*Renda* [1999, amended 2019]);[15] Highway Law (*Renda* [1998, amended 2017]);[16] Energy Conservation Law (*Renda* [2008, amended 2018]);[17] and Urban and Rural Planning Law (*Renda* [2008, amended 2019]).[18]

18. **The Environmental Protection Law** is the fundamental law in the PRC's environmental protection, and pollution prevention and control system. Its 2014 amendment is called the strictest environmental law in the PRC's history, and aims to protect and improve the environment, prevent and control pollution, protect public health, and promote sustainable development, where an EIA should be conducted for projects with environmental impacts. In addition, it stipulates that the state practices an environmental protection target responsibility system, an evaluation system, an ecological protection compensation system, "three simultaneities" system,[19] ecological redline protection system, total emission control system for key pollutants, pollutant discharge permit system, etc., and becomes a main tool for the Chinese environmental safeguard system.

19. The enforcement of environmental laws and regulations is conducted by the ecology and environmental protection authorities within each level of the government. The regulatory enforcement and supervision authorities are the Ministry of Ecology and Environment (MEE) at the national level, environment, and ecology departments (EEDs) at the provincial level, and ecology and environment bureaus (EEBs) at the municipality level. The authorities are supported by environmental monitoring stations and environmental protection research institutes at different levels of the government.

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[8] The Standing Committee of the National People's Congress of the PRC. 2020. *PRC's Solid Waste Pollution Prevention and Control Law*. Beijing (in Chinese).
[9] The Standing Committee of the National People's Congress of the PRC. 2010. *PRC's Soil Erosion Control Law*. Beijing (in Chinese).
[10] The Standing Committee of the National People's Congress of the PRC. 2023. *PRC's Marine Environment Protection Law*. Beijing (in Chinese).
[11] The Standing Committee of the National People's Congress of the PRC. 2022. *PRC's Law of Protection of Wild Fauna*. Beijing (in Chinese).
[12] The Standing Committee of the National People's Congress of the PRC. 2016. *PRC's Flood Prevention Law*. Beijing (in Chinese).
[13] The Standing Committee of the National People's Congress of the PRC. 2013. *PRC's Fishery Law*. Beijing (in Chinese).
[14] The Standing Committee of the National People's Congress of the PRC. 2019. *PRC's Forest Law*. Beijing (in Chinese).
[15] The Standing Committee of the National People's Congress of the PRC. 2019. *PRC's Land Administration Law*. Beijing (in Chinese).
[16] The Standing Committee of the National People's Congress of the PRC. 2017. *PRC's Highway Law*. Beijing (in Chinese).
[17] The Standing Committee of the National People's Congress of the PRC. 2017. *PRC's Energy Conservation Law*. Beijing (in Chinese).
[18] The Standing Committee of the National People's Congress of the PRC. 2019. *PRC's Urban and Rural Planning Law*. Beijing (in Chinese).
[19] "Three simultaneities" system: facilities for the prevention and control of pollution at a construction project must be designed, built, and commissioned together with the principal part of the project. The three simultaneities system shall be implemented by local environmental protection authorities.

B. Environmental Impact Assessment and Management

20. **Categorization and environmental impact assessment requirements.** Article 16 of the EIA Law (*RenDa* [2003, amended in 2018], footnote 4) requires classification of environmental assessment for construction projects according to the potential environmental impacts that will be caused:

(i) An environmental impact statement (EIS) is required for construction projects with potentially significant environmental impacts (generally equivalent to ADB category A).
(ii) A tabular environment impact report (EIT) is required for construction projects with less significant environmental impacts (generally equivalent to ADB category B).
(iii) An environmental impact registration form (EIRF) is required for construction projects with the least significant environmental impacts (generally equivalent to ADB category C).

21. The MEE Directory on EIA Categories of Construction Projects (2021) classifies environmental impact assessments for construction projects into 3 categories with different due diligence and reporting requirements. It provides detailed EIA requirements for 55 sectors and 173 subsectors based on the project's size, type, and site environmental sensitivity.

22. The key elements for determining “significant environmental impacts” are whether the construction project (i) is deemed to be an environmentally critical project, (ii) is above certain scale or size thresholds, or (iii) is located in or near environmental sensitive areas. The environmental sensitive areas are defined as following:

(i) nature reserves, scenic areas, world cultural and natural heritage sites, drinking water source protection areas;
(ii) basic farmland reserves, basic prairie, forest park, geological park, critical wetlands, natural forest, natural habitats for endangered wild flora and fauna, natural spawning grounds, feeding grounds, wintering grounds and migratory channel for key aquatic organisms, natural fishery yards, water scarcity area, critical soil erosion prevention area, protected deserts, enclosed and semi-enclosed seas, eutrophication waters; and
(iii) areas for living, medical care, education, administrative office and scientific research; cultural relics; reserves with special historical, cultural, scientific and national significance.

23. The Technical Guideline for EIA for Construction Project (*ShengHuan* [2016] HJ/T 2.1-2016) provides general principles, guidance on content of EIA, and procedures for conducting EIA.[20] The assessment process involves a survey that is conducted to assess the environmental status of the affected area. Also, an engineering analysis of the project is required in order to identify all potential impacts (both during its construction and operational phases) on the baseline environment. Methods to identify potential impacts include a matrix, network, or charts overlay by geographic information systems, etc. This data allows for a prediction and assessment of environmental factors and an analysis of specific environmental impacts. On the basis of these results, environmental protection measures will be proposed, and the EIA report prepared.

[20] Ministry of Ecology and Environment of the PRC. 2016. *Technical Guideline for EIA for Construction Project—General Programme*. Beijing (in Chinese).

24. The content and format of an EIA, EIT, and EIRF are explicitly regulated in the EIA law (footnote 4) and regulations. In order to optimize and standardize the preparation of environmental impact report forms, the MEE divides the report forms into pollution impact categories and ecological impact categories according to the environmental impact characteristics of construction projects, and has formulated the Technical Guidelines for Compilation of Construction Project EIT (Pollution Impact Category) (Trial) (*Shenghuan* [2020]) [21] and Technical Guidelines for Compilation of EIT for Construction Projects (Ecological Impact) (Trial) (*Shenghuan* [2020])[22]. For projects with low to minimal impacts that require an EIRF, MEE issued the Administration Measures on the Registration Environmental Impact Registration Form for Construction Project (effective the 1st of January 2017) (*Shenghuan* [2016])[23] providing a template registration form to be submitted by the project proponent, and to be registered at the local ecology and environment authorities through an online system (https://beian.china-eia.com). Information disclosure is also conducted through the online system (https://beian.china-eia.com/f/announcement/announcementShow). The online system is managed and operated by MEE.

25. **Public consultation requirements.** The EIA Law (*Renda* [2018] article 21, footnote 4) and the Guideline on Public Participation in EIA (*Shenghuan* [2018]) stipulate the information disclosure and public participation requirements during environment impact assessment. [24] Except for construction projects designated as confidential, the construction unit for projects or programs requiring an EIS (i.e., highest risk category) is required to hold expert meetings and public hearings, or through other means solicit comments and suggestions from relevant units, experts, and the public before submitting the EIS for approval. In addition, the Technical Guideline on EIA: General Program (*ShengHuan* [2016] HJ/T 2.1- 2016, footnote 4) requires ongoing stakeholder consultation throughout the EIA process (including screening, scoping, and assessment process), and requires that stakeholders representing enterprises, social groups, nongovernment organizations, residents, experts, and members of the public that may be affected directly or indirectly by the project shall be consulted. The guideline defines suitable consultation methods including questionnaire surveys, interviews, forums, panel meetings, public hearings, and/or other measures. Public consultation is not required for projects requiring an EIT or an EIRF.

26. **Information disclosure requirements.** The Guideline on Public Participation in EIA (*Shenghuan* [2018], footnote 24) requires the construction unit or the contracted EIA institute and the relevant EEB disclose EIA information in a manner accessible to the public. EITs are disclosed on the relevant EEB website for a period of 10 working days. EIRFs are disclosed on the EEB websites immediately after its registration and will be displayed continuously. However, there are no requirements for disclosure of monitoring reports during construction.

27. **Review and approval process.** The draft EIA document (EIS or EIT) must be submitted to the competent ecological and environmental administration (EED or EEB) by the construction unit prior to construction. If the construction unit is under the authority of a provincial or municipal department, the EIS or EIT must be pre-reviewed by that department before the document is

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[21] Ministry of Ecology and Environment of the PRC. 2020. *The Technical Guidelines for Compilation of Construction Project EIT (Pollution Impact Category) (Trial)*. Beijing (in Chinese).

[22] Ministry of Ecology and Environment of the PRC. 2020. *Technical Guidelines for Compilation of EIT for Construction Projects (Ecological Impact) (Trial)*. Beijing (in Chinese).

[23] Ministry of Ecology and Environment of the PRC. 2016. *The Administration Measures on the Registration Environmental Impact Registration Form for Construction Project*. Beijing (in Chinese).

[24] Ministry of Ecology and Environment of the PRC. 2018. *The Guideline on Public Participation in EIA*. Beijing (in Chinese).

submitted to the relevant ecological and environmental protection administration (EED or EEB) for review and approval. The relevant ecological and environmental protection administration approves the EIA document, and provides written notification to the construction unit within 60 days after receiving a draft EIS, within 30 days after receiving an EIT. For an EIRF, the registration process is completed after the registration form is submitted online. Construction work cannot start until the EIA document is reviewed and approved by the relevant environmental protection administration. There is no approval process for an EIRF.

28. **Requirements during preliminary design.** There is a regulatory framework to ensure that environment safeguards requirements identified at EIA stage are incorporated in preliminary and detailed design. Historically, the Three Simultaneities Policy introduced in 1972, i.e., prior to the Law on Environmental Protection, required the design, construction, and operation of pollution control facilities concurrent with analogous processes for the rest of the construction project. This was the first policy that directly addressed construction-related environmental impacts. The Three Simultaneities Policy is now fully embedded in other significant regulations, such as in article 15 of the Construction Project Environmental Protection and Management Regulation (1998, amended in 2017). The preliminary project design must contain a chapter on environmental protection pursuant to the requirements of environmental protection design standards and ascertain that adequate budget is provided to implement the environmental mitigation measures stated in the approvals of the EIS, EIT, and EIRF.

29. **Environmental management during construction.** During the construction of the project, the construction unit has the obligation to simultaneously implement the environmental protection countermeasures defined in the EIS, EIT, and EIRF or otherwise required in the approval for the EIA documents (EIA Law, article 26). In case of any inconsistency with EIA documents during project construction and operation, the construction unit is to organize a post-assessment of the environmental impacts, adopt appropriate mitigation measures, and report to the department approving the original EIA documentation (EIA Law, article 27). That department may also request the construction unit to perform a post-assessment of the environmental impacts and to adopt appropriate mitigation measures (EIA Law, article 28). In addition to the EIA Law, the Construction Law of PRC (*RenDa* [2011, amended in 2019])[25] requires contractors of civil works to adopt measures to control pollution resulting from dust, waste gas, wastewater and solid waste materials, noise, and vibration at construction sites.

30. **Environmental supervision.** MEE issued the Management on Environmental Protection Supervision during Project Construction and Operation on 10 December 2015.[26] The construction unit is assigned the main environmental protection responsibility. During construction the requirements of the approved EIA document and its approval should be strictly implemented. The ecological and environmental protection authority shall conduct supervisions during construction and operation.

31. **Grievance redress.** The right of citizens, legal persons, and other organizations to report and complain about environmental pollution and ecological damage activities is defined in the revised Environmental Protection Law of the PRC (*RenDa* [2014] article 57, footnote 3). The Administration on Resolving Environmental Complaints issued by MEE in 2006 is the key document regulating environment related grievances. Its implementation is supported by the

[25] The Standing Committee of the National People's Congress of the PRC. 2019. *Construction Law of PRC*. Beijing (in Chinese).

[26] Ministry of Ecology and Environment of the PRC. 2015. *Management on Environmental Protection Supervision during Project Construction and Operation*. Beijing (in Chinese).

Environmental Hotline Management Measures (*ShengHuan* [2010, effective since 1 March 2011]).[27] The environment hotline, 12369, is a centralized grievance redress mechanism (GRM) accessible all over the PRC. The public can complain through the hotline or submit complaints through the official website (http://www.12369.gov.cn/) with description and supporting photos. The public is encouraged to participate in environmental supervision through these platforms (Article 10 of Management on Environmental Protection Supervision during Project Construction and Operation, footnote 26). To encourage more public participation in the supervision of pollution, MEE has launched the hotline on instant messaging service platforms such as WeChat, for which the access portal is provided on the official website of the platform. Responses to complaints received are also published on the website. The public can visit the 12369 platform to check the progress of their reports. Since June 2020, the 12369 environmental reporting hotline has been integrated into the 12345 government service hotline.

C. Health and Safety

32. **Health and Safety during Construction**. Occupational health and safety is regulated in the Labor Law of the PRC (*RenDa* [1995, amended 2018] articles 52–65),[28] as well as in the Construction Law of the PRC (*RenDa* [2011, amended in 2019], footnote 25), Chapter V (Construction Safety Control), and the Work Safety Law of the PRC (*RenDa* [2002, amended 2021]).[29] Relevant sections of the Work Safety Law include:

(i) Article 37: Business entities shall register and maintain files for major hazard installations; conduct regular monitoring, assessment, and control; prepare emergency response plans; and inform employees and relevant personnel of measures to be taken in case of emergency. A business entity shall, according to the relevant provisions of the state, report its major hazard installments and related safety measures and emergency response measures to the work safety administrative department and other relevant departments of the local people's government for recordation.

(ii) Article 38: A business entity shall establish and improve rules for the screening for and elimination of hidden risks of work safety accidents and take technical and management measures to discover and eliminate such hidden risks in a timely manner. It shall honestly record, and inform its employees of, the screening and elimination. The departments with work safety regulatory functions of the local people's governments at and above the county level shall establish and improve rules for supervising the elimination of hidden risks of serious accidents to impel business entities to eliminate such risks.

(iii) Article 41: A business entity shall educate and supervise its employees on strictly complying with its work safety rules and operating procedures, and honestly inform its employees of the risk factors existing at their work sites and posts, the preventive measures, and the measures to be taken in case of emergency.

(iv) Article 77: Local people's governments at or above the county level shall make arrangements for the departments concerned to formulate accident rescue plans for exceptionally serious accidents due to lack of work safety that may occur in their administrative regions and set up an emergency rescue system accordingly.

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[27] Ministry of Ecology and Environment of the PRC. 2010. *Environmental Hotline Management Measures*. Beijing (in Chinese).

[28] The Standing Committee of the National People's Congress of the PRC. 2018. *Labor Law of the PRC*. Beijing (in Chinese).

[29] The Standing Committee of the National People's Congress of the PRC. 2021. *Work Safety Law of the PRC*. Beijing (in Chinese).

(v) Article 78: The business entities shall establish the work safety accident emergency rescue plan of their own to be connected with the work safety accident emergency rescue plan formulated by the local people's government at and above the country level where they are located and organize emergency drilling on a regular basis.

D. Physical Cultural Resources

33. The Law of the PRC on Protection of Cultural Relics (*RenDa* [1982, amended 2017])[30] stipulated the chance find procedures of cultural relics. The cultural relics discovered belong to the state. All agencies, organizations, and individuals have the obligation to protect cultural relics in accordance with the law. PRC requirements are as stringent as SPS.

> Article 32: During construction or agricultural production, any unit or individual discovering cultural relics shall protect the site and report it to the local cultural relics administrative department immediately. After receiving the report, the cultural relics administrative department shall go to the site within 24 hours if there are no special circumstances, and put forward resolutions within 7 days. The cultural relics administrative department may report to the local people's government to notify the public security department to assist in protecting the site; if important cultural relics are discovered, they shall immediately report to the cultural relics administrative department of the State Council, and the cultural relics administrative department of the State Council shall put forward handling opinions within 15 days after receiving the report.

E. Biological Diversity

34. PRC is one of the parties to the Convention on Biological Diversity and has strictly fulfilled all its obligations under the convention. PRC has published many laws and regulations on wild animals and plants protection and several action plans on biological diversity protection. Besides, PRC has published Technical Guidelines for Environmental Impact Assessment—Ecological Impact (HJ 19-2022)[31] to provide guidance on ecological impact during domestic EIA process. Ecological impact assessment level and scope, ecological baseline survey and assessment, ecological impact prediction and assessment including impacts to important species, ecological sensitive region and ecological protection objects, ecological protection measures including ecological monitoring and environmental management are regulated by this technical guideline. PRC requirements are as stringent as SPS.

F. Environmental Standards

35. This section discusses the applicable environmental standards that will be adopted for the Subproject.

36. **PRC Environmental Standards**. Standards issued by the MEE generally consist of environmental quality (ambient) standards applicable to the receiving environment, and emission standards applicable to the pollution source. The former includes standards for ambient air quality,

[30] The Standing Committee of the National People's Congress of the PRC. 2017. *The Law of the PRC on Protection of Cultural Relics.* Beijing (in Chinese).

[31] The Ministry of Ecology and Environment of PRC. 2022. *Technical Guidelines for Environmental Impact Assessment—Ecological Impact (HJ 19-2022)*. Beijing (in Chinese).

noise and vibration, surface water, groundwater, and soil. The latter includes standards for integrated wastewater discharge, construction and community noise, and air pollutants (Table 2).

37. As noted above, ADB's SPS requires borrowers to follow environmental standards consistent with good international practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health, and Safety (EHS) Guidelines. When host country regulations differ from these levels and measures, the borrower is to achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower is required to provide justification for any proposed alternatives.

Table 2: Applicable PRC Environmental Standards

No.	Standards
1	Ambient Air Quality Standards (GB3095-2012)[a]
2	Air Pollutant Integrated Emission Standards (GB16297-1996)[b]
3	Environmental Quality Standards for Noise (GB3096-2008)[c]
4	Environmental Quality Standards for Surface Water (GB3838-2002)[d]
5	Integrated Wastewater Discharge Standards (GB8978-1996)[e]
6	Emission Standards for Community Noise (GB22337-2008)[f]
7	Standards of Environmental Vibration in Urban Area (GB10070-88)[g]
8	Emission Standards of Environmental Noise for Boundary of Construction Site (GB12523-2011)[h]
9	Technical Specifications for Regionalizing Environmental Noise Function (GB/T 15190-2014)[i]
10	Noise Standards for Industrial Enterprises at Site Boundary (GB12348-2008)[j]
11	Design Specifications for Noise Insulation of Buildings for Civil Use (GB50118-2010)[k]
12	Emission Standards for Odor Pollutants (GB14554-93)[l]
13	Quality Standards for Groundwater (GB/T14848-2017)[m]
14	Environmental Quality Standard for Soils (GB15618-1995)[n]
15	Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001)[o]
16	Limits and Measurement Methods for Crankcase Pollutants from Heavy-duty Vehicles Equipped with Pressure Ignition Engines (GB11340-2005)[p]
17	Emission Limits and Measurement Methods for Exhaust Pollutants from Vehicle Compression-Ignition and Gas Fueled Ignition Engines (GB17691-2005)[q]
18	Limits and Measurement Methods for Exhaust Pollutants from Vehicles Equipped with Ignition Engines (GB18285-2005)[r]
19	Limits and Measurement Methods for Emissions from Light Duty Vehicles (GB18352-2005)[s]
20	Technical Specifications for the Collection, Storage and Transportation of Hazardous Waste (HJ 2025-2012)[t]
21	Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001, revised in 2023)[u]

[a] Ministry of Ecology and Environment of the PRC. 2012. *PRC's Ambient Air Quality Standards (GB3095-2012)*. Beijing (in Chinese).

[b] Ministry of Ecology and Environment of the PRC. 1996. *PRC's Air Pollutant Integrated Emission Standard (GB16297-1996)*. Beijing (in Chinese).

[c] Ministry of Ecology and Environment of the PRC. 2008. *PRC Environmental Quality Standard for Noise*. Beijing (in Chinese).

[d] Ministry of Ecology and Environment of the PRC. 2002. *PRC's Environmental Quality Standards for Surface Water (GB3838–2002)*. Beijing (in Chinese).

[e] Ministry of Ecology and Environment of the PRC. 1996. *PRC's Integrated Wastewater Discharge Standard (GB8978–1996)*. Beijing (in Chinese).

[f] Ministry of Ecology and Environment of the PRC. 2008. *PRC's Emission Standards for Community Noise (GB22337-2008)*. Beijing (in Chinese).

[g] Ministry of Ecology and Environment of the PRC. 1988. *PRC Standard of Vibration in Urban Area Environment (GB10070–88)*. Beijing (in Chinese).

[h] Ministry of Ecology and Environment of the PRC. 2011. *PRC's Emission Standard of Environmental Noise for Boundary of Construction Site (GB12523–2011)*. Beijing (in Chinese).

[i] Ministry of Ecology and Environment of the PRC. 2014. *PRC's Technical Specifications for Regionalizing Environmental Noise Function (GB/T 15190-2014)*. Beijing (in Chinese).
[j] Ministry of Ecology and Environment of the PRC. 2008. *PRC's Noise Standards for Industrial Enterprises at Site Boundary (GB12348-2008)*. Beijing (in Chinese).
[k] Ministry of Housing and Urban-Rural Development of the PRC. 2010. *PRC's Design Specifications for Noise Insulation of Buildings for Civil Use (GB50118-2010)*. Beijing (in Chinese).
[l] Ministry of Ecology and Environment of the PRC. 1993. *PRC's Emission Standards for Odor Pollutants (GB14554-93)*. Beijing (in Chinese).
[m] Ministry of Natural Resources of the PRC. 2017. *The PRC's Standard for Groundwater Quality (GB/T14848-2017)*. Beijing (in Chinese).
[n] Ministry of Natural Resources of the PRC. 1995. *The PRC's Environmental Quality Standard for Soils (GB15618-1995)*. Beijing (in Chinese).
[o] Ministry of Ecology and Environment of the PRC. 2001. *PRC's Standards for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001)*. Beijing (in Chinese).
[p] Ministry of Ecology and Environment of the PRC. 2005. *PRC's Limits and Measurement Methods for Crankcase Pollutants from Heavy-duty Vehicles Equipped with Pressure Ignition Engines (GB11340-2005)*. Beijing (in Chinese).
[q] Ministry of Ecology and Environment of the PRC. 2005. *PRC's Emission Limits and Measurement Methods for Exhaust Pollutants from Vehicle Compression-Ignition and Gas Fueled Ignition Engines (GB17691-2005)*. Beijing (in Chinese).
[r] Ministry of Ecology and Environment of the PRC. 2005. *PRC's Limits and Measurement Methods for Exhaust Pollutants from Vehicles Equipped with Ignition Engines (GB18285-2005)*. Beijing (in Chinese).
[s] Ministry of Ecology and Environment of the PRC. 2005. *PRC's Limits and Measurement Methods for Emissions from Light Duty Vehicles (GB18352-2005)*. Beijing (in Chinese).
[t] Ministry of Ecology and Environment of the PRC. 2012. *PRC's Technical Specifications for the Collection, Storage and Transportation of Hazardous Waste (HJ 2025-2012)*. Beijing (in Chinese).
[u] Ministry of Ecology and Environment of the PRC. 2001. *PRC's Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001)*. Beijing (in Chinese).

Source: Transaction Technical Assistance Consultant (2024).

1. Air Quality

38. Ambient air quality limits are intended to indicate safe exposure levels for the majority of the population, including the very young and the elderly, throughout an individual's lifetime. Limits are given for one or more specific averaging periods, typically 1-hour average, 24-hour average, and/or annual average. The longer averaging period such as 1 year is more applicable to assessing impacts from multiple or regional sources, while shorter averaging periods such as 24 hours and 1 hour are more applicable to assessing short-term impacts from project-related activities such as from peak hour traffic or daily or peak construction activities. The PRC's updated Ambient Air Quality Standards (*ShengHuan* [2012] GB3095-2012)[32] has two classes of limit values; Class I standards apply to special areas such as nature reserves and environmentally sensitive areas, and Class II standards apply to all other areas, including urban and industrial sites. The PRC standards for Class II areas are applicable for the program.[33]

39. The World Health Organization (WHO) Air Quality Guidelines (AQGs, 2021) are international standards and are adopted in the EHS Guidelines. In addition to guideline values, interim targets (IT) are given for each pollutant as incremental targets in a progressive reduction of air pollution.

[32] Ministry of Ecology and Environment of the PRC. 2012. *PRC's Ambient Air Quality Standards (GB3095-2012)*. Beijing (in Chinese).
[33] On 29 February 2012, the PRC's State Council approved the roadmap for ambient air quality standards to improve the environment and human health. The Ambient Air Quality Standards (GB3095-2012) prescribes the first-ever limits for $PM_{2.5}$. It also modified the previous area classifications by combining class 3 (special industrial areas) with class 2 (residential, mixed-use areas).

40. The WHO AQGs and corresponding PRC standards are presented in Table 3. From a review of the table, it can be observed that:

(i) For TSP, there are PRC standards but no corresponding WHO AQGs.

(ii) For PM_{10}, PRC Class II annual average and 24-hour average standards meet WHO IT-1 target (there are no 1-hour average standards or guidelines for PRC or WHO) but not the WHO AQG.

(iii) For $PM_{2.5}$, PRC Class II annual and 24-hour standards meet WHO IT-1 target (there are no 1-hour standards or guidelines for either PRC or WHO) but not the WHO AQG.

(iv) For SO_2, WHO only has 24-hour guidelines. The PRC's Class II 24-hour standard (150 μg/m^3) almost meets the WHO IT-1 target (125 μg/m^3).

(v) For NO_2, the PRC's annual average standard is equivalent to the WHO IT-1 target, and the PRC 1-hour standard meets the WHO AQG; and the 24-hour average PRC standard (80 μg/m^3) is more stringent than the WHO IT-1 target (120 μg/m^3).

(vi) For O_3, the PRC's 8-hour average standard is equivalent to the WHO IT-1 target. There is no WHO 1-hour average guideline. There is no PRC standard for peak season concentration.

41. Overall, the PRC standards show a high degree of equivalency to the WHO AQG or IT-1 values. The PRC Class II standards are adopted for use in this report for general ambient air quality assessment, but WHO AQGs will be used for impact monitoring at sensitive receptors.

Table 3: Comparison of PRC Ambient Air Quality Standards (GB3095-2012*)* and WHO Ambient Air Quality Guidelines (2021)

		PRC GB3095-2012 (μg/m^3)		**WHO/EHS Guidelines** (μg/m^3)	
Air Quality Parameter	**Averaging Period**	**Class I** (special regions such as national parks)	**Class II** (all other areas, including urban and industrial areas)	**Interim Targets**	**AQG**
TSP	1-year	80	200	n/a	n/a
	24-hour	120	300	n/a	n/a
PM_{10}	1-year	40	70	20–70	15
	24-hour	50	150	50–150	45
$PM_{2.5}$	1-year	15	35	10–35	5
	24-hr	35	75	25–75	15
SO_2	1-year	20	60	n/a	n/a
	24-hour	50	150	50–125	40
	1-hour	150	500	n/a	n/a
NO_2	1-year	40	40	20–40	10
	24-hour	80	80	50–120	25
	1-hour	200	200	n/a	200
O_3	8-hour	100	160	120–160	100
	1-hour	160	200	n/a	n/a
	Peak season	n/a	n/a	70–100	60
CO	24-hour	4,000	4,000	7000	4000
	8-hour	n/a	n/a	n/a	10,000
	1-hour	10,000	10,000	n/a	35,000

AQG = Ambient Air Quality Guidelines; CO = carbon monoxide; EHS = environment, health, and safety; n/a = not applicable; NO_2 = nitrogen dioxide; O_3 = ozone; PM = particulate matter; PRC GB3095-2012 = People's Republic of China Ambient Air Quality Standards; SO_2 = sulfur dioxide; TSP = total suspended particulate; WHO = World Health Organization.
Source: WHO Air Quality Guidelines (2021), and PRC GB3095-2012.

2. Fugitive Particulate Matter

42. Fugitive emission of particulate matter such as dust from construction sites is regulated under PRC's Air Pollutant Integrated Emission Standard (*Shenghuan* [1996] GB16297-1996),[34] which sets 120 milligram per cubic meter (mg/m^3) as the maximum allowable emission concentration and ≤ 1.0 mg/m^3 as the concentration limit at the boundary of construction sites (with no specification on particle diameter). There is no equivalent standard recommended in the EHS Guidelines, and the PRC standard is adopted for use in this report.

3. Noise and Vibration

43. Table 4 presents the relevant PRC Environmental Quality Standard for Noise (*ShengHuan* [2008] GB3096-2008)[35] compared with relevant international guidelines from the WHO (as presented in the EHS Guidelines). The classes within the standards are not directly comparable as the PRC noise standards are set in different zones and WHO standards concern noise at specific receptors. Besides, noise impacts should not result in a maximum increase in background levels of 3 decibels (dB) at the nearest receptor location off-site. Noise and noise at sensitive receptors need different standards to be applied: the PRC standard will be used for noise in zones while the EHS Guidelines will be applied for noise based on types of receptors.

Table 4: PRC Environmental Quality Standards for Noise (GB3096-2008)

PRC Standards Leq dB(A)			**International Standards One Hour Leq dB(A)**		
Class	**Day** 06–22h	**Night** 22–06h	**Day** 07–22h	**Night** 22–07h	**Comparison**
0: Areas needing extreme quiet, such as special health zones	50	40	WHO Class I: Residential, institutional, educational: 55 WHO Class II: industrial, commercial: 70	WHO Class I: Residential, institutional, educational: 45 WHO Class II: Industrial, Commercial: 70	Classes are not directly comparable, but PRC Class II standards exceed WHO Class II standards. PRC standards will be used for noise in zones while the EHS Guidelines will be applied for noise based on types of receptors.
I: Mainly residential; and cultural and educational institutions	55	45			
II: Mixed residential, commercial and industrial areas	60	50			
III: Industrial areas	65	55			
Iva: Area within 35 m on both sides of urban trunk roads (Class II and above)	70	55			
Ivb: Both sides of railway lines	70	60			

Source: WHO Noise Quality Guidelines (1999) in IFC EHS Guidelines (2007), and PRC GB3096-2008.

[34] Ministry of Ecology and Environment of the PRC. 1996. *PRC's Air Pollutant Integrated Emission Standard (GB16297-1996).* Beijing (in Chinese).
[35] Ministry of Ecology and Environment of the PRC. 2008. *PRC Environmental Quality Standard for Noise*. Beijing (in Chinese).

44. Table 5 presents relevant PRC and international standards (US EPA, IFC EHS Guideline: Occupational Health and Safety Standards) for on-site construction noise. The PRC's Emission Standard of Environmental Noise for Boundary of Construction Site (*ShengHuan* [2011] GB12523–2011) [36] regulates construction noise, limiting construction noise levels at the construction site boundary to 70 dB(A) in the daytime (0600–2200 hours) and 55 dB(A) at night (2200–0600 hours).

Table 5: PRC Noise Emission Standard for Construction Site Boundary (GB12523-2011) and Relevant International Guidelines

Day Leq dB(A)	Night Leq dB(A)	International Standards Leq dB(A)	
70	55	US EPA: 85 (day, 8-hour exposure)	IFC EHS Guideline, Occupational Health and Safety: 85 (Equivalent level Laeq, 8h); 110 (Maximum Lamax, fast)

Source: US EPA, IFC Occupational Health and Safety Standard, and PRC GB12523-2011.

45. Construction activities may cause vibration impact and must comply with PRC Standard of Vibration in Urban Area Environment (*ShengHuan* [1988] GB10070–88). [37] The EHS Guidelines have no vibration standards.

Table 6: Vertical Vibration Standard for Various Urban Areas (GB10070–88)

(dB)

Scope of Applicable Area	Day	Night
Special residential area	65	65
Residential, cultural, and educational area	70	67
Mixed area and commercial center	75	72
Industrial centralized area	75	72
Both sides of arterial roads with more than 100 vehicles per hour	75	72
Within 30 meters of railways with more than 20 trains per day	80	80

Source: GB10070–88.

4. Surface Water

46. PRC's Environmental Quality Standards for Surface Water (*Shenghuan* [2002] GB3838-2002)[38] defines five water quality classes for different environmental functions (Table 7). Class I is the highest quality, suitable for head waters and national nature reserves. Class II is suitable for drinking water sources in Class I protection areas, habitats for rare aquatic organisms, breeding grounds for fish and crustaceans, and feeding grounds for fish fry. Class III is suitable for drinking water sources in Class II protection areas, wintering grounds for fish and crustaceans, migration routes, water bodies for aquaculture and capture fishery, and swimming activities. Class IV is suitable for general industrial use and non-contact recreational activities. Class V is the worst quality, suitable only for agricultural and scenic water uses. The EHS Guidelines do not have ambient water quality standards and recognize the use of national and local ambient water quality criteria, and the PRC standards are adopted for use in this report.

[36] Ministry of Ecology and Environment of the PRC. 2011. *PRC's Emission Standard of Environmental Noise for Boundary of Construction Site (GB12523–2011)*. Beijing (in Chinese).
[37] Ministry of Ecology and Environment of the PRC. 1988. *PRC Standard of Vibration in Urban Area Environment (GB10070–88)*. Beijing (in Chinese).
[38] Ministry of Ecology and Environment of the PRC. 2002. *PRC's Environmental Quality Standards for Surface Water (GB3838–2002).* Beijing (in Chinese).

Table 7: PRC Environmental Quality Standards for Surface Water (GB3838-2002)

Parameter	Water Quality Category				
	I	II	III	IV	V
pH	6–9	6–9	6–9	6–9	6–9
Dissolved oxygen (DO) [mg/L]	90% saturation or ≥7.5	≥6	≥5	≥3	≥2
Permanganate index (I_{Mn}) [mg/L]	≤2	≤4	≤6	≤10	≤15
Chemical oxygen demand (COD) [mg/L]	≤15	≤15	≤20	≤30	≤40
5-day Biochemical oxygen demand (BOD_5) [mg/L]	≤3	≤3	≤4	≤6	≤10
Ammonia nitrogen (NH_3-N) [mg/L]	≤0.15	≤0.50	≤1.00	≤1.50	≤2.00
Total phosphorus (as P) [mg/L]	≤0.02	≤0.10	≤0.20	≤0.30	≤0.40
Total phosphorus (lakes & reservoirs, as P) [mg/L]	≤0.01	≤0.025	≤0.05	≤0.10	≤0.20
Total nitrogen (lakes & reservoirs, as N) [mg/L]	≤0.20	≤0.50	≤1.00	≤1.50	≤2.00
Copper (Cu) [mg/L]	≤0.01	≤1.00	≤1.00	≤1.00	≤1.00
Zinc (Zn) [mg/L]	≤0.05	≤1.00	≤1.00	≤2.00	≤2.00
Fluoride (as F^-) [mg/L]	≤1.00	≤1.00	≤1.00	≤1.50	≤1.50
Selenium (Se) [mg/L]	≤0.01	≤0.01	≤0.01	≤0.02	≤0.02
Arsenic (As) [mg/L]	≤0.05	≤0.05	≤0.05	≤0.10	≤0.10
Mercury (Hg) [mg/L]	≤0.0005	≤0.0005	≤0.0001	≤0.001	≤0.001
Cadmium (Cd) [mg/L]	≤0.001	≤0.005	≤0.005	≤0.005	≤0.010
Chromium (Cr, hexavalent) [mg/L]	≤0.01	≤0.05	≤0.05	≤0.05	≤0.10
Lead (Pb) [mg/L]	≤0.01	≤0.01	≤0.05	≤0.05	≤0.10
Cyanide (CN) [mg/L]	≤0.005	≤0.050	≤0.200	≤0.200	≤0.200
Volatile phenol [mg/L]	≤0.002	≤0.002	≤0.005	≤0.010	≤0.10
Total petroleum hydrocarbon (TPH) [mg/L]	≤0.05	≤0.05	≤0.05	≤0.50	≤1.00
Anionic surfactant (=LAS) [mg/L]	≤0.2	≤0.2	≤0.2	≤0.3	≤0.3
Sulfide [mg/L]	≤0.05	≤0.10	≤0.20	≤0.50	≤1.00
Fecal coliform bacteria [number/L]	≤200	≤2000	≤10000	≤20000	≤40000

Source: PRC GB3838-2002.

5. Groundwater

47. The PRC's Standard for Groundwater Quality (*NRP* [2017] GB/T14848-2017)[39] is presented in Table 8. WHO guidelines for drinking-water quality are also given in Table 8,[40] and concentrations above these guidelines are the cause of health concern. The national Grade III standards are more stringent than WHO standards and, hence, the groundwater quality in the project area must comply with the Grade III standards. The Class III standard is applicable to the subproject. There is no equivalent standard recommended in the EHS Guidelines, and the PRC standard is adopted for use in this report.

[39] Ministry of Natural Resources of the PRC. 2017. *The PRC's Standard for Groundwater Quality (GB/T14848-2017)*. Beijing (in Chinese).
[40] WHO. 2017. *Guidelines for Drinking-Water Quality, 4th Edition, Incorporating the 1st Addendum*. Geneva.

Table 8: Groundwater Standard
(Class III, GB/T14848-2017 Quality Standard for Ground Water)

No.	Parameter	Class I	Class II	Class III	Class IV	Class V	WHO Guidelines for Drinking Water Quality (2017)
1	pH	6.5-8.5			5.5–6.5 8.5-9	<5.5–>9	6.5–8.5
2	Ammonia nitrogen (mg/L)	≤0.02	≤0.10	≤0.50	≤1.5	>1.5	NA
3	Chloride (mg/L)	≤50	≤150	≤250	≤350	>350	≤250
4	Sulfate (mg/L)	≤50	≤150	≤250	≤350	>350	NA
5	Nitrate (in N) (mg/L)	≤2	≤5	≤20	≤30	>30	≤50
6	Nitrite (in N) (mg/L)	≤0.01	≤0.10	≤1.00	≤4.80	>4.80	≤3
7	Fluoride (mg/L)	≤1	≤1	≤1	≤2	>2	≤1.5
8	Zinc (mg/L)	≤0.05	≤0.5	≤1	≤5	>5	≤3
9	Copper (mg/L)	≤0.01	≤0.05	≤1	≤1.5	>1.5	≤2
10	Manganese (mg/L)	≤0.05	≤0.05	≤0.1	≤1.5	>1.5	NA
11	Iron (mg/L)	≤0.1	≤0.2	≤0.3	≤2.0	>2.0	NA
12	Total dissolved solids (mg/L)	≤300	≤500	≤1000	≤2000	>2000	≤1000
13	Total hardness (mg/L)	≤150	≤300	≤450	≤650	>650	NA
14	Permanganate index (mg/L)	≤1	≤2	≤3	≤10	>10	NA
15	Mercury (mg/L)	≤0.0001	≤0.0001	≤0.001	≤0.002	>0.002	≤0.006
16	Hexavalent chromium (mg/L)	≤0.005	≤0.01	≤0.05	≤0.1	>0.1	≤0.05
17	Arsenic (mg/L)	≤0.001	≤0.001	≤0.01	≤0.05	>0.05	≤0.01
18	Lead (mg/L)	≤0.005	≤0.005	≤0.01	≤0.1	>0.1	≤0.01
19	Cadmium (mg/L)	≤0.0001	≤0.001	≤0.005	≤0.01	>0.01	≤0.003
20	Cyanide (mg/L)	≤0.001	≤0.01	≤0.05	≤0.1	>0.1	≤0.07
21	Volatile phenol (mg/L)	≤0.001	≤0.001	≤0.002	≤0.01	>0.01	≤0.002
22	Benzene (μg/L)	≤0.5	≤1	≤10	≤120	>120	≤10
23	Toluene (μg/L)	≤0.5	≤140	≤700	≤1400	>1400	≤700
24	Xylene (μg/L)	≤0.5	≤100	≤500	≤1000	>1000	≤500
25	Nickel (mg/L)	≤0.002	≤0.002	≤0.02	≤0.1	>0.1	≤0.02

Source: Transaction Technical Assistance Consultant and GB/T14848-2017.

6. Wastewater

48. Discharge of wastewater from construction sites is regulated under the PRC's Integrated Wastewater Discharge Standard (*ShengHuan* [1996] GB8978-1996) (Table 9).[41] The Class 1 standard applies to discharge into Class III water bodies under GB3838-2002 (footnote 38); the Class 2 standard applies to discharge into class IV and V water bodies; and the Class 3 standard applies to discharge into municipal sewers going to municipal WWTPs with secondary treatment. No new discharge of wastewater into Class I and II water bodies is allowed. The EHS Guidelines

[41] Ministry of Ecology and Environment of the PRC. 1996. *PRC's Integrated Wastewater Discharge Standard (GB8978–1996)*. Beijing (in Chinese).

do not have standards for wastewater discharges from construction sites, and hence PRC standards are applicable to the subproject.

Table 9: PRC Standards for Discharging Wastewater from Construction Sites (GB8978–1996)

Parameter		Class 1 (Discharge into Class III Water Bodies)	Class 2 (Discharge into Class IV and V Water Bodies)	Class 3 (Discharge into Municipal Sewers)
pH	no unit	6–9	6–9	6–9
SS	mg/L	70	150	400
BOD_5	mg/L	20	30	300
COD	mg/L	100	150	500
TPH	mg/L	5	10	20
Volatile phenol	mg/L	0.5	0.5	2.0
Ammonia Nitrogen NH_3-N	mg/L	15	25	---
PO_4^{2-} (as P)	mg/L	0.5	1.0	---
Anionic Surfactants	mg/L	5.0	10	20

Source: PRC GB8978-1996.

49. During operation, domestic wastewater and production wastewater will be discharged to municipal sewer system and treated at nearby municipal WWTP. The domestic wastewater discharges from the project will be required to meet Class B maximum acceptable concentrations in Wastewater Quality Standards for Discharge to Municipal Sewers (*ZhuJian* [2015] GB/T 31962-2015),[42] and the WWTP discharges are required to meet Class 1A of Discharge Standard of Pollutants for Municipal Wastewater Treatment Plants (GB 18918-2002).

Table 10: PRC Wastewater Quality Standards for Discharge to Municipal Sewers

No.	Pollutant	Maximum Acceptable Concentration (mg / L, except pH and Chromacity) Class B
1	pH	6.5–9.5
2	SS	400
3	COD	500
4	Ammonia nitrogen	45
5	TDS	2000
6	Chromacity	70
7	BOD	350
8	Total phosphorus	8

Source: PRC GB/T 31962-2015.

During project operation, the effluent from WWTPs will meet the Class IA standards in Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant (*ShengHuan* [2002] GB18918-2002) (

[42] Ministry of Housing and Urban-Rural Development of the PRC. 2015. *PRC's Wastewater Quality Standards for Discharge to Municipal Sewers (GB/T 31962-2015)*. Beijing (in Chinese).

50. **Table 11**).[43]

[43] Ministry of Ecology and Environment of the PRC. 2002. *PRC's Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant (GB18918-2002)*. Beijing (in Chinese).

Table 11: Discharge Standards for Effluent from Wastewater Treatment Plants

No.	Parameter	Class IA	Class IB	World Bank Group EHS Guidelines
1	CODcr	≤50	≤60	125
2	BOD_5	≤10	≤20	30
3	SS	≤10	≤20	50
4	Oils	≤1	≤3	NA
5	Petroleum	≤1	≤3	10
6	LAS	≤0.5	≤1	NA
7	Total nitrogen	≤15	≤20	10
8	Ammonia nitrogen	≤5	≤8	NA
9	Total phosphorus	≤0.5	≤1.0	NA
10	Chromaticity	≤30	≤30	NA
11	pH	6–9	6–9	6–9
12	Fecal coliform	≤1,000	≤10,000	400

BOD_5 = 5 days biochemical oxygen demand; COD = chemical oxygen demand; EHS = environment, health, and safety; LAS = linear alkylate sulphonate; pH = potential of hydrogen; SS = suspended solid.
Source: GB18918-2002.

7. Solid Waste

51. For general solid waste, the Standards for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (*ShengHuan* [2001] GB18599-2001)[44] and its revision in 2013 apply.

52. For hazardous waste, Technical Specifications for the Collection, Storage and Transportation of Hazardous Waste (*ShengHuan* [2012] HJ 2025-2012),[45] and Standard for Pollution Control on Hazardous Waste Storage (*ShengHuan* [2001] GB 18597-2001, revised in 2023)[46] apply.

8. Summary of Environmental Standards Applicable to the Program

53. **Table 12** presents the environmental standards and guidelines applicable to the program, which reflects the requirements set forth by the local EEB as presented in the domestic EIA report, and the ADB SPS (2009) on the use of domestic and international standards.

Table 12: Environmental Standards and Guidelines Applicable to the Program

Parameter / Area of Concern	Applicable Standards and Guidelines	Remarks
Ambient air quality	Ambient Air Quality Standard (GB3095-2012),[a] Class II	Yearly average: PM_{10}: 0.070 mg/m^3 $PM_{2.5}$: 0.035 mg/m^3 SO_2: 0.06 mg/m^3 NO_2: 0.04 mg/m^3 CO: 4.0 mg/m^3 Daily average: TSP: 0.30 mg/m^3

[44] Ministry of Ecology and Environment of the PRC. 2001. *PRC's Standards for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001)*. Beijing (in Chinese).
[45] Ministry of Ecology and Environment of the PRC. 2012. *PRC's Technical Specifications for the Collection, Storage and Transportation of Hazardous Waste (HJ 2025-2012)*. Beijing (in Chinese).
[46] Ministry of Ecology and Environment of the PRC. 2001. *PRC's Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001)*. Beijing (in Chinese).

Parameter / Area of Concern	Applicable Standards and Guidelines	Remarks
		PM_{10}: 0.15 mg/m^3 $PM_{2.5}$: 0.075 mg/m^3 SO_2: 0.15 mg/m^3 NO_2: 0.08 mg/m^3 CO: 4.0 mg/m^3 Hourly average: SO_2: 0.50 mg/m^3 NO_2: 0.20 mg/m^3 CO: 10.0 mg/m^3
Construction air pollutant emission	Air Pollutant Integrated Emission Standard (GB16297-1996)[b]	Maximum allowable emission concentration: Particulate matter (PM): 120 mg/m^3 Limits for fugitive emission: PM: ≤1.0 mg/m^3 at construction site boundary
Environmental noise	Environmental Quality Standard for Noise (GB3096-2008):[c] • Class III for areas within the sites • WHO Noise Quality Guidelines • Class I for sensitive receptors near the sites	Class III areas: Day time: 65 dB(A) Night time: 55 dB(A) Class I areas: Day time: 55 dB(A) Night time: 45 dB(A)
Construction noise	Emission Standard of Environmental Noise for Boundary of Construction Site (GB12523-2011)[d]	Noise level at construction site boundary: Day time: 70 dB(A) Night time: 55 dB(A) Noise level within construction site: Day time: 60 dB(A) Night time: 50 dB(A)
Surface water quality	Environmental Quality Standards for Surface Water (GB3838-2002)[e]	Class III for rivers near the program area.
Ground water quality	Quality Standard for Ground Water (GB/T14848-2017)[f]	Class III for groundwater near the program area.
Wastewater discharge	Integrated Wastewater Discharge Standard (GB8978-1996)[g] Wastewater Quality Standards for Discharge to Municipal Sewers (GB/T 31962-2015)[h]	Discharge into municipal sewers during construction: COD: ≤500 mg/l BOD_5: ≤300 mg/l SS: ≤400 mg/l Discharge into municipal sewers during operation: COD: ≤500 mg/l BOD_5: ≤350 mg/l SS: ≤400 mg/l NH_3-N: ≤45 mg/l
Solid waste	Standards for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001)[i] and its revision in 2013 apply.	Approaches and measures appropriate to mitigate adverse impacts from the program activities
Hazardous waste	Technical Specifications for the Collection, Storage and Transportation of Hazardous	Approaches and measures appropriate to mitigate adverse impacts from the program activities

Parameter / Area of Concern	Applicable Standards and Guidelines	Remarks
	Waste (HJ 2025-2012)[j] and Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001, revised in 2023)[k]	
Environmental adverse impacts	WB EHS Guidelines: Environment	Approaches and measures appropriate to mitigate adverse impacts from the program activities
Occupational health and safety	WB EHS Occupational Health and Safety Guidelines	Approaches and measures appropriate to mitigate adverse impacts from the program activities
Community health and safety	WB EHS Community Health and Safety Guidelines	Approaches and measures appropriate to mitigate adverse impacts from the program activities
Construction and Decommissioning	WB EHS Construction and Decommission Guidelines	Approaches and measures appropriate to mitigate adverse impacts from the program activities

[a] Ministry of Ecology and Environment of the PRC. 2012. *PRC's Ambient Air Quality Standards (GB3095-2012)*. Beijing (in Chinese).
[b] Ministry of Ecology and Environment of the PRC. 1996. *PRC's Air Pollutant Integrated Emission Standard (GB16297-1996)*. Beijing (in Chinese).
[c] Ministry of Ecology and Environment of the PRC. 2008. *PRC Environmental Quality Standard for Noise*. Beijing (in Chinese).
[d] Ministry of Ecology and Environment of the PRC. 2011. *PRC's Emission Standard of Environmental Noise for Boundary of Construction Site (GB12523–2011)*. Beijing (in Chinese).
[e] Ministry of Ecology and Environment of the PRC. 2002. *PRC's Environmental Quality Standards for Surface Water (GB3838–2002)*. Beijing (in Chinese).
[f] Ministry of Natural Resources of the PRC. 2017. *The PRC's Standard for Groundwater Quality (GB/T14848-2017)*. Beijing (in Chinese).
[g] Ministry of Ecology and Environment of the PRC. 1996. *PRC's Integrated Wastewater Discharge Standard (GB8978–1996)*. Beijing (in Chinese).
[h] Ministry of Housing and Urban-Rural Development of the PRC. 2015. *PRC's Wastewater Quality Standards for Discharge to Municipal Sewers (GB/T 31962-2015)*. Beijing (in Chinese).
[i] Ministry of Ecology and Environment of the PRC. 2001. *PRC's Standards for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001)*. Beijing (in Chinese).
[j] Ministry of Ecology and Environment of the PRC. 2012. *PRC's Technical Specifications for the Collection, Storage and Transportation of Hazardous Waste (HJ 2025-2012)*. Beijing (in Chinese).
[k] Ministry of Ecology and Environment of the PRC. 2001. *PRC's Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001)*. Beijing (in Chinese).
Source: Transaction Technical Assistance Consultant.

G. International Agreements

54. The PRC is a signatory to a number of international agreements relevant to environment protection. Those relevant to the program, along with the dates of signing by the PRC, are listed in Table 13.

Table 13: Applicable International Agreements with the PRC as a Signatory

No.	Name of Agreement	PRC Signing Date	Agreement Objective
1	Ramsar Convention on Wetlands of International Importance	1975	Prevent encroachment on and loss of wetlands for now and the future (project includes the reservoir)
2	Convention on Biological Diversity	1993	Conservation and sustainable use of biological diversity (project includes afforestation)
3	United Nations Framework Convention on Climate Change	1994	Achieve stabilization of atmospheric greenhouse gas (GHG) concentrations (project involves GHG emission reduction)
4	Kyoto Protocol to UN Framework Convention on Climate Change	2005	Further reduction of greenhouse gas emissions (as above)
5	Montreal Protocol on Substances That Deplete the Ozone Layer	1989	Protection of the ozone layer (same as above)
6	UN Convention to Combat Desertification	1996	Combat desertification and mitigate effects of drought (project involves soil erosion control)

Source: Transaction Technical Assistance Consultant.

55. Based on the above information, the PRC environmental standards and practices are considered as, or more, stringent than international equivalent standards and will consequently be applied during program implementation.

IV. SAFEGUARD POLICY STATEMENT EQUIVALENCE ASSESSMENT

A. Environment Safeguard Policy Principles Triggered by the Program

56. In light of activities included in the scope of the RBL program, and the potential impacts that may be associated with these activities, the environment safeguard system assessment finds the following environment safeguard policy principles (Table 14) to be triggered for the RBL program. The program site selection will avoid critical habitats as it is prohibited by PRC laws and regulations,[47] thus environmental policy principle 8 relating critical habitats is not triggered.

Table 14: Safeguard Policy Principles Triggered

Principles	Description
Environment	
Principle 1. Use a screening process for each proposed project, as early as possible, to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with the significance of potential impacts and risks.	All subprojects with physical activities will be screened and categorized using the Directory of Environmental Impact Assessment Categorization for Construction Projects (*ShengHuan* [2021]),[a] ADB Prohibited Investment Activities List, and REA of ADB to ensure the appropriate environmental category is assigned. The PRC Environmental Impact Assessment Law (*ShengHuan* [2018])[b] lays down the screening

[47] PRC's National Forestry and Grassland Administration of the PRC. 2017. *Regulation on Nature Reserves Conservation of the PRC*. Beijing (in Chinese); Standing Committee of the National People's Congress of the PRC. 2018. *Wildlife Protection Law of the PRC*. Beijing (in Chinese); and PRC's National Forestry and Grassland Administration. 2017. *Regulation on Protection of Wild Plants*. Beijing (in Chinese).

Principles	Description
	procedure, differentiating between major, light/slight, and very small environmental impacts. All subprojects with physical activities will be screened and categorized using the Directory of Environmental Impact Assessment Categorization for Construction Projects (*ShengHuan* [2021])[a] and REA checklists of ADB with support from an environmental expert to ensure the appropriate environmental category is assigned. Subprojects with significant environmental impacts (equivalent to ADB's environment category A) will be excluded from the program. Activities with moderate impacts are expected to trigger the need to conduct environmental assessments and prepare EITs. Activities with minimal environmental impacts are required to fill out the EIRF. The EIRF will be prepared in accordance with the Administration on the EIRF for Construction Project (2017) which provides a template registration form.
Principle 2. Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential transboundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.	The program will only support facilities with valid PRC environmental impact assessment approved by relevant environmental protection authorities. An environmental category will be assigned to each subproject based on the screening results. Activities with significant environmental impacts (equivalent to ADB's environment category A) will be excluded from the program. Activities with moderate impacts are expected to trigger the need to conduct environmental assessments and prepare EITs. The EIT will be prepared in accordance with the The PRC Environmental Impact Assessment Law (*ShengHuan* [2018]),[b] Technical Guideline Regarding the Environmental Impact Assessment for Construction Projects-General (*ShengHuan* [2016] HJ2.1-2016),[c] and other technical codes and regulations of the PRC. There are gaps in the domestic EITs compared to ADB SPS with respect to the following, as these are not necessarily required: identifying potential indirect, cumulative, and induced impacts, impacts on livelihoods caused by environmental media, assessment of associated facilities, assessment of impacts on physical and cultural resources, and climate change risks. The domestic EITs prepared under this project will address these gaps. Activities with minimal environmental impacts are required to fill out an EIRF. The EIRF will be prepared in accordance with the Administration on the EIRF for Construction Project (*SC* [1998, amended in 2017]),[d] which became effective on 1 January 2017 and provides a template registration form. The PRC requirements align with SPS for category C projects.

Principles	Description
Principle 3. Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.	Assessment of alternatives is not required for EITs. The EITs to be prepared under this project will address this gap.
Principle 4. Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an EMP that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the "polluter pays" principle.	Mitigation measures are required for a PRC EIT, but not a full EMP. The EITs will address this gap and will include EMPs. The EMPs will avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts; and provide guidance to design institutes, contractors, construction supervisors, and construction units. Capacity building will be provided on EMP implementation. A generic EMP has been developed to facilitate the program implementation.[e] This EMP will be expanded to site-specific EMPs based on the final design by the contractors.
Principle 5. Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made known to, and understood by, decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a GRM to receive and facilitate resolution of the affected people's concerns and grievances, regarding the project's environmental performance.	Meaningful public consultation is not required for a PRC EIT or EIRF. Meaningful consultation will be conducted during domestic EIT/EIRF preparation, before and during construction, and into operation. Consultation will be conducted during the preparation of environmental impact assessment documents and will continue throughout the construction and operation phases, to address any environmental issues that may arise. In the PRC grievances are addressed through the environmental complaints hotline operated by environment protection authorities (e.g. 12369 hotline, 12369 WeChat platform and website). However, a formal GRM is not required. A program-specific GRM will be developed to address and resolve complaints received. The capacity of the APMO and PIU to respond to grievances will be enhanced.
Principle 6. Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates, if any, to affected people and other stakeholders.	The EITs and EIRFs will be disclosed on the website of the PIU and/or Ecology and Environment Bureau. The summaries of the EITs and EIRFs will also be disclosed on-site for the duration of the program implementation.
Principle 7. Implement the EMP and monitor its effectiveness. Document monitoring results,	A mitigations chapter is presented in PRC EITs. However, construction site environment management, covering both environmental protection

Principles	Description
including the development and implementation of corrective actions, and disclose monitoring reports.	and occupational health and safety, is regulated in the Construction Site Environment and Sanitation Standard (*ZhuJian* [2013]),[f] the Labor Law (*RenDa* [1995, amended 2018])[g] as well as local regulations, and is not included within the EIT. During construction, EMP implementation is the responsibility of the contractor. EMP implementation supervision and monitoring are the responsibility of the PIU, supported by construction supervision companies. During operation, the environmental management responsibility will be handed over to the facilities' operators. Standard construction management practices referring to EHS guidelines of the World Bank Group are provided in the environmental safeguard system assessment to facilitate implementation.
Principle 8. Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.	The PRC and local requirements on protection of critical habitat will be followed. The PRC requirements are as stringent as SPS and no gaps need to be filled. During subproject screening and categorization, subprojects in areas of critical habitats and protected nature reserves will be excluded. The mitigation hierarchy should also be considered when siting projects, avoidance of impacts to biodiversity, often through design, should be prioritized.
Principle 9. Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's EHS guidelines.[h] Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gas emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phaseouts. Purchase, use, and manage pesticides based on integrated pest management approaches, and reduce reliance on synthetic chemical pesticides.	Construction and operation of facilities may generate solid waste, dust, excessive noise, and wastewater, which will be reduced and disposed appropriately following international good practices presented in the World Bank Group's Environmental, Health and Safety Guidelines. Hazardous materials subject to international bans or phaseouts will be avoided. Pesticides will not be utilized. GHG reductions will be calculated during project implementation.

Principles	Description
Principle 10. Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize adverse impacts and risks to the health and safety of local communities.	Contractors and PIU will be required to follow all relevant PRC occupational health and safety and gas safety regulations and requirements. Health and safety clauses will be incorporated into works contracts. Personal protection equipment will be provided to the workers. Facility design will adhere to energy efficiency and safety design codes. Emergency-response systems (fire, explosion, earthquake, and other natural disasters) will be established in accordance with PRC regulatory requirements during operation and construction. These policies and practices will be assessed against good international practice and strengthened as necessary.
Principle 11. Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of "chance find" procedures that include a preapproved management and conservation approach for materials that may be discovered during project implementation.	The program will avoid impacts on physical cultural resources during site selections. As buried artifacts might be discovered during the construction phase of the program, chance find procedures for physical cultural relics will be included in the EMPs.

APMO = Administration of Chongqing Gaoxin District Program Management Office, EEB = ecology and environment bureau, EIRF = environmental impact registration form, EMP = environmental management plan, EIT = tabular environmental impact report, GHG = greenhouse gas, PIU = program implementation unit, PRC = People's Republic of China, RBL = results-based lending, REA = rapid environmental assessment, SPS = Safeguard Policy Statement.

[a] Ministry of Ecology and Environment of the PRC. 2021. *PRC's The Directory of Environmental Impact Assessment Categorization for Construction Projects*. Beijing. (in Chinese).

[b] The Standing Committee of the National People's Congress of the PRC. 2018. *Environmental Impact Assessment Law of the PRC*. Beijing (in Chinese).

[c] Ministry of Ecology and Environment of the PRC. 2016. *Technical Guideline for EIA for Construction Project—General Programme*. Beijing (in Chinese).

[d] General Office of the State Council of the PRC. 2017. *PRC's Administration on the EIRF for Construction Project*. Beijing (in Chinese).

[e] The generic EMP is included in Appendix 3 of this document.

[f] Ministry of Housing and Urban-Rural Development of the PRC. 2013. *Standard for Environment and Sanitation of Construction Site*. Beijing (in Chinese).

[g] The Standing Committee of the National People's Congress of the PRC. 2018. *Labor Law of the PRC*. Beijing (in Chinese).

[h] World Bank Group. *Environmental, Health, and Safety Guidelines*.

Source: Transaction Technical Assistance Consultants.

B. Equivalence Assessment of the PRC Legal Framework with Safeguard Policy Statement Policy Principles

57. The review of the environmental regulatory framework in the PRC and Chongqing concludes that it is in general largely equivalent to SPS environment policy principles. Relevant regulations require environment assessment based on clearly defined screening and classification criteria. Equivalent regulations are also in place for environmental management planning and implementation, including inspection of impact mitigation measures and health and safety concerns. Public engagement is mandated through requirements for public disclosure of environmental assessments, requirements for stakeholder consultation, and the establishment of

an environment hotline system to address grievances, managed by Chongqing EEB. Legislation is in place to identify and address specific environment, health, and safety issues.[48]

58. However, some gaps have been identified, relating to categorization, information disclosure, public consultation, grievance redress, and environmental monitoring and reporting. The domestic EITs prepared under this project will address these gaps.

59. **Categorization and environmental impact assessment.** Overall, the PRC has a risk-based, impact-based screening, and categorization system which is in line with the SPS environmental policy Principle No. 1. Since the establishment of the classification directory in 1999, the MEE has revised the directory five times. The amendments are to improve the operability of the directory and strengthen the connection of EIA and pollutant emission permit system. For the construction projects that their environmental impacts and mitigation measures are well known, and the risks are controllable, the 2020 revision has simplified the EIA procedures. The PRC classification results of proposed activities are shown in Table 15. Other program activities, including installation sorting bins for new and upgraded waste collection and recycling bins, fitness facilities, and greening space, are not included in the PRC classification list as their environmental impacts are negligible.

Table 15: PRC Classification of Proposed Program Activity with Construction Activities

Proposed Activity	Category A	Category B	Category C
Stormwater and sewage pipeline	/	If involving any environmental sensitive area	/
Buildings and Green Eco-District	/	/	/
Ecology rehabilitation	/	/	/
River rehabilitation	If involving any environmental sensitive area	Others	/
Natural gas boilers	/	Capacity > 0.7 MW	/
Energy storage stations	Voltage > 550 kV; Voltage > 330 kV and involving any environmental sensitive area	Others (voltage < 100 kV excluded)	/
Wastewater treatment and reclaimed water recycling	Domestic wastewater daily treatment capacity > 100,000 t/d; new construction or expansion	Domestic wastewater daily treatment capacity: between 5,000 and 100,000 t/d; new construction or expansion	Others related activities (upgrading to meet new standard; reclaimed water recycling after treatment by septic tanks and construction of single sedimentation tanks for treatment are excluded)
Solid waste transfer station	/	Daily capacity > 150 t/d	/

[48] Including the Environmental Protection Law of the PRC (2014); the Environmental Impact Assessment Law of the PRC (2018) and linked technical guidelines for environmental impact assessment; the Labor Law (2018); the Construction Site Environment and Sanitation Standard (2013); and the Construction Law of the PRC (2019).

Green Eco-Industry Park	For industry park, a planning EIA is required. The PRC environmental categorization will be determined based on the activities of the industry park.

60. Program activities will be located in the urban and rural areas of CGD and will avoid critical habitats and protected nature reserves. The environmental impacts of the program are mainly related to building construction and/or upgrading, WWTP construction and/or expansion, energy storage stations construction, ecology and river rehabilitation and pipeline installation, which are all well-defined. Therefore, the PRC classification result is reasonable, but there is the possibility that some site-specific impacts are not identified compared with ADB's REA checklist for classification (see Appendix 2 of the ESSA).

61. **Environmental management plan.** EMP is not required by PRC and Chongqing laws and regulations.

62. **Information disclosure and public consultation.** The requirements for public participation are only applied to the PRC category A project. Public participation is inadequate for PRC category B and C projects.

Grievance redress mechanism. The current complaints channel is mainly relying on the hotline maintained by the government authority. There is a lack of a project level GRM.

V. MANAGING RISKS AND IMPROVING ENVIRONMENT MANAGEMENT CAPACITY

A. General Principles for Environmental Management System of the Program

63. In order to minimize the program's environmental risk and ensure full compliance with PRC laws and regulations as well as ADB policy requirements for environment safeguards and RBL programs, the program will follow a set of principles in planning and implementing the engineering activities. These principles include:

(i) The program will only support facilities with valid PRC environmental impact assessment approved by relevant environmental protection authorities.
(ii) Activities that classify as category A for environment under ADB's Safeguard Policy Statement (2009) are not eligible.
(iii) Subprojects will be screened using the Rapid Environmental Assessment Checklist (Appendix 2 of this ESSA) to identify any unexpected impacts over and above those common impacts associated with building construction, as presented in the Anticipated Impacts and Mitigation Measures and Generic EMP (Appendix 3 of this ESSA). If there are unexpected impacts in addition to those identified in Appendix 2, additional assessments should be conducted and mitigation measures developed.
(iv) Site-specific EMPs (SSEMPs) will be developed responding to all clauses and requirements of the generic EMP (Appendix 3) and any additional assessments undertaken.
(v) A program-specific GRM will be developed to address and resolve complaints received. A sample GRM is presented in Appendix 4 of this ESSA).
(vi) Environment safeguard due diligence procedures and environmental management practices shall fully adhere to the PRC regulatory framework and gap filling measures required to be in compliance with the SPS.
(vii) The current environment management system will be strengthened and adjusted to better fit the program's specificities. This will include preparation and implementation of environmental management plans; organizing meaningful public

consultations throughout the project cycle; assignment of qualified safeguards specialist as staff of the APMO and PIU; and conduct training for all key stakeholders on EMP implementation, supervision, monitoring and reporting.

B. Institutional Arrangements for Environment Management of the Program

64. CMG will be the executing agency with overall policy guidance and supervision. CPMO oversees Chongqing's internationally financed loan projects and programs and will provide overall municipal-level coordination, guidance, and oversight of the proposed RBL program. ACGD is the implementing agency with a dedicated APMO for the RBL program implementation established in February 2024. The APMO is responsible for day-to-day supervision, coordination, and guidance of program preparation and implementation. The PIU is the CGDG, responsible for procurement, contract and construction management, operation and maintenance of the program infrastructure and facilities. Additional bureaus or agencies such as ACGD's Construction Bureau, Urban Development Affairs Center, Ecology and Environment Bureau, and Government Affairs Service Center will also be involved in some program activities and sector development, such as capacity building and institutional strengthening.

65. An environmental safeguards supplementary technical guidance (Appendices 1, 2-a to 2-d) has been developed to support APMO, ACGD, and PIU in the program's environmental assessment and management. The environmental safeguards supplementary technical guidance will be translated into Chinese, and the environment specialist under the program implementation consultants (PIC) (to be engaged by APMO) will provide training to the APMO, ACGD, and PIU. The APMO, ACGD, and PIU will follow the guidance during subsequent activity preparation. The initial environmental categorization of the subprojects will be determined utilizing the REA checklist in appendices 2-a and should obtain clearance/no-objection from ADB.

66. Other parties involved in the environmental management during program implementation under the guidance and management of the APMO and PIU are described below.

67. PIU has contracted, or will contract, one construction supervision company to (i) review and clear contractors' construction organization plan, including a SSEMP; (ii) conduct daily site inspections and assess the contractors' compliance with the SSEMP; and (iii) submit monthly inspection reports to the PIU and the APMO for verification and disclosure.

68. Civil works contractors are responsible for implementing the mitigation measures during construction under supervision of the construction supervision company. In their bids, contractors will be required to respond to the environmental management requirements defined in the environmental management plan. Each contractor will be required to develop a construction organization plan which shall include a SSEMP based on the generic EMP provided in Appendix 3 of this ESSA and any additional assessments undertaken, and will assign a person responsible for environment, health, and safety.

C. Action Plan

69. Table 16 presents an environmental safeguards program action plan with measures to address identified environmental safeguard gaps. Progress in implementing these actions will be monitored by the ACGD and ADB during the program implementation through the APMO. ACGD will submit the semiannual monitoring report to ADB. A template of the semiannual monitoring report is provided in Annex 2-D of the ESSA. Implementation of the program safeguard actions

will be reported to ADB through the semiannual environmental and resettlement monitoring reports.

Table 16: Environmental Safeguards Program Actions

Gap	Proposed Action	Indicator/Target	Responsibility	Timeframe
Environment				
Inadequate institutional arrangements for environmental management at program level and county/district level	APMO to assign one staff in charge of program safeguards coordination. PIU to assign one environmental officer for EMP implementation coordination (screening, supervision, monitoring, reporting, public consultation).	Staff assigned within APMO and PIU	APMO and PIU	Within 3 months of loan effectiveness
Inadequate orientation and capacities for environment management and coordination	Conduct workshops with the support of environment specialists (PIC engaged by APMO), covering (i) environmental risk screening and categorization using the rapid assessment checklist (Annex 2-A of ESSA); (ii) preparation of environmental impact assessment documents; (iii) incorporation of EMP into bidding documents and construction contracts and implementation of EMP; and (iv) construction monitoring. Participants will include APMO and PIU staff, and potential subproject proponents.	Workshops held and summary report accepted by ADB	APMO, PIU, and environment specialist	Within 3 months of loan effectiveness
Inadequate environmental impact assessment and environmental management	A generic EMP including a matrix of anticipated environmental impact and mitigation measures (Annex 2-B of ESSA) was developed in accordance with the World Bank's environment, health, and safety guidelines and regulatory requirements of the PRC. If any unexpected impacts are identified in addition to those identified in the generic EMP during the screening, additional assessment and	Approval of subproject EITs and EIRFs. The activities with civil works are screened using the rapid assessment checklist (Annex 2-A of ESSA). EMP provisions from generic EMP and additional assessments (if required) are incorporated into bidding documents and construction contracts. Site-specific EMPs are developed by contractors and reviewed by construction	APMO and PIU	Prior to civil works When the engineering design is available Development of EMP provisions before bidding

Gap	Proposed Action	Indicator/Target	Responsibility	Timeframe
	mitigation measure development shall be implemented. Incorporation of EMP provisions into bidding documents and construction contracts; and implementation of the EMP.	supervision companies and implementation environmental expert.		1 month prior to civil works construction, continuous during construction
Inadequate public engagement	Ensure consultation with affected communities and other stakeholders and disclose relevant activity information prior to, and during, the construction process.	Environmental safeguard documents (EITs, EIRFs and EMPs) to be disclosed on websites of the local ecology and environment bureaus or the PIU. Consultations in various formats are organized and the concerns from the public are resolved	APMO and PIU	Prior to civil works, continuous during construction
Grievance redress procedure limited to hotline system managed by local Environment and Ecology Bureau	Formalize a locally accessible GRM with procedural information and contacts of each entry points disseminated on the websites of PIU and construction sites. A sample GRM is provided in the Annex 2-C of ESSA.	GRM arrangements posted on relevant websites and construction sites	APMO and PIU	Established and disseminated 1 month prior to construction
Disclosure	Disclosure of the environmental assessment reports in English. Disclosure of the EITs and EIRFs if not already done so. Disclosure of semiannual environmental monitoring reports.	Environmental assessment reports in English of the first three subprojects disclosed on ADB website. Environmental monitoring reports disclosed on ADB website, ACGD, and PIU's websites. Information from the EITs and GRM (Chinese) provided to affected people and other stakeholders through public notice board at the community committees, and community WeChat group	APMO and PIU	EIA reports (English version) of the first three subprojects submitted to ADB for disclosure by the end of 2025. Prior to activities construction and throughout the activity lifecycle
Monitoring	APMO will establish a safeguard monitoring system to allow proper coordination and facilitation with concerned agencies.	Safeguard monitoring tracking system will be established. An environmental specialist within the PIC is engaged by APMO within 2 months from	APMO	Semiannually throughout the program

Gap	Proposed Action	Indicator/Target	Responsibility	Timeframe
	Submission of environmental monitoring report to ADB semiannually during the program implementation period.	loan approval to monitor and verify environmental safeguard document implementation. Submission of environmental monitoring report to ADB semiannually.		implementation period

ACGD = Administration of Chongqing Gaoxin District, ADB = Asian Development Bank, APMO = Administration of Chongqing Gaoxin District Program Management Office, EIA = environmental impact assessment, EIRF = environmental impact registration form, EIT = tabular environmental impact report, EMP = environmental management plan, ESSA = environmental safeguard systems assessment, GRM = grievance redress mechanism, PIC = program implementation consultant, PIU = program implementation unit, PRC = People's Republic of China.
Source: Transaction Technical Assistance Consultant.

ADB PROHIBITED INVESTMENT ACTIVITIES LIST

The following do not qualify for Asian Development Bank financing:

(i) production or activities involving harmful or exploitative forms of forced labor[1] or child labor;[2]

(ii) production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phaseouts or bans, such as (a) pharmaceuticals,[3] pesticides, and herbicides,[4] (b) ozone-depleting substances,[5] (c) polychlorinated biphenyls[6] and other hazardous chemicals,[7] (d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora,[8] and (e) transboundary trade in waste or waste products;[9]

(iii) production of or trade in weapons and munitions, including paramilitary materials;

(iv) production of or trade in alcoholic beverages, excluding beer and wine;[10]

(v) production of or trade in tobacco (footnote 10);

(vi) gambling, casinos, and equivalent enterprises (footnote 10);

(vii) production of or trade in radioactive materials,[11] including nuclear reactors and components thereof;

(viii) production of, trade in, or use of unbonded asbestos fibers;[12]

(ix) commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests;

(x) marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats; and

(xi) production or activities that impinge on lands owned, or claimed under adjudication, by indigenous peoples, without the full documented consent of such peoples.

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1 Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty.

2 Child labor means the employment of children whose age is below the host country's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

3 A list of pharmaceutical products subject to phaseouts or bans is available at http://www.who.int.

4 A list of pesticides and herbicides subject to phaseouts or bans is available at http://www.pic.int.

5 A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phaseout dates. Information is available at United Nations Environment Programme. The Montreal Protocol on Substances that Deplete the Ozone Layer.

6 A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

7 A list of hazardous chemicals is available at http://www.pic.int.

8 A list is available at http://www.cites.org.

9 As defined by the Basel Convention; see http://www.basel.int.

10 This does not apply to project sponsors who are not substantially involved in these activities. Not substantially involved means that the activity concerned is ancillary to a project sponsor's primary operations.

11 This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any equipment for which ADB considers the radioactive source to be trivial and adequately shielded.

12 This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST

Activity Name:

Location:

Screening Questions	Yes	No	Remarks
A. Project Siting Is the Project area adjacent to or within any of the following: ▪ Environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Legally protected area (core zone or buffer zone)			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Special area for protecting biodiversity			
B. Potential Environmental Impacts Will the Project cause…			
▪ impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical cultural resources?			
▪ disturbance to precious ecology (e.g., sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?			
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?			
▪ increased air pollution due to project construction and operation?			
▪ noise and vibration due to project construction or operation?			
▪ involuntary resettlement of people? (physical displacement and/or economic displacement)			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?			

Screening Questions	Yes	No	Remarks
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?			
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			
▪ generation of solid waste and/or hazardous waste?			
▪ use of chemicals?			
▪ generation of wastewater during construction or operation?			

CHECKLIST FOR PRELIMINARY CLIMATE RISK SCREENING

Country/District:
Activity Name:

Screening Questions		Score	Remarks[a]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g., annual power production) of project output(s) (e.g., hydro-power generation facilities) throughout their design life time?		

[a] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1–4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:

_____

_____

SAMPLE GENERIC ENVIRONMENTAL PLAN

Item/Media	Potential Environmental Impacts and/or Risks	Mitigation Measures	Who Implements
During Design Stage			
1. Preliminary and design stage	Institutional strengthening	– Each program implementation unit (PIU) to appoint an environmental safeguard officer (ESO) in its safeguard unit.	PIU
	Design complying with relevant applicable health, safety, and environmental codes and standards, including energy-efficient building codes and specifications	– Design buildings in compliance with relevant design standards and codes for energy-efficient, safe, and green public buildings, and other applicable national design codes. – Ensure no-use of volatile organic compounds-emitting materials (including paints, coatings, adhesives, carpet and furniture's) to ensure high indoor air quality. – Incorporate energy-efficiency measures defined in the feasibility study report into building design. – Ensure all underground utilities are mapped completely during design stage to ensure their uninterrupted or planned operation, thereby avoiding any nuisance to staff and adjoining community living in the area. – No asbestos of any kind will be used in any materials supported by the project.	DIs
	Incorporate Mitigation Measures in Detailed Design	– Mitigation measures will be incorporated into the detailed design.	DIs
2. Construction preparation stage	Bidding documents and contractors	– Include an environmental section in the technical specifications for bidders. – Ensure that construction contracts make reference to environmental safeguard clauses for civil works contracts, are responsive to environmental management plan (EMP) provisions, and mitigation and monitoring measures are adequately budgeted.	DIs, PIU-ESO
	Meaningful consultation, grievance redress mechanism (GRM)	– Establish a GRM and appoint a GRM coordinator. – Hold a public meeting prior to construction to present the GRM, discuss the EMP, project activities, and issues associated with the safety with stakeholders, elderly people, and staff, as well as nearby communities in vicinity of the construction site. – Brief and provide training to GRM access points and disclose GRM to affected people before construction begins. – Disseminate information on procedure of handling complaints through the GRM.	APMO-ESO, PIU-ESO
	Training	– Provide training to staff of APMO and its member agencies, program implementation units, and contractors on implementation and supervision of EMP, GRM, environmental monitoring, and reporting in compliance with training plan.	LIEC
	Site-specific EMPs	– Develop site-specific EMPs, responding to all clauses and requirements of this EMP.	Contractor
	Audit of Existing Facility and related associated facilities and alternate locations	– Conduct an environment audit of existing ongoing facilities for compliance of their construction procedures adopted and operations with relevant laws and regulations, and applicable requirements of the ADB Safeguard Policy Statement (2009)	LIEC

Item/Media	Potential Environmental Impacts and/or Risks	Mitigation Measures	Who Implements
		requirements; and the nature and extent of significant adverse environmental impacts. Assessment to include activity's linked associated facilities that affect the viability of the existing facility.	
During Construction Stage			
1. Soil	Soil erosion	– Prepare soil erosion control plan (showing how runoff will be controlled at site perimeter to control soil and water runoff, and how disturbed areas will be reclaimed). – Minimize active open excavation areas. – Construct intercepting ditches and drains to prevent runoff entering construction sites, and divert runoff from sites to existing drainage. – Stabilize all earthwork disturbance areas within maximum 14 days after earthworks have ceased. – Properly slop and re-vegetate disturbed surface with native species of vegetation and trees specific to the region.	Contractor
	Soil contamination	– Check for any historic contamination of soil. Initiate soil decontamination before start-up of any construction. – Store chemicals/hazardous products and waste on impermeable surfaces in secure, covered areas. – Remove all construction wastes from the site to approved waste disposal sites. – Provide spill cleanup measures and equipment at each construction site. – Conduct training in emergency spill response procedures.	Contractor
2. Surface and Groundwater	Pollution of surface and groundwater resources	– Develop protocol for waste water management; – Install water collection basins and sediment traps in all areas where construction equipment is washed. – Wastewater generated from the washing down of mixer trucks and drum mixers and similar equipment should wherever practicable be recycled. – Surplus wastewater and wastewater generated from building construction activities, including concreting, plastering, cleaning of works, and similar activities should be discharged into sewer after removal of solids in a silt removal facility. – Sewage from temporary toilets, kitchens, and similar facilities should be stored in an on-site facility (such as septic tank), emptied regularly, and transported to a designated wastewater treatment plant for further treatment.	Contractor
3. Solid waste	Construction and domestic wastes generated on construction sites	– Develop protocol for solid waste management. – If any asbestos containing materials (ACMs) are found during demolition of old facilities, the executing agency shall engage services of a certified agency capable to handle and dispose ACM in accordance with international best practices. – Maximize reuse/recycling of construction and deconstruction wastes (e.g., iron, bricks, windows, doors, steel bars, etc.);	Contractor

Item/Media	Potential Environmental Impacts and/or Risks	Mitigation Measures	Who Implements
		- Provide appropriate sanitary waste storage containers for workers' municipal garbage; and pilfer proof containers for hazardous wastes. - Install confined storage points of solid wastes away from sensitive receptors, regularly haul to an approved disposal site. - Use licensed contractors to remove wastes from the construction sites; ensure hazardous waste is disposed only at hazardous waste disposal certified landfill sites. - Prohibit burning of waste.	
4. Noise and vibration	Noise and vibration from construction activities	- Maintain equipment and machinery in good working order, undertake regular equipment maintenance, and ensure compliance with the national standard (GB12523-2011)[a] - Operate between 0800H and 2200H only and reach an agreement with executing and implementing agencies' management and nearby residents regarding the timing of heavy machinery work to avoid any unnecessary disturbances; nighttime works should only be conducted in exceptional cases and a permit should be obtained for that purpose. - Inform potentially affected people in advance. - Install temporary anti-noise barriers to shield institution buildings where non-compliance with Category 2 in Environmental Quality Standards for Noise (GB3096-2008)[b] is anticipated/monitored. - Locate sites for concrete-mixing and similar activities at least 300 meters from sensitive areas if without any mitigations. - Monitor/observe noise within the construction site and at nearby sensitive areas at regular intervals (as defined in the monitoring plan). - Seek suggestions from institution management and potentially affected sensitive receptors to reduce noise annoyance. - Disseminate information on procedure of handling complaints through the GRM.	Contractor
5. Ambient Air	Dust generated during construction	- Install perimeter fences at each site prior to construction - the fence shall be at least 2 meters high. - Spray water at least twice a day where fugitive dust is generated during deconstruction of old buildings, storage of construction materials, construction site internal roads, and civil works. - Cover trucks carrying earth, sand, or stone with tarps or other suitable cover to avoid spilling and dust generation. - Install online air quality monitoring device. - Regularly consult nearby residents to identify concerns, and implement additional dust control measures as necessary.	Contractor
	Air emissions from construction vehicles and machinery	- Store petroleum or other harmful materials in appropriate places and covering to minimize fugitive dust and emission. - Maintain vehicles and construction machineries in compliance to national and international noise	Contractor

Item/Media	Potential Environmental Impacts and/or Risks	Mitigation Measures	Who Implements
		emission control standards.	
6. Physical cultural resources	Damage to known or unknown above or below-ground cultural relics	– Establish chance find procedures for physical cultural resources. – If a new site is unearthed, work must be stopped immediately and the executing and implementing agencies and local cultural relic bureau promptly notified, and construction will resume only after a thorough investigation and with the permission of appropriate authority.	Contractor
7. Flora and Fauna	Protection of vegetation, re-vegetation of disturbed areas; greening of sites	– Preserve existing vegetation where no construction activity is planned. – Remove trees or shrubs only as a last resort if they impinge directly on permanent structures; tree transplantation should be encouraged at the vacant location within the project site. – Properly re-vegetate disturbed areas after completion of civil works; restore top soil after construction with only native species of vegetation and trees specific to the region.	Contractor
8. Health and Safety	Occupational health and safety (H&S)	– Develop protocol for H&S management. – Appoint one technically qualified staff to implement and supervise the implementation of the site-specific EMP and the performance of subcontractors. – Temporary worker camps must provide safe supply of clean water and an adequate number of latrines and other sanitary arrangements at the site and work areas, and ensure that they are cleaned and maintained in a hygienic state; – Provide garbage receptacles at construction site. – Provide personal protection equipment for workers in accordance with relevant H&S regulations. – Develop an emergency response plan to take actions on accidents and emergencies; document and report occupational accidents, diseases, and incidents; and organize fully equipped first-aid base at each construction site. – Establish records management system that will store and maintain easily retrievable records on occupational accidents, diseases, and incidents – Train all construction workers in basic sanitation and hygiene issues, general health in basic sanitation and hygiene issues, general health and safety matters, and on the specific hazards of their work. – Posters drawing attention on site safety, rescue and industrial health regulations shall be made or obtained from the appropriate sources and will be displayed prominently in relevant areas of the site.	Contractor
	Community H&S	– Develop protocol for community health and safety management; – Prepare traffic control plan within and around the construction site during construction, to be approved by facility management, and local traffic management administration. The plan shall include provisions for diverting or scheduling construction traffic to avoid peak traffic hours, main teaching	Contractor

Item/Media	Potential Environmental Impacts and/or Risks	Mitigation Measures	Who Implements
		activities, such as exams, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signage. - Designate staff members to control traffic during on-institution and off-institution hours. - Ensure that all sites are secure, discouraging access through appropriate fencing; place clear signs at construction sites in view of the people at risk, warning people of potential dangers such as moving vehicles, hazardous materials, excavations, etc., and raising awareness on safety issues. - Return machinery to its overnight storage area/position. - In collaboration with the facility management, hold meeting prior to commencing construction to discuss issues associated with ensuring the safety of nearby communities in vicinity of the construction site.	
	Utilities provision interruption	- Assess potential disruption to services and identify risks before starting construction. - If temporary disruption is unavoidable, develop a plan to minimize the disruption and communicate the dates and duration in advance to all affected people, in conjunction with the institution management.	Contractor
9. Labor standards and rights	Social protection of workers	- Contractors shall (i) provide equal pay for equal work, regardless of gender or ethnicity; (ii) provide timely payment of wages; (iii) use local unskilled labor, as applicable; (iv) comply with core labor standards and the applicable labor laws and regulations, including stipulations related to employment, e.g., health, safety, welfare and the worker's rights, and anti-trafficking laws; and (v) not employ child labor. - Contractors shall maintain records of labor employment, including the name, ethnicity, age, gender, domicile, working time, and the payment of wages.	Contractor
During Operation Stage			
1. Wastewater	Inadequate wastewater disposal	- Ensure connection of new buildings to on-site pre-treatment facilities (septic tanks) and/or to municipal sewer system. - Periodically monitor (visual inspection) sludge accumulation in septic tanks, and request licensed company to de-sludge as needed.	Facility operator
	Wastewater management of WWTPs	- Install online monitoring equipment for the WWTPs; - Install emergency tank in the WWTPs.	Facility operator

Item/Media	Potential Environmental Impacts and/or Risks	Mitigation Measures	Who Implements
2. Solid waste	Inappropriate management of non-hazardous solid waste	– Provide adequate solid waste collection facilities in all buildings and facilities; – Promote segregation of waste through (i) provision of separate collection bins for paper, biodegradable waste, metallic waste, and other wastes; and (ii) provision of training and awareness raising for the persons in the buildings/communities; – Reach agreement with waste collection service providers for different types of waste. – Regularly clean and disinfect waste collection facilities.	Facility operator
	Sludge management of WWTP	– The sludge generated during WWTP operation will be dewatered then transported to certificated landfill for disposal.	Facility operator
3. Health and Safety	Occupational and community health and safety	– An operation phase EHS plan will be developed and implemented, and staff and workers will be trained regularly on its implementation. – PPE including goggles, gloves and safety shoes will be provided to staff and workers. Noise protection equipment will be provided to workers in high-noise area. – Nearby communities will be informed of the potential risks of the project operation. – Training will be provided to workers on occupational health and safety, and emergency response. – An Emergency Risk and Response Plan will be established.	Facility operator

ACGD = Administration of Chongqing Gaoxin District; ADB = Asian Development Bank; APMO = Administration of Chongqing Gaoxin District Program Management Office; DI = design institute; EHS = environment, health and safety; ESO = environmental safeguard officer, LIEC = loan implementation environmental consultant, PIU = program implementation unit.

[a] Ministry of Ecology and Environment of the PRC. 2011. PRC's Emission Standard of Environmental Noise for Boundary of Construction Site (GB12523–2011). Beijing (in Chinese).

[b] Ministry of Ecology and Environment of the PRC. 2008. PRC Environmental Quality Standard for Noise. Beijing (in Chinese).

SAMPLE GRIEVANCE REDRESS MECHANISM

1. The grievance redress mechanism (GRM) will be implemented through five escalating steps, advancing to the next level only if the grievance was unable to be redressed at the previous level. Note that (i) at any stage in the GRM, an affected person may submit their grievance to any agency they feel most comfortable with. If such agency is not listed in the steps below, they will also need to inform at least one of the listed individuals or agencies, to enable the GRM procedures to be implemented; and (ii) the GRM does not replace the role of existing laws and legal procedures. In the event of any grievance, the Administration of Chongqing Gaoxin District Program Management Office (APMO) will immediately inform the Asian Development Bank (ADB), and then ensure that ADB is updated on the progress.

Step 1: If a concern arises, the affected person should try to resolve the issue of concern directly with the contractor or via the GRM access points (community leaders, neighborhood organizations, municipal environment and ecology bureau [EEB]) during the construction phase, and/or the operator during the operation phase. If the concern is resolved successfully no further follow-up is required. The contractor (during construction) and/or the operator (during operation) shall record any complaint and actions taken to resolve the issues and report the results to the APMO. If no solution is found within 7 working days or if the complainant is not satisfied with the suggested solution under step 1, proceed to Step 2.

Step 2: The affected person will submit the grievance to the program implementation unit (PIU) (if not done in step 1). The PIU will record the grievance, assess its eligibility, and report back to the affected person within 7 working days. If the grievance is eligible, proceed to step 3.

Step 3: The APMO will investigate the complaint and consult with the executing and implementing agencies and other stakeholders, as appropriate, in an attempt to identify a solution. The PIU will give a clear reply to the affected person within 5 working days with the suggested solution, and the executing and implementing agencies will ensure that implementation of the agreed-upon redress solution begins within 7 working days. If no solution is found or if the complainant is not satisfied with the suggested solution under step 3, proceed to step 4.

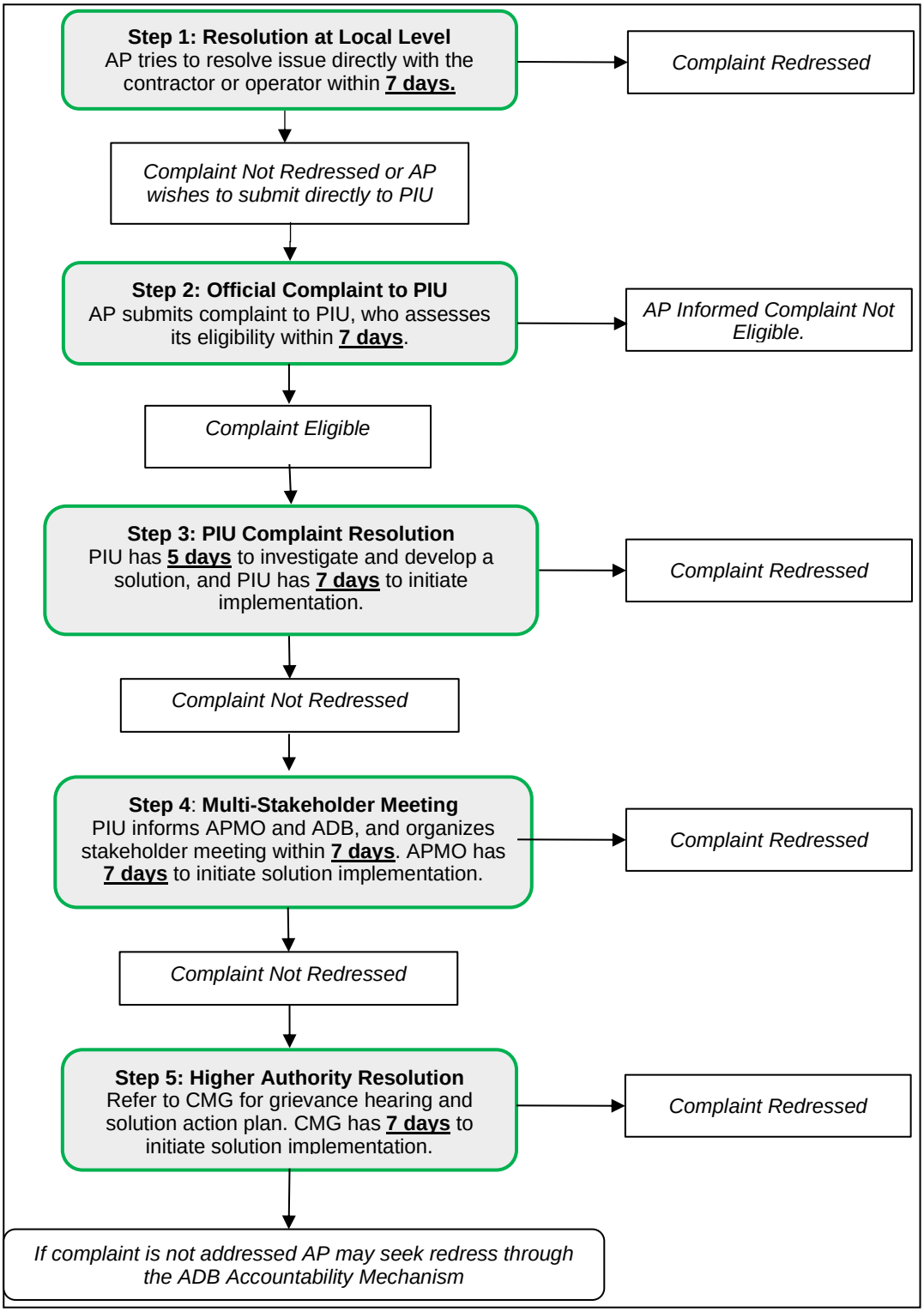
Step 4: The PIU, through the APMO, will inform ADB as to the grievance and will organize a multi-stakeholder meeting within 5 days, where all relevant stakeholders, including the complainant, the executing and implementing agencies, PIU, ADB, and EEB can discuss the issue. The multi-stakeholder meeting will aim to find a solution acceptable to all and identify responsibilities and an action plan. The PIU will ensure that the implementation of agreed-upon redress solution begins within 7 working days of the completion of the multi-stakeholder meeting.

Step 5: If the complainant is not satisfied with the suggested solution under step 4, the grievance will be directed to the municipal government. The government will direct the PIU to organize a hearing process and shall determine a solution acceptable to all. Based on the hearing results, an action plan shall be developed, and the PIU will ensure that the implementation of the agreed-upon redress solution begins within 7 working days of the completion of the hearing.

2. The GRM steps are illustrated below. If the GRM steps are unsuccessful, persons who are, or may in the future, be adversely affected by the project may submit complaints to ADB's Accountability Mechanism through the Office of the Special Project Facilitator or Office of Compliance Review Panel. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected persons should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and they are still dissatisfied, should they approach the Accountability Mechanism.[1]

[1] See: http://compliance.adb.org/

SAMPLE GRIEVANCE REDRESS MECHANISM



ADB = Asian Development Bank, AP = affected person, APMO= Administration of Chongqing Gaoxin District Program Management Office, CMG = Chongqing Municipal Government, PIU = program implementation unit.

OUTLINE OF SEMIANNUAL ENVIRONMENTAL MONITORING REPORT

A. Progress in Implementation of Environmental Safeguards Actions

Summarize the progress in implementing the environmental safeguards actions defined in the program action plan (PAP) and program safeguard system assessment (PSSA).

Gap	Proposed Action	Indicator/Targets	Responsibility	Time Frame	Progress Achieved during the Reporting Period	Additional Actions Required	Remarks[a]
Environment							
Inadequate institutional arrangements for environmental management at program level and county/district level	APMO to assign one staff in charge of program safeguards coordination. PIU with civil works to assign one environmental officer for EMP implementation coordination (screening, supervision, monitoring, reporting, public consultation).	Staff assigned within APMO and PIU.	APMO	Within 3 months of loan effectiveness			
Inadequate orientation and capacities for environment management and coordination	Conduct workshops with support of environment specialists (TRTA consultant and PIC engaged by APMO), covering (i) environmental risk screening and categorization using the rapid assessment checklist (Annex 2-A of ESSA); (ii) preparation of environmental impact assessment documents; (iii) incorporation of EMP into bidding documents and construction contracts and implementation of EMP; and (iv) construction monitoring.	Workshops held and summary report accepted by ADB	APMO and environment specialist	Within 3 months of loan effectiveness			
Inadequate environmental impact assessment and environmental management	A generic EMP including a matrix of anticipated environmental impact and mitigation measures (Annex 2-B of ESSA) was developed in accordance with the World Bank's environment, health, and safety guidelines and regulatory requirements of the PRC. If any unexpected impacts are identified in addition to those identified in	Approval of subproject EITs and EIRFs. The activities with civil works are screened using the rapid assessment checklist (Annex 2-A of ESSA). EMP provisions from generic EMP and additional assessments (if required) are	PIU	When the engineering design is available Development of EMP provisions before bidding 1 month prior to civil works construction, continuous during construction			

Gap	Proposed Action	Indicator/Targets	Responsibility	Time Frame	Progress Achieved during the Reporting Period	Additional Actions Required	Remarks[a]
	the generic EMP during the screening, additional assessment and mitigation measure development shall be implemented. Incorporation of EMP provisions into bidding documents and construction contracts; and implementation of the EMP.	incorporated into bidding documents and construction contracts. Site-specific EMPs are developed by contractors and reviewed by construction supervision companies and implementation environmental expert.					
Inadequate public engagement	Ensure consultation with affected communities and other stakeholders and disclose relevant activity information prior to, and during, the construction process.	Environmental safeguard documents (EITs, EIRFs and EMPs) to be disclosed on websites of the local ecology and environment bureaus or the PIU. Consultations in various formats are organized and the concerns from the public are resolved	PIU	Prior to civil works, continuous during construction			
Grievance redress procedure limited to hotline system managed by local Environment and Ecology Bureau	Formalize a locally accessible GRM with procedural information and contacts of each entry points disseminated on the websites of PIU and construction sites. A sample GRM is provided in the Annex 2-C of ESSA.	GRM arrangements posted on relevant websites and construction sites	PIU	Established and disseminated 1 month prior to construction			
Disclosure	Disclosure of the environmental assessment reports in English	Environmental assessment reports in English of the first three subprojects disclosed on ADB website.	APMO and PIU	EIA reports (English version) of the first three subprojects were submitted to ADB			

Gap	Proposed Action	Indicator/Targets	Responsibility	Time Frame	Progress Achieved during the Reporting Period	Additional Actions Required	Remarks[a]
	Disclosure of the EITs and EIRFs if not already done so. Disclosure of semiannual environmental monitoring reports	Environmental monitoring reports disclosed on ADB website and PIU's websites. Information from the EITs provided to affected people and other stakeholders		for disclosure by the end of 2025. Prior to activities construction and throughout the activity lifecycle			
Monitoring	APMO will establish a safeguard monitoring system to allow proper coordination and facilitation with concerned agencies. Submission of environmental monitoring report to ADB semiannually during the program implementation period.	Safeguard monitoring tracking system will be established. An environmental specialist (consultant) within the PIC is engaged by APMO within 2 months from loan approval to monitor and verify environmental safeguard document implementation. Submission of environmental monitoring report to ADB semiannually.	APMO	Semiannually throughout the program implementation period			

ADB = Asian Development Bank, APMO= Administration of Chongqing Gaoxin District Program Management Office, DDR = due diligence report, EMP = environmental management plan, ESSA = environmental safeguard systems assessment, GRM = grievance redress mechanism, PIC = program implementation consultant, PIU = Program Implementation Unit.

[a] Please add information to justify the progress achieved (tables showing data, photographs, summary of grievance, etc.) These could be included as annex to this table.

Source: Transaction Technical Assistance Consultants.

B. Monitoring

Summary of EMP implementation performance of contractors based on review of CSC monthly monitoring results and site inspections conducted by the environmental officers assigned within the PIU.

C. Other Actions Implemented During Reporting Period (such as review missions, site visits, etc.)

D. Actions and Activities Planned in the Next Reporting Period

Annex 1: List of Environmental Officers Assigned

Organization	Name	Position	Contact
1.			
2.			
3.			

Annex 2: Summary of Environmental Capacity Building Sessions

Organizer	Date	Subject	Attendees	Number of staff trained

Annex 3: Summary of Physical Activities and Environmental Safeguard Document Preparation

Activity Name	Brief introduction of the activity	Environmental safeguards categorization	Expected construction start date	Expected operation date	Valid domestic EIA documents (Yes or Not)	Incorporate the provisions of EIRF/EIT and EMP into design (Yes or Not)	Incorporate the provisions of EIRF/EIT and EMP into construction contract (Yes or Not)	Site-specific EMP development (Yes or Not)

Annex 4: Summary of Public Engagement Activities during Reporting Period

Activity name	Date	Subject	Public consultation Format (workshop/questionnaires/site visit)	No. of respondents	Major concerns proposed by the participants and solutions	EIT/EIRF disclosure link	GRM disclosure (website link and on-site photos)

Annex 5: Summary of GRM Operation during Reporting Period

Activity name	Contact of GRM entry point	GRM disclosure (website link and on-site photos)	Complaints received during reporting period	Corrective actions taken	Follow-up actions required