

Project Administration Manual

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People's Republic of China: Guangxi Hezhou
Environment Restoration and Sustainable
Development Project

ABBREVIATIONS

ADB	–	Asian Development Bank
CGBS	–	Chinese Green Building Standard
COVID-19	–	coronavirus disease
CPP	–	consultation and participation plan
DDR	–	due diligence report
DMF	–	design and monitoring framework
EEMC	–	external environment monitoring consultant
EIA	–	environmental impact assessment
EMDP	–	ethnic minority development plan
EMP	–	environmental management plan
FMA	–	financial management assessment
GRM	–	grievance redress mechanism
GZAR	–	Guangxi Zhuang Autonomous Region
GZARFD	–	Guangxi Zhuang Autonomous Region Finance Department
HDRC	–	Hezhou Development and Reform Commission
HFB	–	Hezhou Finance Bureau
HMG	–	Hezhou Municipal Government
HMIGC	–	Guangxi Hezhou Mining Investment Group Company Limited
HPMO	–	Hezhou project management office
IEMR	–	Internal environmental monitoring report
IFI	–	international financial institution
KSSC	–	Knowledge and Skills Sharing Center
LURT	–	land use rights transfer
O&M	–	operation and maintenance
OCB	–	open competitive bidding
PAM	–	project administration manual
PDG	–	Pinggui District Government
PDRB	–	Pinggui Development and Reform Bureau
PIHECC	–	Pinggui Integrated Health and Elderly Care Center
PIU	–	project implementation unit
PLG	–	project leading group
PMB	–	Pinggui Mining Bureau
PMISC	–	project management and implementation support consultant
PMO	–	project management office
PPMS	–	project performance management system
PRC	–	People's Republic of China
PUCIC	–	Hezhou Pinggui Urban Construction Investment Company Limited
PWD	–	person with disability
PWH	–	Pinggui Workers' Hospital
SGAP	–	social and gender action plan
SOE	–	statement of expenditure

SPS	–	Safeguard Policy Statement
TOR	–	terms of reference
WWTP	–	wastewater treatment plant

CONTENTS

I.	PROJECT DESCRIPTION	1
A.	Rationale	1
B.	Project Description	4
C.	Summary of Project's Activities	6
D.	Kedashan's Environment Monitoring Plan	6
E.	Quality Control Mechanism for Institutional Strengthening Activities	6
F.	Quality Control Mechanism for Design and Construction Activities	7
G.	Capacity Building Activities	8
II.	IMPLEMENTATION PLANS	10
A.	Project Readiness Activities	10
B.	Overall Project Implementation Plan	11
III.	PROJECT MANAGEMENT ARRANGEMENTS	15
A.	Project Implementation Organizations: Roles and Responsibilities	15
B.	Key Persons Involved in Implementation	20
C.	Project Organization Structure	22
D.	Project Facilities' Operation and Maintenance Arrangement	28
IV.	COSTS AND FINANCING	30
A.	Cost Estimates Preparation and Revisions	31
B.	Key Assumptions	31
C.	Detailed Cost Estimates by Expenditure Category	32
D.	Allocation and Withdrawal of Loan Proceeds	33
E.	Detailed Cost Estimates by Financier	34
F.	Detailed Cost Estimates by Outputs and/or Components	36
G.	Detailed Cost Estimates by Year	37
H.	Contract and Disbursement S-Curve	38
I.	Fund Flow Diagram	39
V.	FINANCIAL MANAGEMENT	40
A.	Financial Management Assessment	40
B.	Disbursement	41
C.	Accounting	43
D.	Auditing and Public Disclosure	43
VI.	PROCUREMENT AND CONSULTING SERVICES	45
A.	Strategic Procurement Planning	45
B.	Project Procurement Risk Assessment	45
C.	Advance Contracting and Retroactive Financing	45
D.	Procurement of Goods, Works, and Consulting Services	46
E.	Procurement Plan	47
F.	Consultant's Terms of Reference	47
VII.	SAFEGUARDS	48
A.	Environment	48
B.	Involuntary Resettlement	51
C.	Indigenous Peoples	53
VIII.	GENDER AND SOCIAL DIMENSIONS	54

IX.	PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION	60
A.	Project Design and Monitoring Framework	60
B.	Monitoring	64
C.	Evaluation	66
D.	Reporting	66
E.	Stakeholder Communication Strategy	68
X.	ANTICORRUPTION POLICY	73
XI.	ACCOUNTABILITY MECHANISM	74
XII.	RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL	74

APPENDIXES

1. Summary of Project Activities
2. Kedashan Monitoring Program
3. Draft Capacity Development Plan
4. Procurement Plan
5. Required Contents of Hezhou Project Management Office's Quarterly Project Progress Report
6. Social and Gender Action Plan Semiannual Monitoring Report Format
7. Indicative Terms of References for Consulting Services
8. Strategic Procurement Planning

Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Hezhou Municipal Government as project executing agency, and Pinggui District Government and Guangxi Hezhou Mining Investment Group Company Limited as project implementing agencies are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the loan agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

1. The project will help Hezhou (i) reduce pollution in and improve the environment of the former mineral mining area; (ii) provide essential and inclusive social services, including health and elderly care, and skills development; and (iii) strengthen institutions to make former mineral mining workers' living areas in Hezhou green, inclusive, healthy, and sustainable. People in Hezhou will benefit from strengthened environmental sustainability and improved services in urban and rural areas.

A. Rationale

2. The People's Republic of China (PRC) witnessed average annual economic growth of about 10% in 1980–2009 and about 7% in 2010–2020. Behind this remarkable economic growth were industrial and mining activities that polluted and severely damaged the environment, threatening health because of weak environmental regulations and inadequate monitoring and enforcement. Many industrial and mining areas were left heavily polluted and without adequate environmental protection, and about 80% of abandoned mining areas are not properly treated.¹ The PRC has more than 110,000 mines, 244 cities with mineral resource development as the main industry, and 62 resource-depleted cities. The country has more than (i) 2.2 million hectares of mining-damaged land, (ii) 11 billion cubic meters of annual output of mine wastewater, and (iii) 48 billion tons of mine solid waste accumulation.²

3. As the economy grows, so does demand for a high-quality health-care system. The PRC initiated national health-care reform in 2009 to provide affordable, equitable, and effective health care for all.³ The reform focused on multidimensional aspects of the health system, including social health security, primary health care, public hospitals, essential medicines, and basic public health services. The reform made good progress: 95% of the population was covered by social health insurance by the end of 2017, the rural and urban basic health insurance systems are being integrated, a tiered health-care system was started in most municipalities, the government invested significantly in the primary health-care system, and overall hospital delivery capacity shows an upward trend as seen in the increasing number of beds and doctors.⁴ However, challenges remain. The PRC has a three-tiered system for health-care delivery: the rural system consists of county-level hospitals, township health centers, and village clinics, while the urban system consists of municipal, district, and community-level health services.⁵ Township health centers manage the village clinics. The quality of primary health care is inadequate, and education and qualification levels among primary health-care professionals are low.⁶ Primary health-care institutions are expected to work closely with communities. Because of the low quality of primary health care and the absence of a referral system, however, a growing proportion of medical resources and patients are in secondary or tertiary hospitals. Most patients return home after discharge from hospitals, which have no referral service. The competitive relationship among hospitals' payment systems hinders efficiency. Medical insurance funds are limited, and many

¹ Government of the PRC, Ministry of Land and Resources. 2017. *State Land Resource Statistics Yearbook 2017*. Beijing.

² China Geological Survey. 2016. *National Mine Geological Survey Report*. Beijing.

³ Central Committee of the Communist Party of China, State Council. 2009. [Opinions on Deepening the Health Care System Reform](#). Beijing.

⁴ Q. Meng et al. 2019. [What Can We Learn from China's Health System Reform?](#) *thebmj*. 19 June; and Q. Jiang and J. Pan. 2020. [The Evolving Hospital Market in China After the 2009 Healthcare Reform](#). *The Journal of Health Care Organization, Provision, and Financing*. 57. pp. 1–11.

⁵ The rural township health centers and urban community health centers are the primary health-care institutions.

⁶ X. Li et al. 2020. [Quality of Primary Health Care in China: Challenges and Recommendations](#). *The Lancet*. 395 (10239). pp. 1802–1812.

rehabilitation hospitals provide services item by item, lacking evaluation and performance payment management. Insufficient coordination and fragmented systems are another challenge. Intersector coordination among different health institutions or referral systems is essential to deliver people-centered, integrated, cost-effective care, and to ensure its continuity.

4. The Guangxi Zhuang Autonomous Region (GZAR) has 9,538 mines; 5,455 are closed or abandoned, of which about 30% need treatment for environmental damage.⁷ Hezhou Municipality is in northeast GZAR and has a population of 2.9 million.⁸ Hezhou is among the least-developed cities in GZAR.⁹ The area, including Hezhou's Pinggui District and the Kedashan mountain area, was once called the "1,000-year tin capital," historically known as a source of tin, iron, and other minerals; intensive tin mining, led by the state-owned entity, Pinggui Mining Bureau (PMB), started in the 1900s. Tin resources were exhausted by the 1990s, and private companies continued mining iron and other minerals. The PMB stopped operation in 2003 after becoming bankrupt. The Hezhou Municipal Government (HMG) shut down all illegal and uncertified mining operations in Kedashan after a major environmental pollution incident in 2013. It caused the shutdown of water supply intakes for 15 days along the He River and the downstream Pearl River, affecting about 57 million people. Although the cause of the incident was not the Kedashan mines, the event triggered the HMG to review environmental pollution in Kedashan; the HMG had not been controlling or mitigating environmental deterioration in the mining areas. By 2017, the last legally operating mineral mining operation in Kedashan was closed.

5. The HMG started restoring the environment and improving mining sites in 2018 because many were abandoned or not properly closed or restored when the companies stopped operating. The lack of government's and mining companies' active management to contain deterioration of the soil and water pollution in the abandoned mining sites, including in Kedashan, and the absence of any meaningful remediation program have exacerbated environmental conditions.¹⁰ The HMG urgently needs to improve Kedashan's environment to avoid potential pollution.

6. The downturn of the mineral mining industry resulted in dramatic adverse effects on provision of social services and employment in Hezhou, especially in Pinggui, where many mining workers resided.¹¹ Since many have lost their jobs, they have struggled to find new sources of income. In the PRC, state-owned entities supported local communities by providing facilities such as housing, schools, and hospitals for workers and their families.

7. With the PMB bankrupt, the health services it provided ceased or were acquired by a private medical service provider, and many experienced medical professionals were dismissed and relocated. The distribution of medical resources in Hezhou is unbalanced, with high-quality

⁷ GZAR Government, State Land Resource Department. 2018. [Mine Geological Environment Protection and Management Plan of GZAR](#). Nanning (in Chinese).

⁸ The latest official figure for 2019. GZAR. 2020. *Guangxi Statistical Yearbook 2020*. Nanning.

⁹ The 2019 per capita gross domestic product was CNY33,676 (Hezhou), CNY70,892 (national average), and CNY42,964 (GZAR). The 2019 per capita disposable income of urban residents was CNY33,179 (Hezhou), CNY42,359 (national average), and CNY34,745 (GZAR), and that of rural residents CNY12,737 (Hezhou), CNY16,021 (national average), and CNY13,676 (GZAR).

¹⁰ Hezhou Bureau of Land and Resources. 2018. [Hezhou Municipal-Level Mine Geological Environmental Protection and Management Plan, 2018–2025](#). Hezhou (in Chinese).

¹¹ Pinggui has a population of 467,500, 85% rural, and consists of 9 townships with 120 villages. Pinggui is a county district. The PRC has provinces, autonomous regions, and provincial centrally administered cities. Under the provinces and autonomous regions are prefectures and prefectural cities. Under the prefectures are counties and county cities and districts. Under the counties are towns, townships, and urban streets. L. Zhang, R. LeGates, and M. Zhao. 2016. *Understanding China's Urbanization: The Great Demographic, Spatial, Economic, and Social Transformation*. Cheltenham, UK: Edward Elder Publishing Limited.

medical services concentrated in Babu District, which undertakes acute medical treatment, and primary health-care service at local hospitals is inadequate. The only public county-level hospital in Pinggui was designated as a Hezhou municipal-level infectious diseases hospital in 2020 and does not offer general medical services.¹² Townships and villages have hospitals, but their service quality and capacity are limited. In addition to providing the required facilities, Pinggui urgently needs to improve health services and design strong health institutions and systems to meet local health-care needs, especially to manage allocation of medical service resources in the district, local occupational diseases that affect mining communities, provision of women's health care, integration of community health care and well-being, and building of healthy communities. Pinggui does not have a rural three-tiered health-care system that is led by a county-level hospital and coordination and referral system between different levels of health care in the district and other city health institutions. Efforts to strengthen coordination among health service providers in the rural three-tiered health-care system can be supported by the growing availability of digital health-care solutions such as internet-based diagnoses in remote areas, online appointments, medical reports, and billings, and smart information technology-based hospital operation and facility management.

8. The elderly, aged over 65 years old, account for 9.5% of Pinggui's population. Many elderly, including their families, prefer home-based care. But after being discharged from a hospital to receive care and rehabilitation, they need affordable services and facilities for the disabled, semi-disabled, or those affected by dementia. The Pinggui Integrated Health and Elderly Care Center (PIHECC), working with the Xiwan Community Medical Center, can meet the needs of the growing number of elderly. However, the Xiwan Community Medical Center lacks the management capacity to set up coordination systems between medical and elderly-care facilities, administration standards, and evaluation systems.

9. Although mineral mining has stopped, Hezhou is still a leading producer of high-quality marble, general stonework products, and calcium carbonate. Hezhou has been shifting the economy to calcium carbonate-based industries and creating a green and circular economy.¹³ Industries in Pinggui are upgrading their technologies, and demand for workers who have green and modern production knowledge and skills is increasing. As local jobs increase, many out-migration workers working in other provinces are willing to return to Pinggui. Left-behind women will have job options if family members can live together and share household tasks. Pinggui residents have high demand for skills training, including in health and patient care, to care for family members. Pinggui does not have any skills training public institutions. Hezhou has several degree-granting colleges and institutions offering technical and vocational education and training, and private educational and training institutions. However, the institutions cannot accommodate or provide residents with adequate nondegree training in market-demanded practical skills and knowledge. Pinggui is establishing a public Knowledge and Skills Sharing Center (KSSC) to offer short- and medium-term nondegree practical training. Still, Pinggui lacks the capacity to plan and operate the needed skills training.

10. **COVID-19 pandemic.** The coronavirus disease (COVID-19) pandemic amplified health risks, particularly for Hezhou and Pinggui, because of their inadequate health-care services. The only public county-level hospital in Pinggui was designated for infectious diseases (including COVID-19) for Hezhou City in 2020; Pinggui does not have county-level public general medical services. Measures to prevent infectious diseases are needed. Environmental improvement and

¹² Pinggui has only one county-level private medical institution and it does not meet Pinggui's demand.

¹³ Calcium carbonate-based industries are growing globally, and Hezhou's economic growth was 7% in 2020. HMG. 2021. [Hezhou City 2021 Government Work Report](#). Hezhou (in Chinese).

provision of health services are critical to the PRC's recovery from COVID-19, and the project is committed to helping achieve that goal.

11. **Strategic alignment.** The project will support the Outline of the Plan for Healthy China 2030 and the Healthy Hezhou 2030 Plan by improving the quality and services of the health-care system; and the PRC's Fourteenth Five-Year Plan, 2021–2025 by improving the environment, controlling pollution, and strengthening the health system.¹⁴ A PRC circular identified the county-level cities, districts, and counties as critical to carrying out urbanization.¹⁵ County-level areas lack the capacity, services, and infrastructure to ensure quality public services and a livable environment, and job skills support, including for rural–urban migrants. The circular listed environmental and health capacity and facilities as critical areas for improvement. The project aligns with GZAR's strategy to promote systems that can improve referrals for graded diagnosis and treatment, and Hezhou's plan to pilot comprehensive reform of urban public hospitals and develop an integrated health- and elderly-care system. The COVID-19 outbreak in 2020 exposed the county-level areas' vulnerability to the epidemic because of lack of capacity and environmental and sanitation facilities, which the project can remedy.

12. The project is aligned with six operational priorities of the Asian Development Bank (ADB) Strategy 2030 by boosting human capital and social protection; gender equality in human development; environmental sustainability; access, quality, and reliability of urban services; rural development; and governance and institutional capacity for service delivery.¹⁶ The project is in line with ADB's Operational Plan for Health, 2015–2020, by strengthening health systems and elderly care, and with the country partnership strategy for the PRC, 2021–2025, by reducing pollution, responding to the needs of an aging society, and strengthening institutions for health- and elderly-care systems.¹⁷ The project supports the achievement of the United Nations' Sustainable Development Goals 3, 4, 5, 6, 12, 13, and 15.¹⁸

B. Project Description

13. The project is aligned with the following impact: living and health conditions and well-being of residents in Hezhou improved.¹⁹ The project will have the following outcome: Kedashan's environment and Pinggui's health services improved.²⁰ The project consists of the Kedashan and Pinggui subprojects.

14. **Output 1: Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented.** Output 1, comprising the Kedashan subproject, will support nature-friendly measures to improve the environment of the Kedashan former mineral mining area, and develop the capacity to monitor the environment and pollution in the long-term. The

¹⁴ State Council of the PRC. 2016. [Outline of the Plan for Healthy China 2030](#). Beijing (in Chinese); HMG. 2018. *Healthy Hezhou 2030 Plan*. Hezhou (in Chinese); and Government of the PRC. 2021. [The Outline of the Fourteenth Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Long-Range Objectives Through the Year 2035](#). Beijing (in Chinese).

¹⁵ Government of the PRC, National Development and Reform Commission. 2020. [Circular on Accelerating the Efforts on Making up for Shortcomings and Improving Weaknesses of County Urbanization](#). Beijing (in Chinese).

¹⁶ ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

¹⁷ ADB. 2015. [Health in Asia and the Pacific: A Focused Approach to Address the Health Needs of ADB Developing Member Countries: Operational Plan for Health, 2015–2020](#). Manila; and ADB. 2021. [Country Partnership Strategy: People's Republic of China, 2021–2025—Toward High-Quality, Green Development](#). Manila.

¹⁸ United Nations. 2016. *Sustainable Development Goals*. New York.

¹⁹ HMG. 2018. *Hezhou City Environment Master Plan, 2016–2030*. Hezhou (in Chinese); and HMG. 2018. *Healthy Hezhou 2030 Plan*. Hezhou (in Chinese).

²⁰ The design and monitoring framework is in [Appendix 1](#).

output includes removal of abandoned polluting mining facilities, wastes, and tailings; restoration of damaged or exposed ground surface, including planting of trees and vegetation; construction of onsite treatment and stabilization of a plant and landfill to treat the removed mining wastes and tailings, and closure of the plant and landfill after treatment; nature-based treatment of polluted surface water; development of a long-term environment- and pollution-monitoring system in Kedashan, and commencement of monitoring; and formulation of practical guidance for nature-based improvement of Hezhou's mountain areas' environment.

15. Output 2: Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened. The output, part of the Pinggui subproject, will strengthen Hezhou's county-level institutions, working mechanisms, and stakeholders' capacities to deliver high-quality health and elderly care. For health care, the output will support the design of a practical institutional working mechanism and system to build a medical community, through which the Pinggui Workers' Hospital (PWH) will coordinate support to strengthen the quality and capacity of township and village-level primary health care; establishment of a medical community information platform at PWH, connected with Pinggui's township and village-level public medical institutions; construction of PWH, a county-level IIA general public hospital;²¹ development of administration capacity of managers and technical capacity of doctors, nurses, health-care workers, and staff of PWH to deliver high-quality services; upgrade of equipment of nine township-level hospitals to improve primary care service delivery and quality; and provision of training to build the technical capacity of township and village-level rural hospital staff to improve primary care service quality. For elderly care, the output will support the construction of PIHECC; establishment of working mechanisms and integration of medical and elderly care at PIHECC, including administration and operation capacity training for the center's administrators and managers; and development of technical capacity of PIHECC health-care staff (doctors, nurses, caregivers) to deliver high-quality services. The constructed project facilities will be green (certified as Chinese Green Building Standard [CGBS] Star-2 after operation) and inclusive (considering the needs of women, persons with disabilities [PWDs], the elderly, and ethnic minorities).²² The facilities will adopt building information modeling for lean building construction and operation and maintenance (O&M), including green procurement.

16. Output 3: Green and health care-related skills development institutions established. As part of the Pinggui subproject, the output will help Hezhou provide Pinggui residents with nondegree vocational skills development opportunities to match the latest market needs, including green and health care-related skills. To offer the required nondegree training, the government will construct the KSSC, which will be green (certified as CGBS Star-2 after operation) and inclusive (considering the needs of women, PWDs, the elderly, and ethnic minorities). The output will support an operational study to optimize training quality at the KSSC based on demand, including skills certification mechanisms, a human resource development plan, and course setting in potential collaboration with local private companies; preparation of a training plan for KSSC managers and teachers; and provision of equipment required for course and training delivery.

17. Project management activities. The project will support the executing and implementing agencies and project implementation units (PIUs) in (i) management, monitoring, and reporting of the complex multisector project; (ii) external monitoring of the implementation of safeguards and social and gender action plans; (iii) construction supervision to ensure high-quality construction;

²¹ General hospitals are classified into grades I, II, and III, based on size, facilities, and staffing. Secondary hospitals (grade II A or B) are regional hospitals that provide comprehensive medical and health services to communities and have 101–500 beds.

²² Government of the PRC, Ministry of Housing and Urban–Rural Development. 2019. [Assessment Standard for Green Buildings](#). Beijing (in Chinese).

and (iv) capacity development required for implementing environment and health care-related project components.

C. Summary of Project's Activities

18. The Kedashan subproject will produce output 1, and the Pinggui subproject will produce outputs 2 and 3. Appendix 1 summarizes all the planned project activities.

D. Kedashan's Monitoring Program

19. The specified monitoring program, Kedashan Monitoring Program, for the Kedashan subproject is in Appendix 2. This is a monitoring scheme dedicated to monitor the environmental restoration in Kedashan and separate from project-wide monitoring required in the environmental management plan (EMP) (attachment to the environmental impact assessment). The Kedashan Monitoring Program also contributes to monitoring indicators listed in the design and monitoring framework (DMF).

20. The main objective of the Kedashan Monitoring Program is to ensure the continuous monitoring of landfill site and water quality even after the loan closure because the mining waste landfill in the Kedashan area is a sensitive issue concerned by ADB and local governments. The Kedashan Monitoring Program is supported by counterpart financing (procurement package: CS-KDS-01). The Kedashan Monitoring Program is independent and distinct from environmental monitoring activities under the EMP. For example, (i) Kedashan Monitoring Program only focuses on Kedashan subproject, while the EMP covers both Pinggui and Kedashan subprojects; (ii) Kedashan Monitoring Program monitors soil, groundwater, and surface water, while the EMP will also monitor the noise, air, and safety during construction, etc.; (iii) the Kedashan Monitoring Program will collect more samples and higher monitoring frequency; (iv) the Kedashan Monitoring Program should continue until the landfill does not bring negative impact. The EMP will cover stages of design, construction, and early years of operation. The location and details of monitoring wells should be defined during preliminary design and integrated into the W-KDS-02 works package of the Kedashan subproject. The monitoring activities under EMP also cover the monitoring of wells/sites in the Kedashan Monitoring Program for further verification.

E. Quality Control Mechanism for Institutional Strengthening Activities

21. For the institutional strengthening/technical support/studies components, consultants will be recruited, contracted, and managed by two PIUs: Guangxi Hezhou Mining Investment Group Company Limited (HMIGC) and Hezhou Pinggui Urban Construction Investment Company Limited (PUCIC) (see section III for project management arrangements). Meanwhile, a working group will be established with relevant municipal level and county-level bureaus and stakeholders and will be responsible for the overall quality control of the study, outcomes review, and application of the results or recommendations. Table 1 shows an indicative working group for each technical study.

Table 1: Indicative Working Groups for Technical Studies

Name of the Component	Contract Administration	Working Group (for policy and technical guidance)
Study to formulate practical guidance for applying nature-based solutions approach on Hezhou mountain areas' environmental improvement	HMIGC	HMIGC HMG's relevant bureaus, including HNRB, HEEB, etc. Fuchuan Yao Autonomous County

Name of the Component	Contract Administration	Working Group (for policy and technical guidance)
		Government, Baisha Township Government
Designing of a practical institutional working mechanism and system to achieve a medical community (<i>Yi-gong-ti</i>)	PUCIC	PDG's relevant bureaus, including PHB, PHSB, PCAB, PHRSSB, etc. HMG's relevant bureaus, including HHB, HHSB, HCAB, HHRSSB, etc.
Pinggui Integrated Health and Elderly Care Center operation study and capacity development	PUCIC	PDG's relevant bureaus, including PHB, PHSB, PCAB, PHRSSB, etc. HMG's relevant bureaus, including HHB, HHSB, HCAB, HHRSSB, etc.
Knowledge and Skills Sharing Center operation, curriculum setting, and certification study	PUCIC	PDG's relevant bureaus, including PHRSSB, PETB, PCAB, etc. HMG's relevant bureaus, including HHRSSB, HIITB, HCAB, etc.
Human resource capacity development and training for technical and vocational training teachers	PUCIC	PDG's relevant bureaus, including PHRSSB, PETB, PCAB, etc. HMG's relevant bureaus, including HHRSSB, HIITB, HCAB, etc.

HCAB = Hezhou Civil Affairs Bureau, HEEB = Hezhou Ecology and Environment Bureau, HHRSSB = Hezhou Human Resources and Social Security Bureau, HHSB=Hezhou Healthcare Security Bureau, HIITB = Hezhou Industry and Information Technology Bureau, HMG = Hezhou Municipal Government, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HNRB = Hezhou Natural Resources Bureau, PCAB = Pinggui Civil Affairs Bureau, PDG = Pinggui District Government, PHB = Pinggui Health Bureau, PHRSSB = Pinggui Human Resources and Social Security Bureau, PHSB = Pinggui Healthcare Security Bureau, PETB = Pinggui Economy and Trade Bureau, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited.

Source: Asian Development Bank.

F. Quality Control Mechanism for Design and Construction Activities

22. The project facilities will be green (certified as CGBS Star-2 after the operation) and inclusive by considering the needs of women, PWDs, elderly, and ethnic minorities. The facilities will also adopt building information modeling for lean building construction and O&M, including green procurement. To ensure the quality of the preliminary design, construction drawing, and construction, several quality control mechanisms are proposed (Table 2).

Table 2: Indicative Quality Control Mechanism for Design and Construction Activities

Stage	Action
Engagement of design institute	HMG, HPMO, and PDG will ensure that qualified and experienced design institute is engaged. The terms of reference will include the requirements for green, inclusive design, BIM, green procurement, etc.
Preliminary design	The draft preliminary design will be reviewed by architecture expert. Design institute will hand over the BIM dataset to PIUs so that PIUs will hand over to the contractors to use it during the construction stage.
Draft bidding documents	Bidding documents should include all ADB requirements on technical and safeguards. Section VI technical specifications will be reviewed for prior review packages.
Construction supervision	Terms of reference for construction supervision will be detailed and refined during the start-up stage.
Construction	Contractors will update the BIM dataset during construction and submit it to the PIUs for later O&M usage
O&M	The O&M agency will take over the BIM dataset and use it for building maintenance and management

ADB = Asian Development Bank, BIM = building information modeling, HMG = Hezhou Municipal Government, HPMO

= Hezhou project management office, O&M = operation and maintenance, PDG = Pinggui District Government.
Source: ADB.

G. Capacity Building Activities

23. **Annual updating of the capacity development plans.** Capacity building activities, such as cost for training, study tours, and workshop, do not appear as procurement or consulting packages. Therefore, the capacity development plan needs to be formulated in advance and submitted to ADB for approval before the activity takes place. The draft capacity development plan is in **Appendix 3**. ADB requests that Hezhou project management office (HPMO), HMIGC, and Pinggui District Government (PDG) with PUCIC prepare an annual capacity development plan; and that HPMO (with support from project management and implementation support consultant [PMISC]) to review, approve, and consolidate all the parties' annual plan and submit it to ADB by 5 January each year. If there are any changes and updates in the annual capacity development plan, HPMO, HMIGC, and PDG with PUCIC, will inform ADB through HPMO. The suggested timing of the capacity development plan preparation and submission is in Table 3.

Table 3: Timing of the Capacity Development Plan Preparation and Submission

Plan No.	Period Covered	Implementing Agencies' Submission to HPMO	HPMO's Submission to ADB After Review
CDP-2022	Feb 2022–Feb 2023	31 December 2021	15 January 2022
CDP-2023	Feb 2023–Feb 2024	31 December 2022	15 January 2023
CDP-2024	Feb 2024–Feb 2025	31 December 2023	15 January 2024
CDP-2025	Feb 2025–Feb 2026	31 December 2024	15 January 2025
CDP-2026	Feb 2026–Feb 2027	31 December 2025	15 January 2026
CDP-2027	Feb 2027–Jun 2028	31 December 2026	15 January 2027

ADB = Asian Development Bank, CDP = capacity development plan, HPMO = Hezhou project management office.
Source: ADB.

24. **Detailed capacity development activities plan (before the activities).** Because the activities described in the annual capacity development plan will still be generic, ADB requests (i) HPMO, (ii) HMIGC, and (iii) PDG with PUCIC to develop a detailed activity plan for each activity. HPMO (with the support of PMISC) will review, ensure the quality, and send the detailed capacity development activities plan to ADB to obtain the ADB's prior approval 3 weeks before the start of the activity. Upon ADB's approval, implementing agencies may proceed to organize and implement the activity and claim the approved costs against the ADB loan. HPMO, with the support of PMISC, will develop a template, and the items to be included in each detailed capacity building activities plan are:

- (i) detailed description of the activity,
- (ii) delivery method,
- (iii) timing and duration,
- (iv) location of the activity,
- (v) specific target group,
- (vi) expected outputs and deliverables,
- (vii) budget details (cost breakdown),
- (viii) agenda or program of the activities or training, and
- (ix) planned list of participants.

25. **During and after the capacity development activities.** During the activities, HPMO, HMIGC, and PDG with PUCIC will ensure that good records of the activities are kept for later reporting of the following:

- (i) list of actual participants with gender segregation (how many female and male participants, etc.);

- (ii) detailed reports of the training; and
- (iii) evaluation of the training from the participants.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 4: Project Readiness Activities

Indicative Activities	2021								2022							Responsible Unit/ Government Agency
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
Management-level readiness activities																
FSR submission and approval																HMG, HPMO
FCUP preparation and submission																HMG, HPMO
FCUP approval																GZARDRC
ADB management review meeting																ADB
Loan negotiation/technical discussion																ADB, MOF, GZARG, HMG
PIU's project implementation budget inclusion																HMIGC, PUCIC
ADB Board consideration and approval																ADB
Loan signing																ADB, MOF, GZARG, HMG
Finalization of relending and onlending agreements																MOF, GZARG, HMG, HMIGC, PDG, PUCIC
Government legal opinion provided																MOF, GZARG, HMG
Loan effectiveness																ADB, MOF
Advance account opening																MOF, GZARFD
Submit first withdrawal application to ADB																GZARFD
Project level readiness activities																
Advance contracting/retroactive financing actions																HMG, HPMO, HMIGC, PDG, PUCIC
Establish project implementation arrangements																HMG, HPMO, HMIGC, PDG, PUCIC
Finalize TOR for start-up consultants																HPMO
Recruitment of procurement agent (domestic fund)																HPMO, HMIGC, PUCIC
Recruitment of design institutes (domestic fund)																HPMO, HMIGC, PUCIC
Recruitment of start-up consultants																HPMO
Preparation of preliminary design																Design institutes, HPMO, HMIGC, PUCIC
Bidding documents commercial parts ready																HPMO, HMIGC, PUCIC
Start-up consultants start project support																HPMO
Detailed design and construction drawings ready																Design institutes, HPMO, HMIGC, PUCIC
Bidding documents technical sections ready																Design institutes, HPMO, HMIGC, PUCIC
Recruit PMISC																HPMO
Recruit construction supervision																HPMO
Bidding for first works packages starts																HMIGC, PUCIC, HPMO, procurement agent

ADB = Asian Development Bank, FCUP = foreign capital utilization plan, FSR = feasibility study report, GZARDRC = Guangxi Zhuang Autonomous Region Development and Reform Commission, GZARFD = Guangxi Zhuang Autonomous Region Finance Department, GZARG = Guangxi Zhuang Autonomous Region Government, HMG = Hezhou Municipal Government, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, MOF = Ministry of Finance, PDG = Pinggui District Government, PIU = project implementation unit, PMISC = project management and implementation support consultant, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited, TOR = terms of reference.

Source: ADB.

Activity	Start (mm/yy)	Duration (months)	End (mm/yy)	2021				2022				2023				2024				2025				2026				2027			
				3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Recruitment process and contract award	06/22	4	10/22																												
Implementation of study activities	10/22	12	10/23																												
2h. Human resource development and staff training for Pinggui Integrated Health and Elderly Care Center																															
Conduct training activities	11/23	36	11/26																												
2i. Provide medical equipment at township hospitals																															
Demand analysis and design	10/21	4	02/22																												
Bidding documents preparation	02/22	4	06/22																												
Procurement and contract award	06/22	6	12/23																												
Contract implementation	01/23	12	01/24																												
2j. Medical staff training at township and village-level																															
Conduct training activities	07/22	66	12/27																												
Output 3: Green and health care-related skills development institutions established																															
3a. Knowledge and Skills Share Center construction (counterpart-financed)																															
Land acquisition	01/22	10	11/22																												
Preliminary design and construction drawings	05/22	6	11/22																												
Bidding documents preparation	11/22	4	03/23																												
Procurement and contract award	03/23	4	07/23																												
Contract implementation	08/23	36	07/26																												
Works completion and acceptance	08/26	3	11/26																												
Operation and maintenance	12/25	-	-																												
3b. Knowledge and Skills Share Center operation, curriculum development, and certification study																															
TOR preparation	07/24	3	10/24																												
Recruitment process and contract award	11/24	6	04/25																												
Implementation of study activities	04/25	12	04/26																												
3c. Knowledge and Skills Share Center teacher human resource development and training																															
TOR preparation	02/25	3	05/25																												
Recruitment process and contract award	06/25	6	12/25																												
Implementation of study activities	01/26	33	12/27																												
3d. Knowledge and Skills Share Center training equipment																															
Demand research and analysis	12/24	3	02/25																												
Design and market research	12/24	3	02/25																												
Bidding documents preparation	02/25	3	05/25																												
Procurement and contract award	05/25	6	11/25																												
Completion and acceptance	12/25	12	12/26																												
Operation and maintenance	12/25	-	-																												
B. Management Activities																															
B1. Start-up support consultants																															
TOR preparation	09/21	1	10/21																												
Recruitment process and contract award	10/21	4	02/22																												
Implementation of tasks	02/22	8	10/22																												

Activity	Start (mm/yy)	Duration (months)	End (mm/yy)	2021				2022				2023				2024				2025				2026				2027			
				3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
B2. Project management and implementation support																															
TOR preparation	09/21	4	01/22																												
Recruitment process and contract award	01/22	7	08/22																												
Implementation of tasks	09/22	64	12/27																												
B3. Construction supervision																															
TOR preparation	09/21	5	02/22																												
Recruitment process and contract award	02/22	7	09/22																												
Implementation of tasks	10/22	64	12/27																												
B4. External monitoring (EMP, LURTP, Resettlement DDR, EMDP, SGAP)																															
TOR preparation	09/21	2	04/22																												
Recruitment process and contract award (3 separate packages)	01/22	9	10/22																												
Implementation of tasks	07/22	66	12/27																												
B5. Study tours, workshops, and training																															
Conduct study tours, workshops, and training	02/22	68	12/27																												
B6. ADB review missions																															
Regular review missions	05/22	-	11/27																												
Midterm review mission	05/24	-	05/24																												
B7. Project completion																															
Executing agency's project completion report	10/27	3	12/27																												

DDR = due diligence report, EMDP = ethnic minority development plan, EMP = environment management plan, mm = month, LURTP = land use rights transfer plan, SGAP = social and gender action plan, TOR = terms of reference, yy = year.

Source: Asian Development Bank.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

27. The Hezhou Municipal Government (HMG) is the executing agency. A municipal level project leading group (PLG) was established to provide oversight and coordination among government agencies and guidance for all projects financed by international financial institutions (IFIs), including ADB financed projects.²³ The PLG is co-chaired by the party secretary of the Communist Party of China Hezhou Committee and the Mayor of HMG, with representatives from Hezhou Development and Reform Commission (HDRC), Hezhou Finance Bureau (HFB), Hezhou Natural Resources Bureau, Hezhou Housing and Urban-Rural Development Bureau, Pinggui District Government (PDG), Guangxi Hezhou Mining Investment Group Company Limited (HMIGC), and other relevant government agencies. Under the leadership of Hezhou PLG, the Hezhou project management office (HPMO) was established in HDRC to carry out the daily operation to manage and coordinate the project. HPMO is designated as the only office to work with IFIs on behalf of HMG.

28. The two project implementing agencies are HMIGC and PDG. HMIGC is the implementing agency, PIU, and end-borrower for the Kedashan subproject. A PLG was established in HMIGC for inter-departmental coordination. As PIU for the Kedashan subproject, HMIGC is responsible for all the project implementation aspects. PDG is the implementing agency for the Pinggui subproject. PDG established a county-level PLG for government interagency coordination during project preparation and implementation. Under the leadership of Pinggui PLG, Pinggui PMO is established in Pinggui Development and Reform Bureau (PDRB) to carry out the coordination for the Pinggui subproject. PUCIC is designated as PIU and end-borrower for Pinggui subproject under PDG, responsible for the daily operation and management during the implementation of all components under the Pinggui subproject.

29. The overall implementation roles and responsibilities are summarized in Table 6, and each PMO and PIU detail is provided in Section III C.

Table 6: Project Implementation Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
1. Project Execution	
Executing agency HMG	<ul style="list-style-type: none"> • Provide overall management, guidance, and take responsibility for carrying out the project • Ensure counterpart contributions are provided for project implementation on time • Provide coordination and policy support at the municipal level
Hezhou PLG	<ul style="list-style-type: none"> • Chaired by the Mayor and consists of members from HDRC, HFB, and other relevant government agencies • Provide government interagency coordination to facilitate project preparation and implementation • Allocate necessary resources for the project • Report to provincial and upper authorities for project supports
2. Project Coordination and Supervision	
HPMO (under Hezhou PLG leadership, in HDRC)	<ul style="list-style-type: none"> • Responsible for project management and implementation, including coordination with HCAB, HDRC, HFB, HHB, HHRSSB, implementing

²³ The PLG was established in August 2016 and updated the members and responsibility in December 2017.

Project Implementation Organizations	Management Roles and Responsibilities
	<p>agencies, and other relevant agencies, progress monitoring, procurement supervision, and coordination of project report preparation, technical support, and capacity building</p> <ul style="list-style-type: none"> • Guide implementing agencies to prepare, review, and summarize annual fund use plan, procurement plan, and domestic and overseas study visits and training plan • Organize recruitment of procurement agent • Report the progress of project implementation and compliance monitoring to ADB • Review and summarize the project loan disbursement requests and submit to HFB • Coordinate with relevant bureaus at the municipality level for reviewing and commenting on technical issues and study deliverables prepared by implementing agencies and PIUs • Submit required annual audit reports and financial statements of project account of HMG and project implementing agencies to ADB • Coordinate consulting services recruitment at the municipal level by (i) preparing terms of reference for project management, construction supervision, procurement agency, and external monitoring entities for monitoring and evaluation of EMP, LURTP, resettlement DDR, EMDP, and SGAP implementation; and (ii) processing recruitment of consulting firms • Ensure the project will be implemented in accordance with ADB's safeguards policy • Coordinate and recruit relevant experts to provide advice to implementing agencies and PIUs on technology, quality control, and project management • Submit bidding documents, bid evaluation reports, and other necessary documentation to ADB for necessary prior or post review approval • Coordinate the approval of detailed engineering design and capacity development plans • Implement project construction supervision through a consulting firm to ensure the project complies with design standards and green and human-centered building principles • Coordinate and assist ADB and relevant domestic agencies to conduct a review of project progress and performance • Liaise with ADB on all project problems and issues, including obtaining ADB approvals required for the project • Assist ADB or its authorized representatives to visit, inspect, and evaluate the project and review the retention records and documents of the implementing agencies • Update procurement plan on a regular basis • Coordinate and implement project performance evaluation, and disseminate the project experiences, lessons learned, and knowledge gained • Perform other relevant coordination activities
GZARFD	<ul style="list-style-type: none"> • MOF will relend the loan to GZARFD, and GZARFD will onlend to HFB/HMG • Responsible for opening and operation of the advance account, submission of the withdrawal applications to ADB, and use the advance account for HMG's reimbursement for ADB financed portion • Responsible for any required liaison with the MOF

Project Implementation Organizations	Management Roles and Responsibilities
HFB	<ul style="list-style-type: none"> • GZARFD will onlend the loan to HFB, and HFB will onlend to two implementing agencies • Responsible for reimbursement and supervision of HMG and implementing agencies for full repayment of the loan • On behalf of HMG, establish, maintain, and administer the project's designated account • Establish rules and regulations of financial administration and accounting guidelines, guide the implementing agencies in drafting respective project financial management manual, and provide relevant guidance, training, and supervision for PIUs and PDG financial bureau • Implement and supervise capital use, expenditures, breakdown of liabilities, and repayment • Review and manage loan capital disbursement, and summarize disbursement request and submission • Review and endorse the ADB loan withdrawal applications prepared by the implementing agencies before submitting them to GZARFD • Communicate and coordinate with ADB through HPMO on relevant financial administration issues • Organize and cooperate with relevant departments for inspection and audit • Organize financial appraisal for project scope change, if necessary • Conduct other obligations of financial bureaus at the municipal level in accordance with national and municipal rules and regulations
3. Project Implementation	
HMIGC (Implementing agency and end borrower)	<ul style="list-style-type: none"> • Implement the Kedashan subproject and timely provide the necessary counterpart funding and repayment of the loan • Provide overall project management and coordination for the subproject • Provide coordination and liaison with HPMO and other upper governing authorities for the subproject
HMIGC-PLG	<ul style="list-style-type: none"> • Within HMIGC and chaired by the company general manager with representatives from relevant departments in HMIGC • Provide company inter-department coordination and support for subproject preparation and implementation • Allocate resources for the subproject
HMIGC (PIU) <ul style="list-style-type: none"> • Officers from Fuchuan Yao Autonomous County and Baisha Township are assigned to be members of PIU for resettlement coordination and implementation 	<ul style="list-style-type: none"> • Implement the Kedashan subproject (output 1) • Responsible for the day-to-day project management and coordination for the Kedashan subproject • Carry out procurement, signing, and awarding of contracts for all works and goods packages for the Kedashan subproject • Responsible for Kedashan subproject's construction management, equipment installation, contract management, quality control, measurement, and payments • Manage the Kedashan subproject, and prepare and submit inputs to project progress reports, monitoring reports, auditing reports, etc. • Coordinate with HPMO and implement capacity building activities for HMIGC staff • Take responsibility for project accounting and financial management; and prepare specific financial management manual following HFB guidance • Submit to ADB the annual entity financial statement • Ensure quality in project activities necessary to meet objectives

Project Implementation Organizations	Management Roles and Responsibilities
	<ul style="list-style-type: none"> • Coordinate EMP, LURTP, EMDP implementation relating to Kedashan subproject • Take actions needed to implement the agreed SGAP • Establish and maintain PIU-level project monitoring systems and report to HPMO • Prepare withdrawal applications for submission to the HFB through HPMO for ADB financed portion • For non-ADB financed portion, pay from own account • Carry out all safeguards requirements and SGAP for Kedashan subproject following ADB requirements and guidance from HPMO
PDG (Implementing agency)	<ul style="list-style-type: none"> • Implement the Pinggui subproject and provide counterpart funding • Provide overall management and guidance for the subproject • Coordinate with upper government authorities for the subproject • Coordinate among PDG bureaus
PDG-PLG (under PDG)	<ul style="list-style-type: none"> • Chaired by the district mayor with representatives from district government bureaus • Provide government interagency coordination to facilitate project preparation and implementation • Coordinate resources and support for the subproject • Liaise with upper authorities in different divisions such as financial, development and reform, health, natural resources, human resource and social security, construction, etc.
Pinggui PMO (under PDG-PLG leadership, in PDRB) • Officers from PCAB, PHB, and PHRSSB are assigned to be members of Pinggui PMO for guiding the technical aspects of health, elderly, and skills-related components	<ul style="list-style-type: none"> • Implement the principles, policies, and tasks for the project • Comprehensively manage Pinggui subproject • Formulate the work plan and relevant implementation plan • Ensure timely reporting to the PDG-PLG on the usage of foreign loans and the progress of the Pinggui subproject • Coordinate with relevant bureaus and address project-related problems, if any
PUCIC (PIU and end-borrower)	<ul style="list-style-type: none"> • Implement the Pinggui subproject and timely provide necessary counterpart funding and repayment of the loan • Responsible for the day-to-day project management and coordination for the Pinggui subproject (outputs 2 and 3) • Carry out procurement, signing, and awarding of contracts for all works and goods packages for the Pinggui subproject • Responsible for Pinggui subproject's construction management, equipment installation, contract management, quality control, measurement, and payments • Manage the Pinggui subproject, and prepare and submit inputs to project progress reports, monitoring reports, auditing reports, etc. • Coordinate with HPMO and implement capacity building activities for PDG and PUCIC staff • Take responsibility for project accounting and financial management; and prepare specific financial management manual following HFB guidance • Submit to ADB the annual entity financial statement

Project Implementation Organizations	Management Roles and Responsibilities
	<ul style="list-style-type: none"> • Ensure quality in project activities necessary to meet objectives • Coordinate EMP, resettlement DDR-related actions, and EMDP implementation relating to Pinggui subproject • Take actions needed to implement the agreed SGAP • Establish and maintain PIU-level project monitoring systems and report to HPMO • Prepare withdrawal applications for submission to the HFB through HPMO for ADB financed portion • For non-ADB financed portion, pay from own account • Carry out all safeguards requirements and SGAP for Pinggui subproject following ADB requirements and guidance from HPMO
4. ADB Supervision	
ADB	<ul style="list-style-type: none"> • Support project implementation, including executing and implementing agencies' compliance with obligation and responsibilities in accordance with ADB's policies and procedures • Provide guidance and interpretation of ADB policies and procedures for project preparation and implementation • Communicate with HPMO, GZAR departments, MOF, and NDRC to support the project

ADB = Asian Development Bank, DDR = due diligence report, EMDP = ethnic minority development plan, EMP = environmental management plan, GZAR = Guangxi Zhuang Autonomous Region, GZARFD = Guangxi Zhuang Autonomous Region Finance Department, HCAB = Hezhou Civil Affairs Bureau, HDRC = Hezhou Development and Reform Commission, HFB = Hezhou Finance Bureau, HHB = Hezhou Health Bureau, HHRSSB = Hezhou Human Resource and Social Security Bureau, HMG = Hezhou Municipal Government, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, LURTP = land use rights transfer plan, MOF = Ministry of Finance, NDRC = National Development and Reform Commission, PCAB = Pinggui Civil Affairs Bureau, PDG = Pinggui District Government, PDRB = Pinggui Development and Reform Bureau, PHB = Pinggui Health Bureau, PHRSSB = Pinggui Human Resource and Social Security Bureau, PIU = project implementation unit, PLG = project leading group, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited, SGAP = social and gender action plan.

Source: ADB.

B. Key Persons Involved in Implementation

Executing Agency

Hezhou Municipal Government

Officer's Name: LIU Hongjun

Position: Vice Mayor

Telephone: +86 774 5669278

Email address: hzsfqwxmb@163.com

Office Address: No. 1, Hezhou Avenue, Babu District, Hezhou City

Hezhou Project Management
Office

Officer's Name: WEN Jing

Position: Director

Telephone: +86 774 5669278

Email address: hzsfqwxmb@163.com

Office Address: No. 3, East Construction Road, Babu District, Hezhou City

Hezhou Development and
Reform Commission

Officer's Name: WU Dongfei

Position: Director

Telephone: +86 774 5135920

Email address: hzfgw@126.com

Office Address: No. 221, Jiangbei Middle Road, Babu District, Hezhou City

Hezhou Finance Bureau

Officer's Name: GU Peilin

Position: Director

Telephone: +86 774 5135501

Email address: hzcz5501@126.com

Office Address: No. 5, Hezhou Avenue, Babu District, Hezhou City

Implementing Agencies

Guangxi Hezhou Mining
Investment Group Company
Limited

Officer's Name: ZHU Yifang

Position: Chairman of the Board

Telephone: +86 774 3303382

Email address: hzktgs@163.com

Office Address: No. 155, Taibai West Road, Babu District, Hezhou City

Pinggui District Government

Officer's Name: ZHOU Cheng

Position: District Governor

Telephone: +86 774 8836833

Email address: hzspgqzfb@163.com

Office Address: No.1 Pinggui Avenue, Pinggui District, Hezhou City

Project Implementation Units

Guangxi Hezhou Mining
Investment Group Company
Limited

Officer's Name: ZHU Yifang
Position: Chairman of the Board
Telephone: +86 774 3303382
Email address: hzktgs@163.com
Office Address: No. 155, Taibai West Road, Babu District,
Hezhou City

Hezhou Pinggui Urban
Construction Investment
Company Limited

Officer's Name: HUANG Chunmei
Position: Chairman
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Email address: pgct8835252@163.com
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Asian Development Bank
East Asia Department

Staff Name: Asif CHEEMA
Position: Director, Urban and Social Sectors Division
Telephone No.: +63 2 8632 5340
Email address: acheema@adb.org

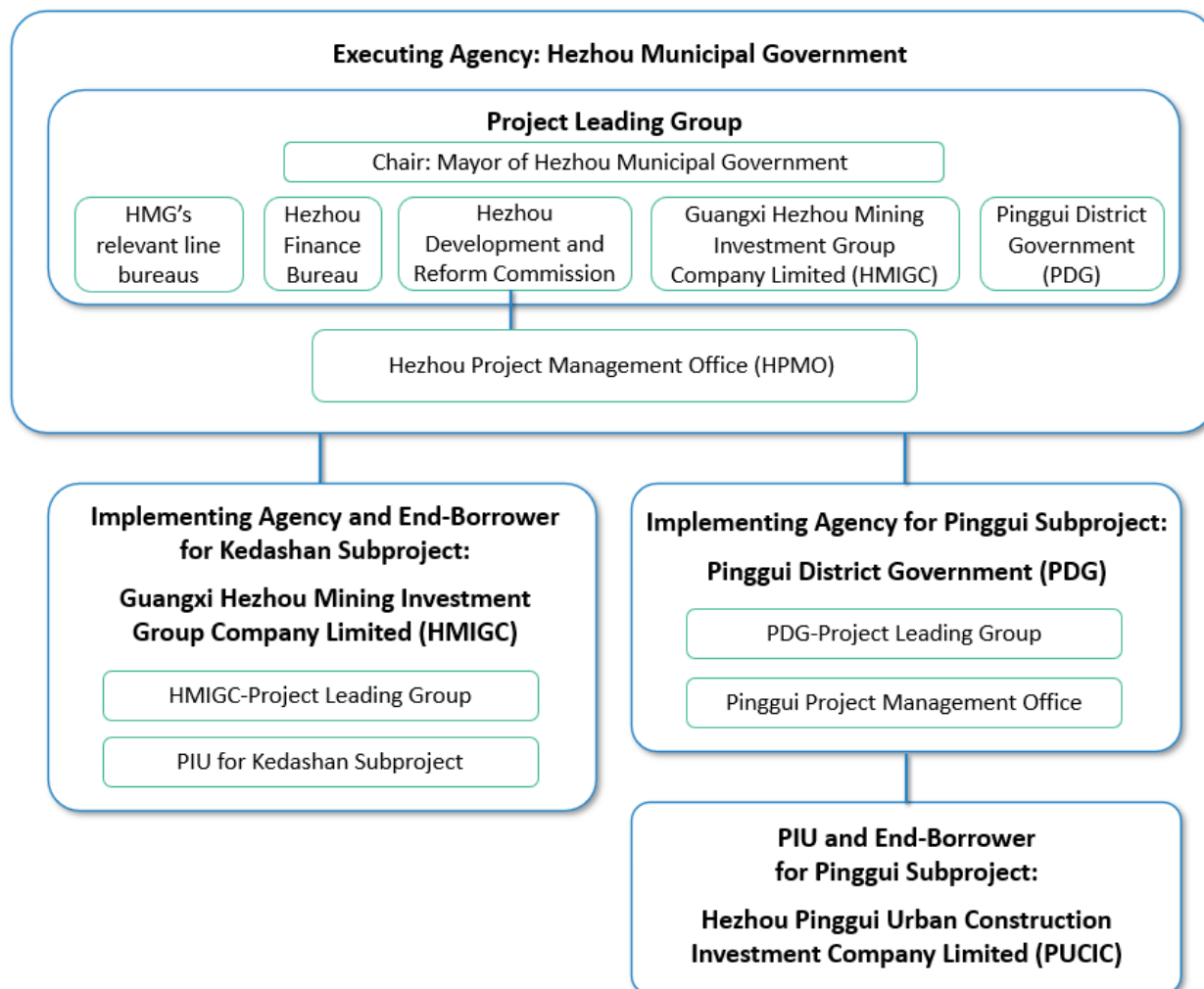
Mission Leader

Staff Name: MARUYAMA Hinako
Position: Senior Urban Development Specialist, Urban
and Social Sectors Division
Telephone No.: +86 10 8573 0832
Email address: hinakomaruyama@adb.org

C. Project Organization Structure

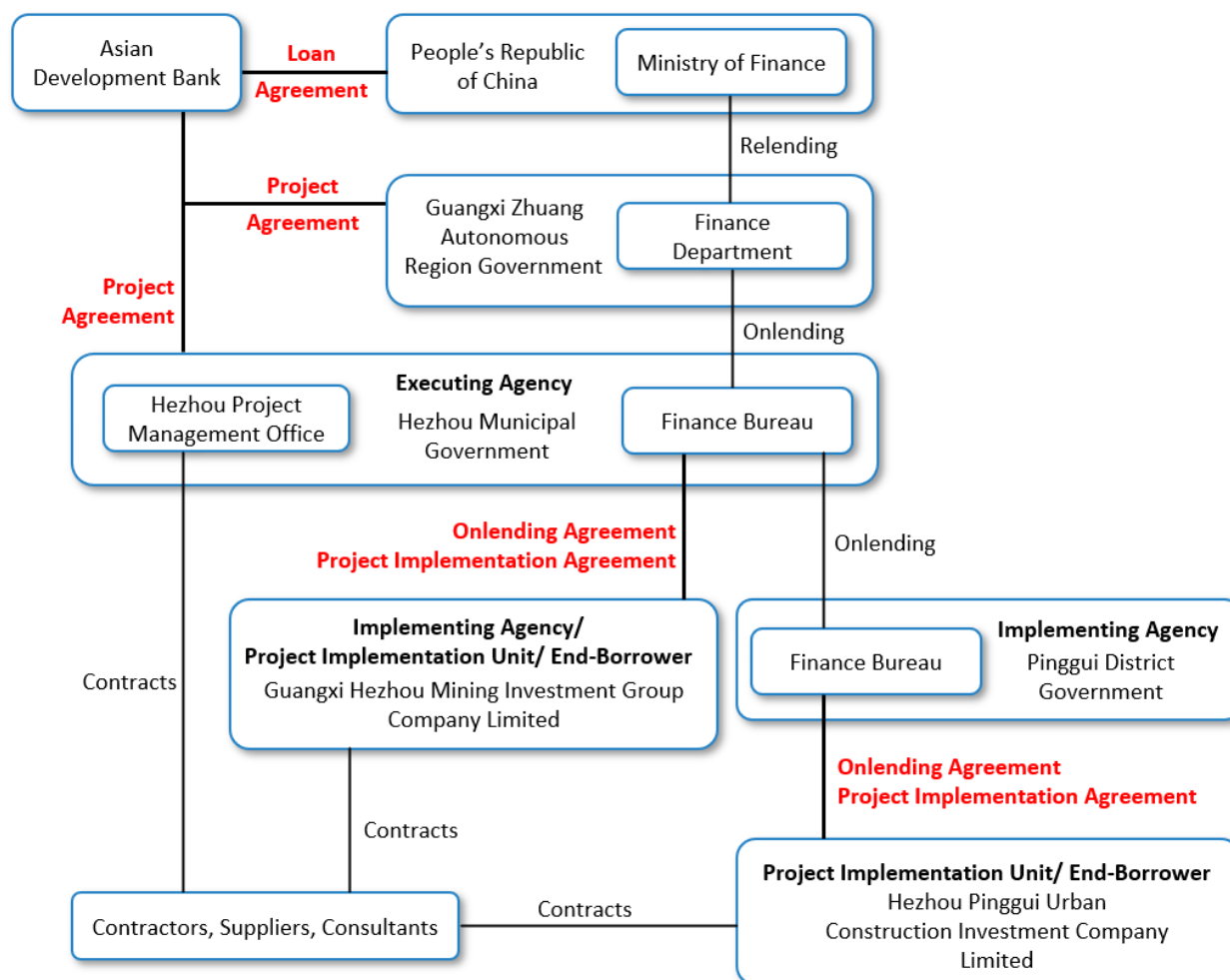
30. The project organization structure is shown in Figure 1, and the project's contractual arrangements showing parties to enter agreements or sign contracts is shown in Figure 2. For the technical support/studies components, consultants will be recruited, contracted, and managed by HMIGC and PUCIC for administration. Meanwhile, at the HMG level, a working group will be established with relevant bureaus/stakeholders and will be responsible for the overall quality control of the study, outcomes review, and application of the results or recommendations.

Figure 1: Project Organization Structure



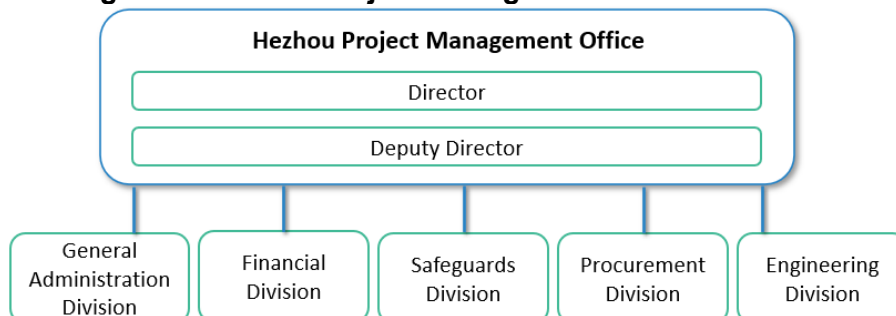
HMG = Hezhou Municipal Government, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, PDG = Pinggui District Government, PIU = project implementation unit, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited.

Source: Asian Development Bank.

Figure 2: Project Contractual Arrangements

Source: Asian Development Bank.

31. **Structure and members of Hezhou Project Management Office.** The deputy director HDRC is appointed as the director of HPMO, and a representative of HFB is appointed as the deputy director of HPMO. Other staff in the HPMO are recruited or transferred from relevant bureaus or departments, and all of them are working full-time as HPMO staff. The HPMO consists of general administration, financial, safeguards, procurement, and engineering divisions. Figure 3 shows the structure of HPMO.

Figure 3: Hezhou Project Management Office Structure

Source: Asian Development Bank.

32. The roles and responsibilities of the five divisions are in Table 7. As of July 2021, HPMO has 13 members, including the director and deputy director. As of July 2021, three HPMO staff are working full-time for this project (with multiple roles), while others are also working on other ongoing IFI projects. Table 8 shows the HPMO staff assigned to this project.

Table 7: Roles and Responsibilities of Hezhou Project Management Office Division

Division	Roles and responsibilities
General Administration Division (8 staff)	<ul style="list-style-type: none"> • Administrative affairs management and coordination with ADB, HPMO, consultants, other relevant government departments, and other agencies; • Office daily management, system management, capacity building, project promotion, and report drafting; • Liaison and management of external translation agencies to translate project documents and emails; • Filing and management of all electronic and paper documents; and • Meeting support and assistant to other divisions.
Financial Division (2 staff)	<ul style="list-style-type: none"> • Financial management: cost estimation, financial reporting and statement preparation, as well as accounting and auditing; • Prepare disbursement tracking and forecast; • Prepare and submit annual payment plan according to the annual project implementation plan, and application of domestic counterpart funds from the financial department; • Project payment withdrawal and supporting documents review; • Cooperate with the financial department in the repayment of loan funds; and • Asset management and assistance with assets transfer.
Safeguards Division (3 staff)	<ul style="list-style-type: none"> • Project progress in safeguard review and reporting; • Work with the consulting teams in updating the environmental impact assessment, as well as implementing and monitoring of environmental management plan; • Implement and monitor land acquisition and resettlement activities; • Prepare land use rights transfer plan in line with the land use rights transfer framework, and work with the local government agencies in implementation and monitoring of the land use rights transfer plan; • Conduct public consultation and establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns and grievances; and • Monitor the implementation progress of the social and gender action plan.
Procurement Division (2 staff)	<ul style="list-style-type: none"> • Coordinate the overall procurement tasks of the project and provide guidance to the PIUs to carry out procurement; • Prepare and update the procurement plan; • Participate in the preparation and review of the terms of references, and contract negotiation and award; and • Contract management.
Engineering Division (5 staff)	<ul style="list-style-type: none"> • Formulate the work plan and related implementation plans for projects financed by foreign loan in the city and organize the preliminary preparations for specific projects; • Responsible for the design, construction, supervision and management, engineering measurement and preparation of payment materials; • Coordinate and manage the project construction site, design changes review, and approval of change orders from contractors; • Supervise construction progress and quality of works, and of the installation and commissioning of the goods;

Division	Roles and responsibilities
	<ul style="list-style-type: none"> Construction site safety management, and supervision of the construction and supervision units to carry out related work in accordance with the environmental management plan; and Prepare the project phase acceptance and completion acceptance.

ADB = Asian Development Bank, HPMO = Hezhou project management office, PIU = project implementation unit.
Source: ADB.

Table 8: Responsible Hezhou Project Management Office Persons and Roles for the Project (July 2021)

Position	Name (initials)	Gender	Working on this project full-time?
Director	WJ	Female	No
Deputy Director	HY	Female	No
Project implementation, performance monitoring	LY1	Female	Yes
Procurement/contract management (engineering, goods) (including, the role as green procurement focal)			
Procurement/contract management (consulting services)			
Financial management	CH	Male	No
Accounting	LZ	Female	No
Communication and interpretation with ADB	LY2	Female	Yes
Social and gender specialist	XF	Female	Yes
Environmental safeguards ^a			
Involuntary resettlement safeguards			
Ethnic minorities specialist			
Engineering	LX	Male	No
General management	LZ	Male	No

^a As of July 2021, all four tasks are being done by one person. After the project is approved, a full-time environmental officer will be assigned.

ADB = Asian Development Bank.

Source: Hezhou project management office.

33. **Organization structure for Kedashan Subproject implementation.** The HMIGC is the implementing agency and end-borrower for the Kedashan subproject and it has established a PLG and PIU for the project. The PLG is chaired by the HMIGC general manager and consists of representatives from key HMIGC departments. The PIU has seven divisions, and each division has team leader and deputy team leader. All PIU staff are full-time staff of HMIGC. The divisions' roles and responsibilities for the project is in Table 9, and responsible persons are in Table 10. To accommodate the land acquisition and resettlement, especially to handle the land use rights transfer in Kedashan, one resettlement officer from Fuchuan Yao Autonomous County Government and Baisha Township Government each are assigned to work closely with HMIGC for the project.

Table 9: Roles and Responsibilities of Project Implementation Unit of Guangxi Hezhou Mining Investment Group Company Limited

Division	Roles and Responsibilities
Project coordination	<ul style="list-style-type: none"> Liaise between HPMO, relevant municipal departments, design institutes, environmental assessment preparation agency, and social assessment preparation agency
Project implementation	<ul style="list-style-type: none"> Overall management of the entire project implementation process; Organize the formulation of project management systems for project implementation;

Division	Roles and Responsibilities
	<ul style="list-style-type: none"> • Monitor contractors' performance to ensure smooth project implementation against contractors' contract terms; • Manage project procurement; • Organize the preparation of project implementation plan and construction organization design; • Handle engineering design changes and budgetary adjustments; • Construction inspection, measurement, and payment, etc.
Contract management	<ul style="list-style-type: none"> • Formulate contract management process; • Draft contract, review relevant legal clauses, and manage file and records; • Provide legal support for project decision-making; • Participate in project investment and bidding, etc.
Financial Management	<ul style="list-style-type: none"> • Process financing of project counterpart funds, payment application, and payment; • Handle ADB loan funds withdrawal application and disbursement process
Environmental and resettlement safeguards, and social and gender	<ul style="list-style-type: none"> • Implement and monitor the environmental management plan, LURTP, resettlement DDR, ethnic minority development plan, and social and gender action plan during project implementation
Project support	<ul style="list-style-type: none"> • transportation, catering, accommodation arrangements of the relevant personnel involved in the project, and other logistics work of the project
Project supervision	<ul style="list-style-type: none"> • project supervision to ensure project progress and quality

ADB = Asian Development Bank, DDR = due diligence report, HPMO = Hezhou project management office, LURTP = land use rights transfer plan.

Source: ADB.

Table 10: Responsible Persons and Roles for the Kedashan Subproject under Project Implementation Unit of Guangxi Hezhou Mining Investment Group Company Limited (July 2021)

Position	Name (initials)	Gender	Working on this project full-time?
Director	ZD	Male	No
Deputy Director	HZ	Male	No
Project implementation, performance monitoring	LY	Male	No
Procurement/contract management (engineering, goods)			
Engineering			
Environmental safeguards ^a			
Financial management	PY	Female	No
Accounting	CY	Female	No
Communication and interpretation with ADB	MK	Male	No
Procurement/contract management (consulting services)	ZX	Male	No
Social and gender specialist	QP	Male	No
Involuntary resettlement safeguards	ZL	Male	No
Ethnic minorities safeguards	HJ	Male	No
General management	SJ	Male	No

^a As of July 2021, all four tasks are being done by one person. After the project is approved, a full-time environmental officer will be assigned.

ADB = Asian Development Bank.

Source: Hezhou project management office.

34. **Organization structure for Pinggui subproject implementation.** The Pinggui PLG is chaired by the Pinggui district mayor and consists of deputy district mayor, representatives from relevant district government agencies, including Pinggui Finance Bureau, Pinggui Development

and Reform Bureau (PDRB), Pinggui Health Bureau, Pinggui Civil Affairs Bureau, and Pinggui Human Resource and Social Security Bureau. The representative from Pinggui Human Resource and Social Security Bureau who understands the skills development demands from people and industries will be the focal person for Knowledge and Skills Sharing Center aspects. Table 11 shows the responsible persons assigned to this project as of July 2021.

Table 11: Responsible Persons and Roles for the Pinggui Subproject under Pinggui District Government (July 2021)

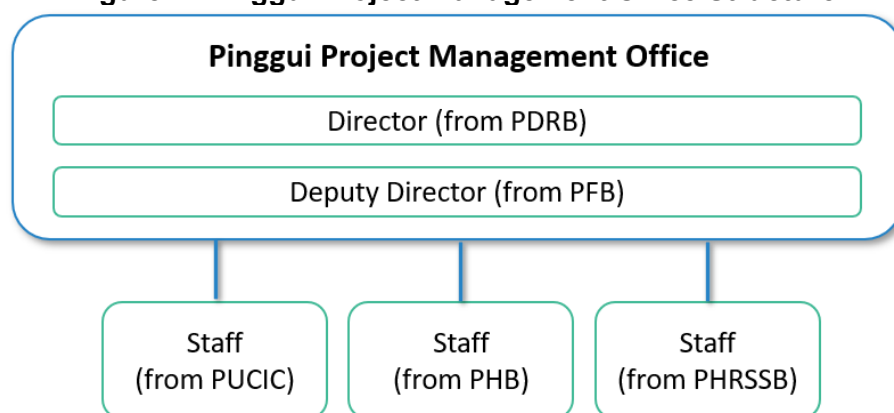
Position	Name (initials)	Gender	Working on this project full-time?
District Mayor	ZC	Male	No
Deputy District Mayor	WH	Female	No
Pinggui Development and Reform Bureau	LX	Female	No
Pinggui PMO	LF	Female	Yes
Pinggui Health Bureau representative for health-related components	TH	Male	No
Pinggui Civil Affairs Bureau focal point for elderly care-related components	MZ	Male	No
Pinggui Human Resource and Social Security Bureau representative for skills development components	YC	Male	No
Financial management	HG	Male	No
Accounting	PY	Male	No

PMO = project management office.

Source: Hezhou project management office.

35. The deputy director of PDRB is appointed as the director of the Pinggui PMO (Figure 4). Staff from PDRB will be responsible for the overall management and coordination of each role in the Pinggui PMO. An officer from the Pinggui Health Bureau who is familiar with the overall health- and elderly-care systems and updates will be the focal person for the health-related components and responsible for the internal quality control of the health-related components. An officer from Pinggui Civil Affairs Bureau who understands *dibao* (subsistence allowance), disability, and elderly-care insurance aspects will be the focal person for the health and elderly care-related components. An officer from PUCIC will be responsible for the engineering management of all components under the Pinggui subproject.

Figure 4: Pinggui Project Management Office Structure



PDRB = Pinggui Development and Reform Bureau, PFB = Pinggui Finance Bureau, PHB = Pinggui Health Bureau, PHRSSB = Pinggui Human Resource and Social Security Bureau, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited.

Source: Asian Development Bank.

36. The PIU and end-borrower for Pinggui subproject is PUCIC. PUCIC's No. 2 Project Department, with 8 full-time staff, is responsible for implementing the management and construction of the Pinggui subproject. PUCIC's Legal Department and Accounting and Finance Department are also involved. Table 12 shows responsible persons in PUCIC PIU.

Table 12: Responsible Persons and Roles for the Pinggui Subproject under Project Implementation Unit of Hezhou Pinggui Urban Construction Investment Company Limited (July 2021)

Position	Name (initials)	Gender	Working on this project full-time?
Director	HC	Female	No
Deputy Director	CH	Male	No
Project implementation, performance monitoring	CX	Female	No
Social and gender action			
Environmental safeguards ^a			
Procurement/contract management (engineering, goods)	GT	Female	No
Engineering	ZF	Male	No
Procurement/contract management (consulting services)			
Financial management	XC	Female	No
Accounting	ZL	Female	No
Communication and interpretation with ADB	LY	Male	No
Health-related components			
Elderly care-related components			
Skills development components			
Involuntary resettlement safeguards	LF	Female	Yes
Ethnic minorities safeguards			

^a As of July 2021, all three tasks are being done by one person. After the project is approved, a full-time environmental officer will be assigned.

ADB = Asian Development Bank.

Source: Hezhou project management office.

D. Project Facilities' Operation and Maintenance Arrangement

37. Sustainable O&M of project facilities are vital to achieving the project development objectives, which depends on the following conditions being fulfilled:

- (i) Sufficient funds available to cover O&M expenditure;
- (ii) professional, experienced operators selected and engaged for managing O&M of facilities; and
- (iii) proper contractual arrangement for O&M to achieve the cost-effective solutions.

38. Table 13 shows the proposed O&M arrangement for each component. During project preparation, the executing and implementing agencies have agreed to consider encouraging operators to participate in the project as soon as possible to enhance O&M quality and efficiency through potential private sector participation and proposed capacity building and training activities.

Table 13: Operation and Maintenance Arrangement

Facilities	Operation and Maintenance Arrangement
Facilities in Kedashan	<ul style="list-style-type: none"> • Most project contents under this component do not require O&M service. • HMIGC will be the owner and operator responsible for O&M of the landfill site, eco-permeable dikes, subsurface-flow constructed wetland, access road, etc. • HMIGC will pay the O&M cost. • A third-party environmental monitoring agency will be hired to monitor and evaluate the environmental compliance, especially for the landfill site. • After constructing the access road, it will be accepted and managed by the Fuchuan Yao Autonomous County Transportation Bureau.
PWH	<ul style="list-style-type: none"> • Pinggui Health Bureau will be the competent government department and the owner of this facility. • After construction, this facility will be transferred from PUCIC to Pinggui Health Bureau. • Pinggui Health Bureau will assign the PWH entity to be responsible for O&M. • The original PWH ceased operation after the Pinggui Mining Bureau went bankrupt in 2003. As of 2021, it is an existing entity without physical buildings and no qualified staff. • The PWH entity will recruit an experienced director and staff to operate the hospital. • The PWH entity should receive sufficient funds from its business incomes or public finance as needed.
Pinggui Integrated Health and Elderly Care Center	<ul style="list-style-type: none"> • Pinggui Health Bureau will be the competent government department and the owner of this facility. • After construction, this facility will be transferred from PUCIC to Pinggui Health Bureau. • Pinggui Health Bureau will assign the Xiwan Community Medical Center to be responsible for O&M. • The Xiwan Community Medical Center is experienced in the management and operation of health- and elderly-care facilities and will recruit more experienced staff to enhance the capacity. The human resources development plan will be developed to ensure capacity building activities. • The Xiwan Community Medical Center itself should receive sufficient funds from its business incomes.
Knowledge and Skills Sharing Center	<ul style="list-style-type: none"> • Pinggui Human Resource and Social Security Bureau will be the competent government department and the owner of this facility. • After construction, this facility will be transferred from PUCIC to Pinggui Human Resource and Social Security Bureau. • Pinggui Human Resource and Social Security Bureau will hire a specialized third-party, such as Pinggui College (for example), to be responsible for the O&M. • The Knowledge and Skill Sharing Center should receive sufficient funds from its business incomes or public finance as needed.

HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, O&M = operation and maintenance, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited, PWH = Pinggui Workers' Hospital.

Source: Asian Development Bank.

IV. COSTS AND FINANCING

39. The project is estimated to cost €198.872 million, including taxes and duties of €14.512 million, physical and price contingencies, interest, and other charges during implementation (Table 14).

Table 14: Summary Cost Estimates
(€ million)

Item	Amount ^a
A. Base Cost^b	
1. Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented	23.317
2. Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened	120.807
3. Green and health care-related skills development institutions established	25.395
Project management	6.309
Subtotal (A)	175.828
B. Contingencies^c	20.533
C. Financial Charges During Implementation^d	2.511
Total (A+B+C)	198.872

^a Includes taxes and duties of €14.512 million. Such amount does not represent an excessive share of the project cost. The Asian Development Bank will finance taxes and duties of €8.560 million. The government will finance taxes and duties of €5.952 million through cash contribution.

^b In 2021 prices as of 9 September 2021.

^c Physical and price contingencies, and a provision for exchange rate fluctuation are included.

^d Includes interest, commitment, and other charges.

Source: Asian Development Bank estimates.

40. The government has requested a regular loan of €84.246 million (\$100.00 million equivalent) from ADB's ordinary capital resources to help finance the project.²⁴ The loan will have a 25-year term, including a grace period of 6 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year (the interest and other charges during construction will not be capitalized in the loan); and such other terms and conditions set forth in the draft loan and project agreements. Based on the annuity method, the average maturity is 18.53 years, and the maturity premium payable to ADB is 0.50% per year.

41. The summary financing plan is in Table 15. ADB will finance the expenditures in relation to institutional strengthening, capacity building, technical support, consulting services, goods, and works. ADB will finance 42.4%, and the government will finance 57.6% of the cost. The counterpart financing will come from self-raised funds of the end-borrowers.

Table 15: Summary Financing Plan

Source	Amount (€ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (regular loan)	84.246	42.4
Government	114.626	57.6
Total	198.872	100.0

Source: Asian Development Bank estimates.

²⁴ The applicable conversion rate is €0.84246 = \$1.00 (as of 9 September 2021).

42. Climate mitigation is estimated to cost \$11.75 million and climate adaptation is estimated to cost \$14.67 million. ADB will finance 41.92% of mitigation costs (\$4.93 million) and 56.32% of adaptation costs (\$8.26 million). The total annual carbon dioxide emission reduction is about 1,830 tons, mainly from project facilities' integration of heat insulation layer in the building structure and achievement of CGBS Star-2.

43. The PRC Government is the borrower of the loan and will make the loan available through GZAR Government to HMG under its relending arrangements upon terms and conditions satisfactory to ADB. HMG will onlend the loan proceeds to (i) HMIGC, and (ii) PUCIC through PDG. The terms and conditions for relending and onlending of the loan proceeds will be the same as those of the ADB loan. HMG will assume the interest and foreign exchange variation risks relating to their respective portions of the loan proceeds.

A. Cost Estimates Preparation and Revisions

44. **Preparation.** The cost estimates were prepared based on the feasibility study in accordance with ADB's guidelines on Preparing and Presenting Cost Estimates for Projects and Programs Financed by ADB.²⁵

45. **Revisions.** Revision of cost estimates will be conducted when deemed necessary during implementation. The HPMP will be responsible for proposing and drafting the revision, which will be subject to ADB's approval.

B. Key Assumptions

46. The following key assumptions underpin the cost estimates and financing plan:

- (i) Exchange rate: CNY6.4582 = \$1.00, and \$1.00 = €0.84246 (as of 9 September 2021).
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

Table 16: Escalation Rates for Price Contingency Calculation

Item	2022	2023	2024	2025	2026	2027	Average
Foreign rate of price inflation	1.7%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%
Domestic rate of price inflation	2.3%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%

Source: Asian Development Bank estimates.

²⁵ ADB. 2014. *Preparing and Presenting Cost Estimates for Projects and Programs Financed by the Asian Development Bank*. Manila.

C. Detailed Cost Estimates by Expenditure Category

Table 17: Detailed Cost Estimates by Expenditure Category

Item	(CNY million)			(€ million)			% of Total Base Cost
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost	
A. Investment Costs							
1. Works	0.00	712.33	712.33	0.000	92.923	92.923	52.8
1.1 Civil works	0.00	537.56	537.56	0.000	70.124	70.124	39.9
1.2 Mechanical and equipment	0.00	174.77	174.77	0.000	22.799	22.799	13.0
2. Goods	38.18	343.90	382.08	4.981	44.861	49.842	28.3
3. Land acquisition and resettlement	0.00	103.83	103.83	0.000	13.545	13.545	7.7
4. Project preparation	0.00	84.62	84.62	0.000	11.038	11.038	6.3
5. Institutional strengthening, capacity building, technical support	0.00	38.58	38.58	0.000	5.032	5.032	2.9
6. Project management	26.43	0.00	26.43	3.448	0.000	3.448	2.0
Subtotal (A)	64.61	1,283.26	1,347.87	8.429	167.399	175.828	100.0
B. Contingencies							
1. Physical	0.00	67.51	67.51	0.000	8.806	8.806	5.0
2. Price	0.00	89.90	89.90	0.000	11.727	11.727	6.7
Subtotal (B)	0.00	157.41	157.41	0.000	20.533	20.533	11.7
C. Financial Charges During Implementation							
1. Interest during construction	0.00	16.52	16.52	0.000	2.155	2.155	1.2
2. Commitment charges	0.00	2.73	2.73	0.000	0.356	0.356	0.2
Subtotal (C)	0.00	19.25	19.25	0.000	2.511	2.511	1.4
Total Project Cost (A+B+C)	64.61	1,459.92	1,524.53	8.429	190.443	198.872	113.1

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

D. Allocation and Withdrawal of Loan Proceeds

Table 18: Allocation and Withdrawal of Loan Proceeds

No.	Category	Total Amount Allocated for ADB Financing (€)	Percentage and Basis for Withdrawal from Loan Account
1	Works, goods, institutional strengthening, capacity building and project management ^a	84,246,000	Up to 100% of total expenditure claimed ^b
	Total	84,246,000	

ADB = Asian Development Bank.

^a Condition for withdrawals from loan account: Notwithstanding any other provision of the loan agreement, no withdrawals shall be made from the loan account until the borrower shall cause the Hezhou Municipal Government to certify that each of the onlending agreements between HMG and HMIGC and PDG and PUCIC have been duly executed and delivered.

^b Detailed categories, amounts, and disbursement percentages to be used during disbursement are in Table 19.

Source: ADB estimates.

Table 19: Allocation and Withdrawal of Loan Proceeds (by subproject)

Item	Total Amount Allocated for ADB Financing (€)		Percentage and Basis for Withdrawal from the Loan Account
	Category	Subcategory	
1. Works^a	26,684,000		
Kedashan Subproject		9,142,000	61.0% of total expenditures claimed
Pinggui Subproject		17,542,000	29.4% of total expenditures claimed
2. Goods^{a,b}	49,082,000		
Pinggui Subproject			
Components P1, P2, P3		47,048,000	100.0% of total expenditures claimed
Component P4		2,034,000	72.8% of total expenditures claimed
3. Institutional Strengthening and Capacity Development^a	8,480,000		100.0% of total expenditures claimed
Total	84,246,000		

ADB = Asian Development Bank.

^a Condition for withdrawals from loan account: Notwithstanding any other provision of the loan agreement, no withdrawals shall be made from the loan account until the borrower shall cause the Hezhou Municipal Government to certify that each of the onlending agreements shall have been duly executed and delivered, and all conditions precedent to their effectiveness (other than a condition requiring the effectiveness of the loan agreement) shall have been fulfilled.

^b Component P1 = Pinggui Workers' Hospital, Component P2 = Pinggui Integrated Health and Elderly Care Center, Component P3 = service and capacity improvement of township-level hospitals, Component P4 = Knowledge and Skills Sharing Center with training equipment.

Source: ADB estimates.

E. Detailed Cost Estimates by Financier

Table 20: Detailed Cost Estimates by Financier
(€ million)

Item	ADB		HMIGC		PUCIC		Total Cost	
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	Taxes and Duties
A. Investment Costs								
1. Works	26.684	28.7	8.479	9.1	57.760	62.2	92.923	7.673
1.1 Civil Works	21.405	30.5	8.479	12.1	40.240	57.4	70.124	5.790
1.1.1 Kedashan Subproject	9.142	51.9	8.479	48.1	0.000	0.0	17.621	1.455
(i) environment restoration	2.861	61.0	1.831	39.0	0.000	0.0	4.692	0.388
(ii) wastes and tailings clean up and treatment	4.181	61.0	2.674	39.0	0.000	0.0	6.8565	0.566
(iii) surface water quality improvement	2.100	61.0	1.344	39.0	0.000	0.0	3.444	0.284
(iv) access roads	0.000	0.0	2.630	100.0	0.000	0.0	2.630	0.217
1.1.2 Pinggui Subproject	12.263	23.4	0.000	0.0	40.240	76.6	52.503	4.335
(i) Pinggui Workers' Hospital	11.531	29.4	0.000	0.0	27.703	70.6	39.234	3.239
(ii) Pinggui Integrated Health and Elderly Care Center	0.732	29.4	0.000	0.0	1.759	70.6	2.491	0.206
(iii) township hospitals capacity improvement	0.000	0.0	0.000	0.0	0.000	0.0	0.000	0.000
(iv) Knowledge and Skills Sharing Center	0.000	0.0	0.000	0.0	10.778	100.0	10.778	0.890
1.2 Mechanical and Equipment	5.279	23.2	0.000	0.0	17.520	76.8	22.799	1.883
1.2.1 Kedashan Subproject	0.000	0.0	0.000	0.0	0.000	0.0	0.000	0.000
1.2.2 Pinggui Subproject	5.279	23.2	0.000	0.0	17.520	76.8	22.799	1.883
(i) Pinggui Workers' Hospital	4.915	29.4	0.000	0.0	11.810	70.6	16.725	1.381
(ii) Pinggui Integrated Health and Elderly Care Center	0.364	29.4	0.000	0.0	0.875	70.6	1.239	0.103
(iii) township hospitals capacity improvement	0.000	0.0	0.000	0.0	0.000	0.0	0.000	0.000
(iv) Knowledge and Skills Sharing Center	0.000	0.0	0.000	0.0	4.835	100.0	4.835	0.399
2. Goods	49.082	98.5	0.000	0.0	0.760	1.5	49.842	5.734
2.1 Kedashan Subproject	0.000	0.0	0.000	0.0	0.000	0.00	0.000	0.000
2.2 Pinggui Subproject	49.082	98.5	0.000	0.0	0.760	1.5	49.842	5.734
(i) Pinggui Workers' Hospital	38.479	100.0	0.000	0.0	0.000	0.0	38.479	4.427
(ii) Pinggui Integrated Health and Elderly Care Center	0.945	100.0	0.000	0.0	0.000	0.0	0.945	0.109
(iii) township hospitals capacity improvement	7.624	100.0	0.000	0.0	0.000	0.0	7.624	0.877
(iv) Knowledge and Skills Sharing Center	2.034	72.8	0.000	0.0	0.760	27.2	2.794	0.321
3. Land acquisition and resettlement	0.000	0.0	0.100	0.7	13.445	99.3	13.545	0.000
3.1 Kedashan Subproject	0.000	0.0	0.100	100.0	0.000	0.0	0.100	0.000
3.2 Pinggui Subproject	0.000	0.0	0.000	0.0	13.445	100.0	13.445	0.000
4. Project preparation	0.000	0.0	5.384	48.8	5.654	51.2	11.038	0.625

Item	ADB		HMIGC		PUCIC		Total Cost	
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	Taxes and Duties
4.1 Kedashan Subproject	0.000	0.0	5.384	100.0	0.000	0.0	5.384	0.305
4.2 Pinggui Subproject	0.000	0.0	0.000	0.00	5.654	100.0	5.654	0.320
5. Institutional strengthening, capacity building, technical support	5.032	100.0	0.000	0.0	0.000	0.0	5.032	0.285
5.1 Kedashan Subproject	0.212	100.0	0.000	0.0	0.000	0.0	0.212	0.012
5.2 Pinggui Subproject	1.959	100.0	0.000	0.0	0.000	0.0	1.959	0.111
(i) Components under output 2	1.577	100.0	0.000	0.0	0.000	0.0	1.577	0.089
(ii) Components under output 3	0.382	100.0	0.000	0.0	0.000	0.0	0.382	0.022
5.3 Activities managed by HPMO	2.861	100.0	0.000	0.0	0.000	0.0	2.861	0.162
6. Project management	3.448	100.0	0.000	0.0	0.000	0.0	3.448	0.194
Total Base Cost: Subtotal (A)	84.246	47.9	13.963	8.1	77.619	44.1	175.828	14.512
B. Contingencies								
1. Physical	0.000	0.0	1.204	13.7	7.602	86.3	8.806	0.000
2. Price	0.000	0.0	1.544	13.2	10.183	86.8	11.727	0.000
Subtotal (B)	0.000	0.0	2.748	13.4	17.785	86.6	20.533	0.000
C. Financial Charges During Implementation								
1. Interest during construction	0.000	0.0	0.261	12.1	1.894	87.9	2.155	0.000
2. Commitment charges	0.000	0.0	0.043	12.1	0.313	87.9	0.356	0.000
Subtotal (C)	0.000	0.0	0.304	12.1	2.207	87.9	2.511	0.000
Total Project Cost (A+B+C)	84.246		17.015		97.611		198.872	14.512
% Total Project Cost		42.4		8.6		49.1		

ADB = Asian Development Bank, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited.

Note: Numbers may not sum precisely because of rounding.

Source: ADB estimates.

F. Detailed Cost Estimates by Outputs

Table 21: Detailed Cost Estimates by Outputs
(€ million)

Item	Total Cost	Output 1		Output 2		Output 3		Project Management	
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs									
1. Works	92.923	17.621	19.0	59.689	64.2	15.613	16.8	0.000	0.0
1.1 Civil Works	70.124	17.621	25.1	41.725	59.5	10.778	15.4	0.000	0.0
1.2 Mechanical and equipment	22.799	0.000	0.0	17.964	78.8	4.835	21.2	0.000	0.0
2. Goods	49.842	0.000	0.0	47.048	94.4	2.794	5.6	0.000	0.0
3. Land acquisition and resettlement	13.545	0.100	0.7	8.035	59.3	5.410	39.9	0.000	0.0
4. Project preparation	11.038	5.384	48.8	4.458	40.4	1.196	10.8	0.000	0.0
5. Institutional strengthening, capacity building, technical support	5.032	0.212	4.2	1.577	31.3	0.382	7.6	2.861	56.9
6. Project management	3.448	0.000	0.0	0.000	0.0	0.000	0.0	3.448	100.0
Total Base Cost: Subtotal (A)	175.828	23.317	13.3	120.807	68.7	25.395	14.4	6.309	3.6
B. Contingencies									
1. Physical	8.806	1.167	13.3	6.054	68.7	1.272	14.4	0.313	3.6
2. Price	11.727	1.496	12.8	8.157	69.6	1.675	14.3	0.399	3.4
Subtotal (B)	20.533	2.663	13.0	14.211	69.2	2.947	14.4	0.712	3.5
C. Financial Charges During Implementation									
1. Interest during construction	2.155	0.241	11.2	1.680	78.0	0.061	2.8	0.173	8.0
2. Commitment charges	0.356	0.040	11.2	0.283	79.5	0.008	2.2	0.025	7.0
Subtotal (C)	2.511	0.281	11.2	1.963	78.2	0.069	2.7	0.198	7.9
Total Project Cost (A+B+C)	198.872	26.261	13.2	136.981	68.9	28.411	14.3	7.219	3.6

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

G. Detailed Cost Estimates by Year

Table 22: Detailed Cost Estimates by Year
(€ million)

Item	Total Cost	2022 (Year 1)	2023 (Year 2)	2024 (Year 3)	2025 (Year 4)	2026 (Year 5)	2027 (Year 6)
A. Investment Costs							
1. Works	92.923	9.293	18.582	27.875	13.936	13.936	9.301
1.1 Civil Works	70.124	7.013	14.023	21.036	10.517	10.517	7.018
1.2 Mechanical and equipment	22.799	2.280	4.559	6.839	3.149	3.419	2.553
2. Goods	49.842	4.983	9.969	14.951	7.477	7.477	4.985
3. Land acquisition and resettlement	13.545	0.000	4.063	5.418	4.064	0.000	0.000
4. Project preparation	11.038	5.517	1.106	1.106	1.105	1.106	1.098
5. Institutional strengthening, capacity building, technical support	5.032	0.502	1.007	1.511	0.754	0.754	0.504
6. Project management	3.448	0.690	0.861	0.690	0.690	0.344	0.173
Total Base Cost: Subtotal (A)	175.828	20.985	35.588	51.551	28.026	23.617	16.061
B. Contingencies							
1. Physical	8.806	1.049	1.781	2.579	1.400	1.191	0.806
2. Price	11.727	0.253	1.280	3.086	2.361	2.582	2.165
Subtotal (B)	20.533	1.302	3.061	5.665	3.761	3.773	2.971
C. Financial Charges During Implementation							
1. Interest during construction	2.155	0.035	0.140	0.310	0.462	0.562	0.646
2. Commitment charges	0.356	0.119	0.100	0.069	0.043	0.021	0.004
Subtotal (C)	2.511	0.154	0.240	0.380	0.505	0.583	0.649
Total Project Cost (A+B+C)	198.872	22.441	38.889	57.595	32.291	27.973	19.683
% Total Project Cost	100.0%	11.3%	19.6%	29.0%	16.2%	14.1%	9.9%

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

H. Contract and Disbursement S-Curve

Table 23: Contract Awards and Disbursement
(€ million)

Year	Contract awards					Disbursement				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2022	0.000	0.000	0.179	0.143	0.322	0.000	0.000	0.000	0.018	0.018
2023	3.366	7.593	5.859	0.000	16.818	0.014	0.355	0.054	1.897	2.320
2024	11.431	0.506	0.000	0.000	11.937	1.229	1.402	1.331	4.381	8.343
2025	0.000	0.000	5.074	13.479	18.553	1.395	1.339	1.230	5.565	9.529
2026	12.636	21.860	2.120	0.000	36.616	4.095	2.380	12.459	15.513	34.447
2027	0.000	0.000	0.000	0.000	0.000	5.547	4.087	7.011	12.944	29.589
Total					84.246					84.246

(\$ million equivalent)

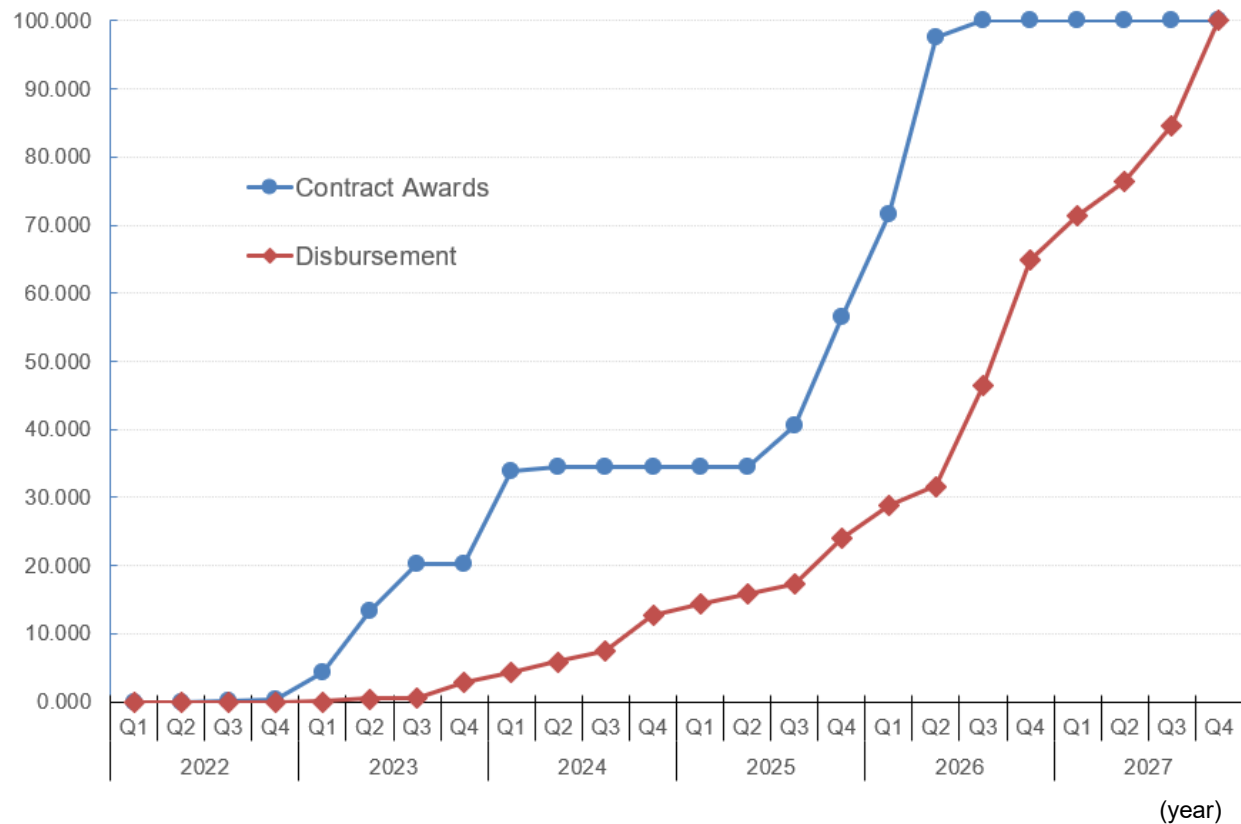
Year	Contract awards					Disbursement				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2022	0.000	0.000	0.212	0.170	0.382	0.000	0.000	0.000	0.021	0.021
2023	3.995	9.013	6.954	0.000	19.962	0.017	0.421	0.064	2.252	2.754
2024	13.568	0.601	0.000	0.000	14.169	1.459	1.664	1.580	5.200	9.903
2025	0.000	0.000	6.023	16.000	22.023	1.656	1.589	1.460	6.606	11.311
2026	14.999	25.948	2.517	0.000	43.464	4.861	2.825	14.789	18.414	40.889
2027	0.000	0.000	0.000	0.000	0.000	6.584	4.851	8.322	15.365	35.122
Total					100.000					100.000

Note: The applicable conversion rate is € 0.84246 = \$1.00 (as of 9 September 2021).

Source: Asian Development Bank estimates.

Figure 5: Contract Awards and Disbursement S-Curve

(\$ million equivalent)



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

48. The financial management assessment (FMA) was conducted in accordance with ADB's guidelines.²⁶ The FMA considered the capacity of the executing agency and the two end-borrowers, including funds-flow arrangements, staffing, accounting, and financial reporting systems, financial information systems, and internal and external auditing arrangements.

49. The Guangxi Zhuang Autonomous Region (GZAR) has implemented many foreign-funded projects, including ADB's, and GZAR Finance Department (GZARFD) has been assessed as capable of undertaking the required financial supervision. Hezhou Finance Bureau (HFB), on behalf of the executing agency (HMG), is responsible for the high-level financial supervision of the project and to onlend the ADB loan to implementing agencies. HFB will review and approve the ADB loan withdrawal applications prepared by the implementing agencies before submitting them to GZARFD. HFB will not provide counterpart funding for the project from its fiscal budget. HPMO, established within the Foreign Loan Office of Hezhou Development and Reform Commission (HDRC), is responsible for daily coordination and management of project implementation, including communication with implementing agencies—Guangxi Hezhou Mining Investment Group Company Limited (HMIGC) and Pinggui District Government (PDG). HMIGC is also a project implementation unit (PIU) for the Kedashan subproject and an end borrower of the ADB loan. Another end borrower is Hezhou Pinggui Urban Construction Investment Company Limited (PUCIC), which is owned by and under the administration of PDG and a PIU for the Pinggui subproject.

50. Based on the assessment, the key financial management risks identified are poor coordination among different agencies, inadequate organizational structure to support and supervise project implementation, and lack of familiarity with ADB's requirements and procedures for financial management. It is concluded that the overall pre-mitigation financial management risk of HMG and two end-borrowers is *substantial*. The FMA confirmed that with the implementation of financial management action plan, the HMG, implementing agencies, and PIUs can properly conduct financial management, including fund flow management, use of statement of expenditures (SOE) procedure, accounting and financial reporting, and auditing.

51. The HMG, implementing agencies, and PIUs have agreed to implement the action plan as key measures to address the deficiencies. The identified financial management risks and the implementation of agreed mitigation measures will need to be closely monitored during project implementation. The financial management action plan is provided in Table 24.

Table 24: Financial Management Action Plan

Action	Responsibility	Timing
1. Training of relevant personnel on ADB financial management requirements and procedures, including disbursement, accounting, auditing, and reporting	Executing and implementing agencies, HPMO, ADB	1 month before loan effectiveness and any other time as needed
2. Designation of finance staff for the project	Executing and implementing agencies, HPMO	1 month before loan effectiveness and any other time as needed

²⁶ ADB. 2015. [Financial Management Technical Guidance Note: Financial Management Assessment](#). Manila.

Action	Responsibility	Timing
3. Development of financial management manuals and preparation of job descriptions of financial staff involved in the project (see below for the scope of the manual)	Executing and implementing agencies, HPMO, PMISC	1 month before loan effectiveness
4. Incorporation of annual investment and financial plan into annual budgeting plan, and maintenance of separate accounts for all project components	Implementing agencies	Yearly, during budget preparation
5. Recruitment of experienced financial expert to enhance operational capacity and assist the executing and implementing agencies and HPMO on financial management aspects	HPMO	3 months after the set-up of the advance account and sub-accounts
<p>Scope of the financial management manual may include, but not limited to, the following:</p> <ul style="list-style-type: none"> • Preparation of a 6-year project budget covering the entire project implementation period and update this on an annual basis. The starting point for the preparation of the initial budget should be the project financial forecasts agreed between the executing agency and ADB at loan negotiations and as subsequently recorded in the project administration manual • Regular liaison between the executing agency, implementing agencies, and ADB to ensure that ADB guidelines are followed • Regular interagency coordination at all levels to be put in place to discuss the portfolio performance of the loan • Written job descriptions of financial staff to be modified to reflect project responsibilities • Undertake measures for job rotation, written description of the job duties, etc. and revise relevant policies • Establishment of separate accounts to be maintained for all project components financed by ADB and the government • Recording and proper storage of invoice and supporting documentation as well as its verifications for loan withdrawal applications and disbursements • Regular backup of all accounting systems and appropriate security measures over backup data to be put in place • Prompt financial reporting to project stakeholders after the end of each accounting period • Preparation of the financial section of semiannual progress reports • Compliance with loan covenants monitored, including submission of audited project accounts • Workshop training and on-the-job training on: <ul style="list-style-type: none"> ○ ADB policies and procedures, including disbursements, accounting, reporting, and auditing requirements ○ foreign exchange and interest risk mitigation measures ○ ADB requirements to finance bureau in the executing agency conducting internal audit and internal audit department of HMIGC, as well as internal control procedures in PUCIC for project transactions and activities 		

ADB = Asian Development Bank, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, PMISC = project management and implementation support consultant, PRC = People's Republic of China, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited.
Source: ADB.

B. Disbursement

1. Disbursement Arrangements for ADB Funds

52. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),²⁷ and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.²⁸ Project staff are encouraged to avail of this training to help ensure

²⁷ The handbook is available electronically from the ADB website (<https://www.adb.org/documents/loan-disbursement-handbook>)

²⁸ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

efficient disbursement and fiduciary control.

53. The fund flow is shown in Figure 6. The responsibility for collecting and retaining supporting documents at the subproject level rests with the PIUs (HMIGC and PUCIC). The withdrawal applications are prepared by the PIUs and reviewed and signed by an authorized senior administrator of each PIU. Then, for PUCIC, the withdrawal applications will be submitted to Pinggui District Finance Bureau. HMIGC and Pinggui District Finance Bureau, with support from project management and implementation support consultant (PMISC) engaged under HPMO, will submit the withdrawal applications to HPMO and then to HFB, who approves and endorses submission to GZARFD. GZARFD will then review and submit the withdrawal applications to ADB.

54. The project will use a combination of direct payment by ADB, reimbursement, and advance fund procedures for disbursements of the loan. Responsibilities for different disbursement activities are summarized as follows: (i) HPMO will prepare project level disbursement projections based on individual projections prepared by HMIGC and PDG; (ii) HMIGC and PUCIC will be responsible for arranging counterpart financing or requesting budgetary allocations for counterpart funding; (iii) HMG will ensure counterpart contributions are provided for project implementation on time; (iv) HMIGC and PDG will prepare reimbursement claims and supporting documents in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time), which will then be forwarded to HPMO for review and endorsement before onward transmission to HFB; and (v) GZARFD is responsible for making payments from the advance account and is also responsible for sending loan withdrawal applications to ADB to initiate either advance account replenishment or request direct payments where appropriate. For consulting services engaged at HPMO, GZARFD will generally pay directly to the consultants from the advance account. For other capacity building activities other than consulting services engaged at the municipal level, GZARFD will also generally pay directly to the contractors from the advance account.

55. **Advance fund procedure.** GZARFD will establish and maintain a separate advance account dedicated for this project promptly after loan effectiveness at a commercial bank to facilitate the project implementation through the timely release of loan proceeds. The currency of the advance account is the Euro. The advance account is to be used exclusively for ADB's share of eligible expenditures. GZARFD, who administers the advance account, is accountable and responsible for the proper use of advances to the advance account.

56. The total outstanding advance to the advance account should not exceed the estimate of ADB's share of expenditures to be paid through the advance account for the forthcoming 6 months. The HMG, through HPMO, may request for initial and additional advances to the advance account based on an Estimate of Expenditure Sheet²⁹ setting out the estimated expenditures to be financed through the account for the forthcoming 6 months. Supporting documents should be submitted to ADB or retained by HPMO, on behalf of the executing and implementing agencies, in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance account.

57. **Statement of expenditure procedure.**³⁰ The SOE procedure may be used for

²⁹ Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),

³⁰ SOE forms are available in Appendix 7B and 7D of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

reimbursement of eligible expenditures or liquidation of advances to the advance account. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

58. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid (i) by the executing agency and/or implementing agencies and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements system is encouraged for submission of withdrawal applications to ADB.³¹

59. **Conditions for withdrawals from loan account.** No withdrawals shall be made from the loan account until the borrower shall cause HMG to certify that each of the onlending agreements shall have been duly executed and delivered, and all conditions precedent to their effectiveness (other than a condition requiring the effectiveness of loan agreement) shall have been fulfilled.

2. Disbursement Arrangements for Counterpart Fund

60. For the counterpart funds, HMIGC and PUCIC will be responsible for arranging counterpart financing or requesting budgetary allocations for counterpart funding, and HMG will ensure counterpart contributions are provided for project implementation on time. The implementing agencies will be responsible for their own counterpart fund and will pay their contractors, suppliers, and consultants using their normal payment procedures. Counterpart funds will be fully segregated from ADB funds. Each implementing agency will prepare disbursement projections.

C. Accounting

61. The HMG, implementing agencies, and PIUs will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following accrual-based accounting system and in accordance with the accounting policies and procedures issued by the PRC Ministry of Finance. The HMG, through the HPMO, will prepare consolidated project financial statements in accordance with the government's accounting laws and regulations, which are consistent with international accounting principles and practices.

D. Auditing and Public Disclosure

62. The HMG will cause the detailed consolidated project financial statements to be audited in accordance with the National Auditing Standards, by an independent auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year by the HMG.

³¹ The Client Portal for Disbursements facilitates online submission of withdrawal applications to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

63. The audited entity financial statements for two state-owned enterprises (HMIGC and PUCIC), together with the auditor's report and management letter, will be submitted in the English language to ADB within 1 month after their approval by the relevant authority.

64. The audit report for the consolidated project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purposes of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements.

65. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

66. The government, HMG, and the implementing agencies have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.³² ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

67. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Access to Information Policy.³³ After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.³⁴

³² ADB's approach and procedures regarding delayed submission of audited project financial statements:

- (i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- (ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.
- (iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

³³ Access to Information Policy: <https://www.adb.org/sites/default/files/institutional-document/450636/access-information-policy.pdf>.

³⁴ This type of information would generally fall under access to information policy exceptions to disclosure. ADB. 2018. *Access to Information Policy*. para. 17(iv) -(vi).

VI. PROCUREMENT AND CONSULTING SERVICES

A. Strategic Procurement Planning

68. Value for money was achieved through contract packaging, selection of procurement method and bidding procedure, as well as proposed advance procurement arrangements which were based on a strategic procurement planning exercise that considered strategic project priorities, risks, and opportunities; operating conditions of the borrowers; as well as the market conditions (Appendix 8). Contract packaging of works, including hospital construction, reflects the most appropriate contract sizes, procurement method, and bidding procedure (4 packages with estimated value of about \$93.84 million, through open competitive bidding ([OCB] nationally advertised), which are in line with strategic priorities of the executing agency to meet the different demands, locations, and construction timing/schedule of various implementing agencies. The market assessment confirms that these works are common in the PRC and the market is highly competitive with sufficient number of contractors with general contractor licenses. Goods contracts include medical equipment for the hospital. The market for the equipment is very competitive with sufficient suppliers. One package (OCB internationally advertised, with four lots) with estimated value of about \$32.68 million and 4 packages (OCB nationally advertised) with estimated value of about \$19.88 million are designed considering the types of equipment and delivery timing/schedule. ADB standard bidding documents will be used for goods and works. Consulting services include support for institutional and system strengthening, capacity building, and various project management activities (14 packages, with estimated value of about \$7.20 million, using quality- and cost-based selection for 2 packages, consultants' qualifications selection for 8 packages, and individual consultant selection for 4 packages). The market assessment confirms that there are enough international and national consulting firms available in the PRC. Thus, OCB (internationally advertised) will be used for 1 consulting package and OCB (nationally advertised) will be used for the remaining 11 packages. ADB standard request for proposal will be used for consulting services.

B. Project Procurement Risk Assessment

69. A project procurement risk assessment was conducted in accordance with the Guide on Assessing Procurement Risks and Determining Project Procurement Classification and Guidance Note on Procurement Risk Framework.³⁵ Overall, the project procurement risk is *medium*.

C. Advance Contracting and Retroactive Financing

70. All advance contracting and retroactive financing will be undertaken in conformity the ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).³⁶ The borrower, HMG, HPMO, and implementing agencies have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

71. **Advance contracting.** Advance contracting will include recruitment of start-up support consultants for (i) project management and procurement, (ii) environment, (iii) resettlement, and (iv) green procurement. For the consulting service recruitment, the issuance of advertisement,

³⁵ ADB. 2015. [Guide on Assessing Procurement Risks and Determining Project Procurement Classification](#). Manila; and ADB. 2018. [Procurement Risk Framework: Guidance Note on Procurement](#). Manila.

³⁶ Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation accessible at <https://www.adb.org/documents/handbook-project-implementation>.

request for proposals, and the whole recruitment process under advance procurement action will be subject to ADB prior approval. For the works procurement, the issuance of invitations to bid under advance procurement action will be subject to ADB approval.

72. **Retroactive financing.** Under retroactive financing, the implementing agencies would implement project activities using their own funds. The government was informed that as a general rule, retroactive financing is permitted only if (i) it is specifically agreed by ADB and the borrower; (ii) the goods, works, and consulting services for which it is requested are procured in accordance with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time); (iii) the amount to be retroactively financed does not exceed 20% of the loan amount; (iv) the expenditures must have been incurred before the effectiveness of the relevant loan but, generally, not earlier than 12 months before signing of the loan agreement; and (v) due diligence on the proposed contracts for advance contracting and retroactive financing on engineering, environmental, financial, social, and other safeguard requirements has been completed to satisfy project preparation requirements. In either instance, detailed assessments (due diligence) on each retroactive financing proposal must demonstrate that (i) the expenditures incurred are genuine, reasonable, and material to get the project off the ground; and (ii) they were incurred for proper reasons, in a transparent manner over a reasonable period of time.

D. Procurement of Goods, Works, and Consulting Services

73. All procurement of goods and works will be undertaken in accordance with ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time). Before the start of any procurement, ADB and the executing agency will review the public procurement laws of the central and municipal governments to ensure consistency with the ADB's procurement policy and regulations.

74. Open competitive bidding (OCB) is the preferred method for procurement in this project. To achieve value for money, it is important to seek bids from qualified bidders. Based on the nature and value of contracts, bidders can be sought from the national market or international market. For works contracts, OCB (advertised nationally) method will be used unless the contract value is \$40 million and above, in which case OCB (advertised internationally) method will be used. For goods contracts, OCB (advertised internationally) method will be used for contracts with \$5 million and above, contracts involving highly specialized equipment, or contracts identified with limited competition. Otherwise, OCB (advertised nationally) method will be used. For consulting service contracts, both OCB (advertised internationally) and (advertised nationally) methods will be used, depending on the expertise's availability within the PRC.

75. If a bidding attracts foreign companies, the bidding document will be written in English using the latest ADB standard bidding document for OCB (advertised internationally) packages, which can be downloaded from ADB website. If a bidding does not attract foreign companies, the following provisions will be applied: (i) an advertisement will be published on a national press, official gazette, or free, and publicly accessible website, as well as on the national e-procurement information and monitoring portal at the ADB special section of the China Tendering & Bidding Public Service Platform (<http://www.cebpubservice.com>); (ii) the PRC specific standard bidding documents (accepted by ADB, as updated in 2020) will be used unless otherwise agreed between the HMG and ADB; and (iii) documents for bidding and contract will only be in Chinese language (except for documents which require ADB's review and approval), and the currencies for bidding and payment will be in Chinese yuan (CNY) unless otherwise agreed between the HMG and ADB. If a bidding document is internationally advertised, regardless of ADB prior or post review

(sampling) arrangements, the invitations for bids need to be submitted to ADB latest 1 week before the advertisement for parallel advertisement in Business Opportunities of ADB's website. Unless otherwise agreed between HMG and ADB and set forth in the procurement plan, procurement under OCB will use the single-stage one-envelope procedure.

76. ADB prior review applies to (i) the first OCB contract for works and the first OCB contract for goods for each PIU and HPMO; (ii) all packages with an estimated cost of \$10 million or above; (iii) all contracts for advance contracting; and (iv) all consulting services contracts irrespective of the estimated value. All other contracts are subject to ADB's post review (sampling) after contract signing. The relevant sections of ADB's Anticorruption Policy (1998, as amended from time to time) will be included in all procurement documents and contracts.

E. Procurement Plan

77. An 18-month procurement plan indicating procurement or selection methods, estimated costs of contracts, thresholds, and review procedures for goods, works, and consulting service contract packages, has been prepared and presented in **Appendix 4**. The procurement plan shall be executed in the manner in which ADB has approved it. The procurement plan shall be updated annually or as needed throughout the duration of the project.

F. Consultant's Terms of Reference

78. The indicative terms of reference for the consulting service packages are detailed in **Appendix 7**.

VII. SAFEGUARDS

A. Environment

79. The project is category A for environment. An environmental impact assessment (EIA), including an environmental management plan (EMP), was prepared. The EIA incorporated findings of the domestic feasibility study and domestic EIAs, climate risk and vulnerability assessment, biodiversity assessment, site visits, and consultations with stakeholders. The EIA identified potential direct, indirect, cumulative, and induced environmental impacts and risks for the pre-construction, construction, and operation phases of the project. Avoidance of adverse effects through design and site management and mitigation measures through construction management are identified in the EMP. An assessment to determine the significance of project impacts and risks due to land degradation and soil erosion, surface and groundwater contamination from mine tailing and heavy metals, impacts on biodiversity and natural resources, and impacts due to inadequate medical infrastructure has been conducted; and adequate measures to avoid, minimize, or mitigate potential impacts and risks have been included in the EMP. Mitigation measures identified in the EMP require environmental compliance for air, water, and noise pollution and management of hazardous wastes, including mine tailing wastes and bio-medical wastes. Implementation of the proposed project components is expected to generate positive environmental impacts for the Kedashan abandoned mining area. The climate change assessment identified extreme intense precipitation, flooding, and extremely high temperatures as the most important risks affecting the project, and key recommendations have been incorporated in the EMP.

80. EMP includes a monitoring plan for internal monitoring by contractors during construction and O&M during operation. HPMO, with the support of project management consultants, will monitor the implementation of EMP and report to ADB semiannually. HPMO will also recruit an external monitoring entity to perform evaluation and assessment of the implementation and compliance with the project EMP and report to ADB semiannually. Environmental management, capacity development, and institutional strengthening activities are included in the project to mitigate risks. Two rounds of meaningful consultations have been conducted with all relevant stakeholders during project preparation, and the findings have been incorporated into the project design. Any potential environmental complaints or disputes will be handled in accordance with the grievance redress mechanism (GRM) established for the project. The EIA concluded that the anticipated environmental impacts and risks can be mitigated to acceptable levels by adherence to prescribed training and capacity building measures and effective implementation of the EMP. The draft EIA and EMP comply with the PRC's environmental laws and World Bank's environmental health and safety guidelines and are in accordance with the ADB's Safeguard Policy Statement (2009) (SPS). The draft EIA and EMP were disclosed on the ADB website on 15 July 2021.

81. The project is classified as medium climate risk, and the climate risk and vulnerability assessment conducted found extremely intense precipitation, flood, and extremely high temperature affecting project design, construction, maintenance, and performance. Extremely intense precipitation and flood can damage operational functional buildings or jeopardize the operation of the tailing landfill. These events can disturb regular O&M in case the project sites have access difficulties. Citizens accommodated in PIHECC and PWH are highly vulnerable to extreme climate events. Suitable measures will be incorporated in project design (all structures will be constructed to a flood protection standard of once in 50 years, and the landfills will be covered and sealed off with high strength rainproof materials) to mitigate impacts of climate change. Emergency reaction plans will be developed and made available in these project activity

areas during project implementation.

82. The EIA will be updated as required during the detailed design stage to include (i) additional baseline data collected by investigation of surface water and groundwater table, (ii) additional data gathered by sampling in different seasons and locations at suitable distance with the project site, (iii) any other potential chemical/hazard which may pose public health concern, (iv) occupational health and safety risks including risks associated with the management of bio-medical waste and control of COVID-19 pandemic during construction and operation, and (v) assessment of land use plan for the site and landfill area after closure.

83. In the design stage, the HPMO will coordinate between the design institute and the EIA institute to incorporate the EMP mitigation measures into the detailed engineering designs with allocated environmental mitigation budgets. The EMP includes a comprehensive monitoring plan which covers both internal monitoring (by contractors during construction and operation) and external monitoring. An External Environment Monitoring Consultant will be engaged by HPMO. The EMP will be part of the bidding documents when procuring all works packages. To ensure that bidders respond to the EMP provisions, the HPMO and the implementing agencies will prepare and provide the following specification clauses for incorporation into the bidding documents: (i) budget for EMP implementation in the bidders' proposals; (ii) environmental clauses for contractual terms and conditions; and (iii) updated project EIA and EMP, and the domestic EIA reports.

84. HMG and the implementing agencies will be responsible for ensuring that the project will be designed, constructed, and operated in accordance with (i) the domestic environmental, health, and safety laws, regulations, procedures, and guidelines; (ii) ADB's SPS; and (iii) the project EIA and EMP. HMG has the final responsibility for the implementation and compliance with the EMP and, through HPMO, will submit semiannual environmental monitoring reports to ADB for review and disclosure on the ADB website.

85. The implementing agencies will supervise and provide guidance to the contractors to ensure that the EMP is effectively implemented. They will consolidate the contractor's monthly environmental monitoring reports; ensure timely disclosure of the project EIA and/or EMPs in locations and forms accessible to the public; and take corrective actions when necessary, to ensure there are no environmental impacts. Their capacity to implement the EMP, as well as the capacity of the O&M unit to manage project facilities, will be strengthened through capacity building and training activities.

86. ADB will review and disclose semiannual EMP monitoring reports on the ADB website in line with ADB's Access to Information Policy (2018).

87. Site-specific EMP (contractor's environmental management plan) based on the EMP will be prepared prior to the commencement of works construction activities. The contract will specify the contractor to report monthly on the implementation of the contractor's environmental management plan.

88. The HMG shall make available, and cause the implementing agencies to make available, the necessary budgetary and human resources to fully implement the EMP. If there are any changes in project scope or unanticipated environmental and/or social risks and impacts that arise during construction, implementation or operation of the project that were not considered in the EIA and the EMP, the HPMO shall promptly inform ADB. The HPMO shall (i) assess the

significance of any unanticipated impacts, (ii) evaluate the options available to address them, and (iii) prepare or update the EIA and EMP to incorporate these impacts.

89. **Grievance redress mechanism.** HPMO will establish a project-specific GRM prior to the commencement of civil works to receive and manage any public environmental and/or social issues that may arise due to the project. The environment and social officers in HPMO and PIUs will coordinate the GRM. Loan implementation support consultants will train all project agencies and staff on the GRM for taking an active role in supporting the GRM when necessary. GRM is described in detail in the EMP section of the EIA.

90. **Project Assurances.** All ADB financed projects are required to comply with a standard set of loan assurances for environmental safeguards, which focus on compliance with national laws and the project EMP. In addition, the following project-specific assurances or action points and implementation mechanism are agreed between ADB and HMG.

- (i) HMG will ensure that HPMO and the implementing agencies (a) appoint at least one qualified environment officer as full-time HPMO staff to coordinate the implementation of the EMP; (b) in each of the two PIUs, appoint at least one qualified environment officer as full-time PIU staff to coordinate the daily implementation of the EMP at the county and district level; (c) recruit a loan implementation environmental consultant (LIEC) to support HPMO and PIUs in the EMP implementation; (d) ensure that either HPMO or PIUs have entered into contracts with at least one independent and appropriately qualified environment monitoring agency (EMA). This agency will implement the external environment monitoring described in the EMP; and (e) ensure that HPMO or PIU contract with the EMA requires the agency to report their monitoring results to HPMO, PIUs, the local ecology and environment bureaus, and ADB at the same time.
- (ii) Before and during the implementation of project and project components, HMG shall cause HPMO and PIUs to organize and conduct training on implementation and supervision of the EMP for HPMO, implementing agencies and their PIUs, construction supervision companies, and contractors, and shall ensure that the appropriate staff and officers receive such training.
- (iii) HMG will ensure that (i) sustainable financial support for operation and maintenance of all project facilities will be provided after construction, including the leachate transportation and treatment of the contaminated soil and landfill, operation of the constructed wetland, and monitoring after the construction completion; (ii) qualified operation and maintenance personnel will be assigned to manage all facilities during the project implementation and thereafter; and (iii) periodical inspection on the performance the facilities will be conducted to identify and promptly resolve any operational issues.
- (iv) For the associated facilities, the project will be involved with, i.e., Hezhou Medical Wastes Disposal Center, Hezhou Solid Wastes Incineration Power Plant, Pinggui District Wastewater Treatment Plant (WWTP), the industrial WWTP in Wanggao Industrial Park, the Medical Wastewater Treatment Station of Xiwan Community Clinic, as well as the two reservoirs of Shalongchong and Hongshuiping at downstream of Kedashan site. HMG shall ensure that such facilities shall continue to be maintained in accordance with domestic requirements for environmental management, including, but not limited to, environmental safety measures,

environmentally friendly treatment of domestic and medical wastes, treated wastewater discharge approvals, and worker and community health and safety. HMG shall immediately advise ADB if any changes are made to such facilities that adversely impact their capacity or function and affect the viability of the project. In such an event, HMG and ADB shall agree on any necessary corrective actions.

- (v) In the preliminary design stage, HMG and HMIGC must monitor the quality of “stabilized contaminated slag/soil after treatment” and confirm that it meets the “Pollutant Control Standard for the Storage and Disposal of General Industrial Solid Waste (GB18599-2001)” before the design and construction of the specific landfill and its facilities of Kedashan subproject. If it fails to meet the standards of GB18599-2001, it will be disposed of as hazardous solid waste according to the PRC’s related standards and regulations.
- (vi) During operation of the contaminated soil/slag landfill and the constructed wetlands of Kedashan subproject, HMG shall ensure that (a) new staff are not permitted to begin work until they have completed training of environmentally friendly and safe operation skills of the landfill, leachate disposal and other built facilities; (b) emergency response procedures to handling water pollution accidents are reviewed at least annually and updated as needed, (c) in the event that nearby and downstream surface water and groundwater pollution are detected, HMG will immediately require the ecology and environment bureaus and other government agencies to take effective measures to deal with the pollution accident.
- (vii) During the operation, HMG and HMIGC will ensure that leachate from the landfills of Kedashan subproject shall be regularly transported (once every three days at most) to the industrial WWTP of Wanggao Industrial Park to prevent the leachate from contaminating the soil and downstream surface water and groundwater.
- (viii) Prior to the commencement of the Works, HMG will and will cause HPMO or the implementing agencies to select and contract qualified and competent external environmental monitoring agency to monitor the surface water and groundwater near and downstream of the landfill site based on the sampling locations monitoring parameters and frequency specified in the EMP, the monitoring parameters include, but not limited to heavy metals and arsenic.
- (ix) HMG will and will cause the implementing agencies and PIUs to ensure that (i) any existing public services, including drinking water supply, wastewater treatment, solid waste collection, and power supply, will continue to be provided to communities during the civil works for the Pinggui subproject; (ii) any interruptions to such services are as limited as possible; and (iii) prior to any such interruptions, consultations are held with all affected communities and public.

B. Involuntary Resettlement

91. The project is category B for involuntary resettlement safeguards. Kedashan subproject will cover an area of 487.53 *mu* collectively owned by Baisha Community and Chaqing Village not contracted by individual households.³⁷ These lands will be available through a land use rights transfer (LURT) agreement between the Baisha Community and HMIGC during the project

³⁷ A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters).

implementation period of 6 years. HMIGC prepared a LURT framework to guide the preparation of LURT plans and finalization of agreements during project implementation. Pinggui subproject will occupy 128.84 *mu* of land with 93 affected households and trigger the demolition of 11,532.7 square meters of houses or structures with 28 affected households. PDG initiated the land acquisition activities for the identified sites in accordance with the 2011 urban development plan of Pinggui District (formulated in 2011 by Hezhou Construction Bureau), and not in anticipation of ADB funding of Pinggui subproject. ADB involuntary resettlement safeguard requirements are triggered due to the ongoing land acquisition and house demolition activities. As of March 2021, 94.6 *mu* of land has been acquired, with 69 households compensated, and 7,425.8 square meters of houses or structures have been demolished, with 17 households relocated. The land acquisition and resettlement of the remaining 27 *mu* land with 36 households including 17 households with house demolition impacts is expected to be completed by 31 December 2021. Involuntary resettlement impacts have been assessed significant for a total of 98 affected persons in the 17 households with house demolition impacts. PDG prepared a resettlement due diligence report (DDR) for prior and ongoing land acquisition and resettlement, including policy gap analysis between SPS 2009 and PRC regulations. The resettlement due diligence report confirms that the land acquisition process and resettlement activities are consistent with ADB's SPS and PRC requirements; includes the key elements of a resettlement plan; and implementation of the resettlement activities for the remaining households will be monitored as part of internal and external monitoring.

92. A GRM for Pinggui subproject has been functional since 2019 and will continue during the implementation of the remaining land acquisition. A GRM for Kedashan subproject has been established by HPMO to address grievances related to implementation of the LURT plan.

93. While the HMIGC, PDG, and the implementing agencies have the capacity to implement involuntary resettlement requirements consistent with ADB safeguard requirements, their capacity will be strengthened to implement the resettlement safeguards and conduct internal monitoring. During program implementation, HPMO will (i) prepare the LURT plan based on the detailed measurement survey and submit for ADB endorsement prior to contract award of civil works; (ii) make available the budget for resettlement implementation on a timely basis, (iii) conduct internal resettlement monitoring and reporting; and (iv) engage an external monitor to monitor and evaluate the implementation of the LURT plan, actions identified in the resettlement DDR and submit semiannual reports to ADB for uploading on ADB website. The HPMO shall ensure that (i) all affected persons are given adequate opportunity to participate in resettlement planning, updating, and implementation; (ii) counterpart funds for LAR activities are provided according to the budget and project schedule; (iii) any additional costs in excess of the resettlement planning budget estimates are met within the project schedule; (iv) land acquisition activities are implemented in accordance with applicable government laws and regulations and ADB's SPS; in case of any inconsistency between government laws and ADB's policy, the latter shall prevail; (v) HPMO and the implementing agencies shall designate adequate staff and resources to supervise and monitor implementation of the resettlement DDR and LURT plan and submit semiannual internal monitoring reports to ADB; and (vi) an external monitor acceptable to ADB is engaged to monitor progress and evaluate results of resettlement implementation and submits semiannual external monitoring reports simultaneously to HPMO and ADB. The HPMO shall not award any works contract which involves involuntary resettlement impacts until a resettlement monitoring report by the external monitor is submitted to ADB confirming that all affected households are compensated for land acquisition and house demolition impacts and a livelihood restoration plan is agreed with the affected households for the Pinggui subproject and a LURT plan is prepared for the Kedashan subproject based on the detailed measurement surveys and obtained ADB's clearance of such plans.

94. The implementing agencies shall not hand over a specific section of land to the civil works contractor until (i) affected people who were compensated for that specific section have vacated the site, and (ii) the specific section of the subproject is free from any encumbrances.

C. Indigenous Peoples

95. The project is category B for the project impacts on indigenous peoples (ethnic minorities). Yao and Zhuang are the two main ethnic minority groups in the project areas. The project will directly benefit about 63,333 ethnic minority persons directly by (i) improved environment, (ii) increased employment opportunities, (iii) improved health- and elderly-care facilities and services, and (iv) enhanced employment competitiveness through improved technical and skills training.³⁸ HMG prepared an ethnic minority development plan (EMDP) to ensure that (i) at least 20% of ethnic minority persons will participate through consultations in project design and implementation activities, (ii) at least 20% of jobs in the project construction and operation phases are allocated to ethnic minorities, (iii) at least 80% of ethnic minority persons in the project area will receive environment awareness and knowledge, and (iv) campaigns on health and elderly care will reach all ethnic minority households. The EMDP has been disclosed to ethnic minorities in the project areas in local languages and on the ADB website on 29 July 2021. A GRM will be established. HPMO and PIUs have assigned staff in charge of EMDP implementation and monitoring, and project management support consultants will assist them.

96. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).

³⁸ The data for ethnic minorities are for 2020, provided by each township government.

VIII. GENDER AND SOCIAL DIMENSIONS

97. **Gender.** The project is categorized as *effective gender mainstreaming*.³⁹ Women in the project area have limited educational, employment, and income-earning opportunities compared with men because women are engaged in a variety of household responsibilities. They look after the children and elderly and engage in household chores. In addition to such household activities, they work at local farms as temporary hands, and few of them engage in local non-farm work to earn wages. About 67,000 men and 39,000 women go out of Pinggui as migrants leaving behind about 25,000 women and 4,000 men in Pinggui. The proportion of women to men who are left-behind is 6:1. In the project areas, women urgently require skills training in fields such as medical, elderly care, and e-commerce where they could find employment. Women, in general, need knowledge on ways to prevent chronic and common gynecological diseases and improve their health. The project will open opportunities for women to participate in the labor market and earn decent wages, and to improve their well-being through informational programs that would improve their knowledge and networks.

98. **Poverty and social.** The project is classified as *general intervention* for poverty reduction. A poverty and social analysis was undertaken based on the results of the online and field surveys, consultations with project stakeholders, including project-affected persons and representatives of government agencies at the city, district, township, and village levels, Persons with Disabilities Association, and the Women's Federation. A total of 482,000 persons resides in the project area. They include low-income persons (20%), women (47.6%), PWDs (6.6%), elders (9.5%), and ethnic minorities (13.3%). They will directly benefit from the project through (i) integrated medical resources at district, township, and village levels with improved service quality under strengthened institutional mechanism; (ii) significant increase in the access to hospitalized treatment from current 32% to 70% in Pinggui, reducing in-patients' medical expenses by about 50%; (iii) rescuing 15,000 persons from impoverishment by liberating laborers from out-migration and unemployed and under-employed by providing targeted skills training programs, specifically for women. It is estimated that about 1,095 jobs will be created during the construction and operation phases of the project. In addition, 350,000 persons who depend on the He River for their drinking water and irrigation water requirements, and patients from neighboring counties will indirectly benefit from the project.

99. **Social and gender action plan.** A social and gender action plan (SGAP) has been prepared with specific targets for women, low-income people, and PWDs, and requirements for inclusive design and O&M of the project facilities (Table 25). On gender aspects, the SGAP includes (i) consultations on project facilities' design and O&M to reflect the facilities' usability and comfort for female staff and visitors; (ii) promotion of green and health care-related skills training for women by setting quotas; (iii) annual skills training needs assessment by gender; and (iv) quotas for job opportunities created by the project. Key gender targets have also been included in the DMF (Table 26). HPMO will engage a social and gender development specialist to assist the implementation of the SGAP. HPMO will report semiannually on the SGAP implementation progress to ADB, and an independent external monitor will verify the monitoring reports. A consultation and participation plan for project implementation is included in Section IX.

³⁹ ADB. 2021. [Guidelines for Gender Mainstreaming Categories of ADB Projects](#). Manila.

Table 25: Social and Gender Action Plan

Proposed Actions	Indicators and Targets	Responsible Agencies	Time line	Budget
Outcome: Kedashan's environment and Pinggui's health services improved				
1. The number of Pinggui residents receiving health-care services from health-care facilities in Pinggui increased	<ul style="list-style-type: none"> 6.2% increase by 2028^a (2020 baseline: 5,253, sex-disaggregated) 	PHB, PDG	2022–2028	Government and project budgets
2. Publish at least one municipal-level policy or action plan on comprehensive medical and health community	<ul style="list-style-type: none"> 1 policy or action plan on comprehensive medical and health community at municipal level (2020 baseline: 0) 	PHB, PDG, HMG	2022–2028	Government and project budgets
3. Priority to women and low-income persons for the management of the land (e.g., tree planting) after the restoration, if under collective management ^b	<ul style="list-style-type: none"> 20 full-time jobs for Kedashan subproject <ul style="list-style-type: none"> At least 50% positions to women At least 20% positions to low-income persons (2020 baseline: 0)	HMIGC, Baisha community	2022–2028	Government and project budgets
4. Trained primary care or elderly-care workers in Pinggui provide improved services	<ul style="list-style-type: none"> At least 590 trained health workers, at least 60% women, are providing primary care or elderly-care services in Pinggui^c (2020 baseline: 0) 	PHB, PDG, HMG	2026–2028	Government and project budgets
Output 1: Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented				
1.1 Priority for nonskilled and temporary jobs to local villagers during construction	<ul style="list-style-type: none"> 50 temporary nonskilled jobs <ul style="list-style-type: none"> At least 10% positions to women^d At least 30% positions to low-income villagers Sex-disaggregated data provided (2020 baseline: 0)	HMIGC, contractors	2022–2027	Project budget
1.2 Consultations with local villagers on environmental awareness and management of the land use after land restoration	<ul style="list-style-type: none"> 1 consultation meeting each year <ul style="list-style-type: none"> At least 30% of participants are female villagers (2020 baseline: 0)	HMIGC, Baisha community	2022–2027	Government and project budgets
Output 2: Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened				
2.1 Gender-sensitive, green, and inclusive design for PWH and PIHECC	<ul style="list-style-type: none"> 1 engineering design for PWH and PIHECC <ul style="list-style-type: none"> Tactile paving Wheelchair accessible Parking area for PWDs Accessible and gender-sensitive toilets Baby care room in PWH (2020 baseline: 0)	PDG, PUCIC, design institutes	2021–2022	Project budget

Proposed Actions	Indicators and Targets	Responsible Agencies	Time line	Budget
2.2 Construction and operation of gender-sensitive, green, and inclusive general public hospital	<ul style="list-style-type: none"> PWH, a green, inclusive, and smart county-level IIA general public hospital, constructed and operational^d (2020 baseline: 0) 	PDG, PHB, PWH, PUCIC, contractors	2023–2027	Project budget
2.3 Construction and operation of an integrated health and elderly care center	<ul style="list-style-type: none"> PIHECC, a green and inclusive public facility, constructed and operational (2020 baseline: 0) 	PDG, PHB, PIHECC PUCIC, contractors	2022–2027	Project budget
2.4 Upgrade primary care services with upgraded medical equipment at township-level hospitals	<ul style="list-style-type: none"> 9 township-level hospitals providing primary care services with upgraded medical equipment^e (2020 baseline: not upgraded) 	PDG, PHB, township hospitals	2022–2024	Project budget
2.5 Consultation with medical staff and potential users on engineering designs and operation and maintenance	<ul style="list-style-type: none"> 2 rounds of consultations each for PWH and PIHECC (pre-draft design and post-draft design consultations) <ul style="list-style-type: none"> At least 50% of participants are women Concerns raised are addressed (2020 baseline: 0)	PDG, PHB, PUCIC, design institutes	2021–2022	Project budget
2.6 Online education and training of rural women and schoolgirls on prevention of gynecological diseases and other illnesses	<ul style="list-style-type: none"> Develop and publish an online education and/or training material each year <ul style="list-style-type: none"> An application Number of school websites uploaded (2020 baseline: 0)	PHB	2022–2027	Government and project budget
2.7 Free clinics, awareness-building campaigns, and educational day on medical and elderly care by township and district medical staff in each township	<ul style="list-style-type: none"> 1 activity day in each township each year (9 townships) <ul style="list-style-type: none"> Number of medical staff participated by gender Number of local residents by gender and by age group received free clinics Number of schoolgirls received awareness education on prevention of gynecological diseases Number of education material (medical information sheets, including female health) distributed (2020 baseline: 0)	PDG, PHB, PUCIC, PWH, PIHECC, township hospitals	2022–2027	Project budget
2.8 Training of PWH, PIHECC, and township and village-level primary care hospital staff	<ul style="list-style-type: none"> 1,200 persons from PWH staff and township and village-level primary care hospital staff trained and 80% reported improved skills in primary and elderly care, with at least 60% women (2020 baseline: 0 persons, not improved, 0% women) 	PDG, PHB, PUCIC, PWH, PIHECC, township hospitals	2022–2027	Project budget
2.9 Assist KSSC to develop skills training courses on medical and elderly care	<ul style="list-style-type: none"> 10 courses <ul style="list-style-type: none"> Number of medical staff by gender involved each year 	PWH, PIHECC, KSSC,	2023–2027	Project budget

Proposed Actions	Indicators and Targets	Responsible Agencies	Time line	Budget
	<ul style="list-style-type: none"> ○ Number of courses developed ○ Updates made (2020 baseline: 0) 	PHRSSB, PUCIC, PDG		
2.10 Assist medical experts as trainers for KSSC to carry out skills training on medical and elderly care	<ul style="list-style-type: none"> ● 10 courses <ul style="list-style-type: none"> ○ Number of medical staff by gender assigned each year ○ Number of courses taught or trained ○ Number of trainees by gender each year (2020 baseline: 0) 	PWH, PIHECC, KSSC, PHRSSB, PUCIC, PDG	2023–2027	Project budget
2.11 Consultation with the Women's Federation for policy recommendation	<ul style="list-style-type: none"> ● At least one policy provision or action on strengthening gender responsiveness of institutions or mechanisms of comprehensive medical and health community at Pinggui included in the action plan. (2020 baseline: 0) 	HMG, PDG, PHB, Women's Federation	2022–2024	Project budget
2.12 Give priority for project-fud nonskilled jobs to land acquisition affected villagers during project operation	<ul style="list-style-type: none"> ● About 100 nonskilled jobs (100% of total) <ul style="list-style-type: none"> ○ At least 50% (50 positions) for women ○ 5% for PWDs ○ 20% for low-income people (2020 baseline: 0) 	PWH, PIHECC, PUCIC, PDG	2023–2027	Project budget
Output 3: Green and health care-related skills development institutions established				
3.1 Inclusive and green design of the KSSC	<ul style="list-style-type: none"> ● 1 engineering design <ul style="list-style-type: none"> ○ Tactile paving ○ Wheelchair accessible ○ Parking area for PWDs ○ Accessible toilets (2020 baseline: 0) 	PUCIC, PDG, PHRSSB, Women's Federation, PWDA, design institute	2021–2022	Project budget
3.2 Construction and operation of a knowledge and skills sharing center	<ul style="list-style-type: none"> ● KSSC, a green and inclusive public facility, constructed and operational (2020 baseline: 0) 	PDG, PHRSSB, PUCIC, KSSC, contractors	2022–2027	Project budget
3.3 Setting up a coordination mechanism and establishing a working group	<ul style="list-style-type: none"> ● A mechanism <ul style="list-style-type: none"> ○ One working group ○ Member agencies (Women's Federation, PDWA, PHRSSB, etc.) (2020 baseline: 0) 	PUCIC, PDG, PHRSSB, Women's Federation, PWDA, design institute	2021–2022	Project budget

Proposed Actions	Indicators and Targets	Responsible Agencies	Time line	Budget
3.4 Online needs assessment using a smartphone-based application	<ul style="list-style-type: none"> Needs assessments of 500 respondents each year <ul style="list-style-type: none"> An application Number of respondents by type of needs and by gender Needs for green and health care-related skills by gender (2020 baseline: 0)	KSSC, PUCIC, PDG, PHRSSB, Women's Federation, PWDA, partners (enterprises and agencies)	2023–2027	Government and project budgets
3.5 Development of tailor-made green and health care-related skills training plans, based on needs of individuals, enterprises in Wanggao Industrial Park, PWDA, Women's Federation, and various government agencies	<ul style="list-style-type: none"> 20 plans each year <ul style="list-style-type: none"> Number of plans by skill type Partnership enterprises and agencies (2020 baseline: 0)	KSSC, PDG, PUCIC, PHRSSB, partners (enterprises and agencies)	2023–2027	Project budget
3.6 Training of people in health care-related skills at KSSC	<ul style="list-style-type: none"> At least 400 persons trained in health care-related skills⁹ <ul style="list-style-type: none"> At least 70% for women 30% for low-income people At least 5% for PWDs (2020 baseline: 0, 30%, 0%, 0%)	KSSC, PDG, PUCIC, PHRSSB, partners (enterprises and agencies)	2026–2027	Project budget
3.7 Training of left-behind women	<ul style="list-style-type: none"> Training of 2,000 left-behind women each year <ul style="list-style-type: none"> 5% in green and health care-related skills At least 50% of trained women get employed in non-farm sectors in Pinggui District (2020 baseline: 0)	KSSC, PHRSSB, Women's Federation	2026–2027	Project budget
3.8 KSSC staff trained in skills certification mechanisms, human resources development plan, and course setting with potential collaboration with local private companies	<ul style="list-style-type: none"> Training of at least 50 KSSC management staff and teaching staff and/or instructors <ul style="list-style-type: none"> At least 40% for women (2020 baseline: 0)	KSSC, PDG, PUCIC, PHRSSB	2023–2027	Project budget
Project management				
4.1 Assigning social and gender development officers at the HPMO and PIUs	<ul style="list-style-type: none"> 1 officer at the HPMO and 2 officers at PIUs (one each) <ul style="list-style-type: none"> Date of assignments Number of internal (HPMO's and PIUs') monitoring reports prepared Number and type of public consultations participated 	HPMO, HMIGC, PDG, PUCIC	2022–2027	Project budget

Proposed Actions	Indicators and Targets	Responsible Agencies	Time line	Budget
	(2020 baseline: 0)			
4.2 Training of HPMO and PIU staff in social and gender aspects, including social and gender action plan monitoring	<ul style="list-style-type: none"> 20 person-times each year for 2 years <ul style="list-style-type: none"> Number of staff trained Training contents (2020 baseline: 0)	HPMO, HMIGC, PDG, PUCIC	2022–2023	Project budget

HMG = Hezhou Municipal Government, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, KSSC = Knowledge and Skills Sharing Center, PDG = Pinggui District Government, PHB = Pinggui Health Bureau, PHRSSB = Pinggui Human Resource and Social Security Bureau, PIHECC = Pinggui Integrated Health and Elderly Care Center, PIU = project implementation unit, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited, PWD = person with disability, PWDA = Persons with Disabilities Association, PWH = Pinggui Workers' Hospital.

^a Estimated annual increase of 1% during the project implementation from 2022 to 2028.

^b The restored land will be returned to the community (under collective land ownership), but the management system after returning is yet to be determined.

^c For Pinggui subproject, 60% female target is set based on female staff ratio in similar health institutions in Hezhou.

^d Construction jobs are mostly heavy manual work, unsuitable for women.

^e The inclusive design includes consideration of needs of women, such as baby care room for both staff and patients with small babies, female restroom design, and consideration for pregnant women.

^f The equipment includes primary care-related and gynecological apparatus to meet women's demands.

^g Estimated for 2 years (2026 and 2027) after the KSSC is operational and starts offering training. The baseline is study team estimate based on interview in Pinggui District during the project preparation.

Source: Asian Development Bank.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

100. Based on the project's expected outputs and outcome, a DMF was developed to enable meaningful measurement and monitoring of the project's performance.

Table 26: Design and Monitoring Framework

Impact the Project is Aligned with Living and health conditions and well-being of residents in Hezhou improved (Hezhou City Environment Master Plan, 2016–2030 and Healthy Hezhou 2030 Plan) ^a			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Kedashan's environment and Pinggui's health services improved	By 2028 a. Surface water quality in Kedashan improved, with 70% of total samples tested in the year reaching criteria for Class IV ^b (2020 baseline: 61%) (OP 3.3.2) b. The number of Pinggui residents receiving health-care services from health-care facilities in Pinggui increased by 6.2% ^c (2020 baseline: 5,253, sex-disaggregated) (OP 1.1) c. At least one municipal-level policy or action plan on comprehensive medical and health community published (2020 baseline: 0) (OP 1.1.2) d. At least 590 trained health workers, at least 60% women, are providing primary care or elderly-care services in Pinggui ^d (2020 baseline: 0) (OP 1.2, OP 2.1)	a. Hezhou Ecology and Environment Bureau's official environmental monitoring reports b. Hezhou Health Bureau's annual reports c. HMG's official notice d. Periodic report by HMG and implementing agencies on project operation and maintenance	R: Changed government requirement on land use and environmental protection A: Sustainability of government support and commitment to environmental protection and health capacity and quality development
Outputs 1. Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented	By 2027 1a. At least 130,000 m ² of damaged land surface restored at the abandoned mineral mining site in Kedashan, of which at least 100,000 m ² are vegetated (2020 baseline: 0) (OP 3.3.3) 1b. At least 44,000 cubic meters of polluting mining wastes and tailings safely treated onsite (2020 baseline: 0) (OP 3.3.4) 1c. Nature-friendly eco-permeable dikes, pollution filter strips, and subsurface-flow constructed wetland to treat polluted surface water established (2020 baseline: not established) (OP 3.3.4)	1a.–e. HPMO's project progress reports	R: Changed requirements from the government on land use and environmental protection

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>2. Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened</p> <p>3. Green and health care-related skills development institutions established</p>	<p>1d. Environmental monitoring system for Kedashan established and monitored (2020 baseline: not established) (OP 3.3.1)</p> <p>1e. 50 temporary nonskilled jobs created for construction, of which 10% are provided to women and 30% to low-income villagers^e (2020 baseline: 0) (OP 1.2)</p> <p>1f. Practical guidance for applying a nature-based approach to improve Hezhou mountain areas' environment drafted (2020 baseline: 0) (OP 3.3.1)</p> <p>2a. 1,200 PWH and township and village-level primary care hospital staff, at least 60% women, trained, and 80% report improved skills in primary and elderly care (2020 baseline: 0 person, not improved, 0% women) (OP 1.1.2, OP 2.1, OP 5.1.3, OP 6.2)</p> <p>2b. At least one policy recommendation or action plan prepared in consultation with stakeholders, including the Women's Federation, on strengthened institutions or mechanisms of a comprehensive medical and health community at Pinggui (2020 baseline: 0) (OP 1.1.2)</p> <p>2c. PWH, a green, inclusive, and smart county-level IIA general public hospital, constructed and operational^f (2020 baseline: 0) (OP 1.1.2, OP 1.3.1, OP 2.2.2, OP 2.4.2, OP 3.1.3, OP 4.1.1, OP 4.1.2)</p> <p>2d. PIHECC, a green and inclusive public facility, constructed and operational (2020 baseline: 0) (OP 1.1.2, OP 1.3.1, OP 2.2.2, OP 2.4.2, OP 3.1.3, OP 4.1.1, OP 4.1.2)</p> <p>2e. Nine township-level hospitals providing primary care services with upgraded medical equipment^g (2020 baseline: not upgraded) (OP 1.1.2, OP 5.1.3)</p> <p>3a. An operational study prepared to optimize quality of demand-based training, including skills certification mechanisms, course setting, and human resource development plan (2020 baseline: 0) (OP 1.3.3, OP 6.1, OP 6.2)</p> <p>3b. KSSC, a green and inclusive public facility, constructed and operational (2020 baseline: 0) (OP 1.1.3, OP 1.3.1, OP 3.1.3, OP 4.1.1, OP 4.1.2)</p> <p>3c. At least 400 people trained in health care-related skills, with 70% women, 30% low-income people, and 5% persons with disabilities^h (2020 baseline: 0, 30%, 0%, 0%)ⁱ (OP 1.3.3, OP 2.1.1, OP 5.1.3)</p>	<p>1f. Deliverable of consultants and HPMO's project progress reports</p> <p>2a. Survey of trained hospital staff</p> <p>2b. Pinggui District Government's official notice</p> <p>2c.–e. HPMO's project progress reports</p> <p>3a. Deliverable of consultants and HPMO's project progress reports</p> <p>3b.–c. HPMO's project progress reports</p>	

Key Activities with Milestones

1. Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented

- 1.1 Develop a long-term environment- and pollution-monitoring system in Kedashan, to operate in Q1 2022–Q4 2027 and continue until the agreed timing beyond the project completion date.
- 1.2 Restore and vegetate damaged or exposed ground surface of four locations in Kedashan with a nature-based approach in Q3 2022–Q2 2026.
- 1.3 Construct three eco-permeable dikes, two pollution filter strips, and a subsurface-flow constructed wetland to treat polluted surface water using a nature-based approach in Q3 2022–Q2 2026.
- 1.4 Construct a landfill, a tailing treatment and stabilization plant, leachate, and a rainwater collection system; collect and treat tailings and waste; dismantle the treatment plant; safely close and cover the landfill; and restore the land to the original grassland in Q3 2022–Q2 2026.
- 1.5 Conduct a study to formulate practical guidance for applying a nature-based approach to improve the environment of Hezhou mountain areas in Q4 2022–Q3 2024.
- 1.6 Construct and rehabilitate access roads to support activities and maintenance of project facilities in Q3 2024–Q3 2026.
- 1.7 Disseminate the recommendations and knowledge from the study of the nature-based solutions for potential adoption by governments in Q4 2024–Q2 2027.
- 1.8 Operate and maintain project facilities in Q3 2024–Q4 2027 and continue beyond the project completion date.

2. Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened

- 2.1 Construct a green and inclusive PIHECC in Q3 2022–Q3 2023.
- 2.2 Design, coordinate, and conduct training to develop administration and operation capacity of managers, and develop working mechanisms and integrate medical and elderly care for PIHECC in Q3 2022–Q3 2025.
- 2.3 Design, coordinate, and conduct training to build technical capacity of township and village-level rural hospital staff to improve primary care service quality in Q3 2022–Q4 2027.
- 2.4 Design a practical institutional working mechanism and system to build a medical community and disseminate recommendations and knowledge for potential adoption by governments in Q4 2022–Q3 2024.
- 2.5 Construct a green, smart, and inclusive PWH in Q4 2022–Q4 2026.
- 2.6 Upgrade equipment of nine township-level hospitals in Q1 2023–Q1 2025.
- 2.7 Design, coordinate, and conduct training to build technical capacity of staff working in PIHECC in Q3 2023–Q2 2026.
- 2.8 Operate and maintain project facilities in Q4 2023–Q4 2027 and continue beyond the project completion date.
- 2.9 Establish and install a medical community platform serving Pinggui district, township, and village-level public medical institutions in Q4 2024–Q3 2025.
- 2.10 Apply the design of the medical community from Q1 2025.
- 2.11 Purchase medical equipment and install it in PWH in Q2 2025–Q1 2026.
- 2.12 Design, coordinate, and conduct training to develop administration capacity of managers and technical capacity of doctors, nurses, staff, and operators of PWH in Q3 2025–Q4 2027.

3. Green and health care-related skills development institutions established

- 3.1 Construct a green and inclusive KSSC in Q3 2022–Q3 2025.
- 3.2 Conduct a KSSC operation study in Q4 2024–Q3 2025.
- 3.3 Install equipment required for course and training delivery in Q1 2025.
- 3.4 Prepare a training plan for managers for human resource development and for teachers in Q2 2025–Q4 2027.
- 3.5 Operate and maintain project facilities in Q3 2025–Q4 2027 and continue beyond the project completion date.

Project Management Activities

Start managing the project and implement advance actions, including institutional setting and implementation of procurement and financial management action plans; start participating in project

Project Management Activities

management-related training; recruit and mobilize start-up consultants, a procurement agent, and qualified design institutes in Q3 2021.

Prepare the preliminary design and construction drawings and update the EMP, LURT plan, and EMDP as necessary in Q3 2021–Q4 2022.

Prepare detailed terms of reference for project management support consulting and construction supervision teams by Q1 2022.

Prepare the bidding documents and conduct bidding for works and goods in Q1 2022–Q4 2026.

Submit an annual plan of project management-related training, workshops, and study tours to ADB for prior approval in Q1 2022–Q1 2027.

Prepare detailed terms of reference for studies and capacity building activities under outputs 1–3 and recruit consulting teams in Q2 2022–Q1 2025.

Monitor and evaluate project impact, outcome, and outputs using the project performance management system, and submit the HPMO's quarterly project progress reports to ADB covering the previous quarter from Q2 2022.

Start implementing the EMP, resettlement due diligence report, LURT plan, EMDP, SGAP, procurement plan, and consultation and participation plan, and monitor their implementation in Q2 2022–Q4 2027.

Mobilize project management support consulting and construction supervision teams and start managing the project with the support of consulting team from Q3 2022.

Conduct project management-related training, workshops, and study tours in Q3 2022–Q3 2027.

Submit the HPMO's semiannual implementation and monitoring reports on the EMP, resettlement due diligence report, LURT plan, EMDP, and SGAP implementation to ADB, covering Q1 2022–Q3 2027, in Q3 2022–Q4 2027.

Recruit and mobilize three external monitoring agencies by Q3 2022.

Submit semiannual external monitoring and evaluation reports on the EMP, resettlement due diligence report, LURT plan, EMDP, and SGAP implementation to ADB, covering Q1 2022–Q3 2027, in Q3 2022–Q4 2027.

Submit the HPMO's project completion report by Q2 2028.

Inputs

ADB: €84.246 million (loan)

Government of the People's Republic of China: €114.626 million

A = assumption, ADB = Asian Development Bank, EMDP = ethnic minority development plan, EMP = environmental management plan, HMG = Hezhou Municipal Government, HPMO = Hezhou project management office, KSSC = Knowledge and Skills Sharing Center, LURT = land use rights transfer, m² = square meter, OP = operational priority, PIHECC = Pinggui Integrated Health and Elderly Care Center, PWH = Pinggui Workers' Hospital, Q = quarter, R = risk, SGAP = social and gender action plan.

^a HMG. 2018. *Hezhou City Environment Master Plan, 2016–2030*. Hezhou (in Chinese); and HMG. 2018. *Healthy Hezhou 2030 Plan*. Hezhou (in Chinese).

^b Government of the People's Republic of China, Ministry of Ecology and Environment. 2002. *Environmental Quality Standards for Surface Water*. Beijing (in Chinese). A qualified environmental monitoring agency shall conduct surface water quality testing at 20 points as per the agreed monitoring plan (Appendix 2 of project administration manual). Five indicators (Ph, arsenic, lead, cadmium, and chromium [hexavalent]) will be tested and compared with the requirements of Class IV surface water quality. If all five indicators are better than required, the sample is considered Class IV. At the end of each year, the ratio of the number of Class IV samples out of total samples tested that year will be calculated.

^c Estimated annual increase of 1% during project implementation from 2022 to 2028.

^d For the Pinggui subproject, the target of 60% females is based on the female staff ratio in similar health institutions in Hezhou.

^e Construction jobs are mostly heavy manual work, unsuitable for women.

^f The inclusive design includes consideration of the needs of women, such as a baby-care room for staff and patients, female restroom design, and consideration for pregnant women.

^g The equipment includes primary care-related and gynecological apparatus.

^h Estimated for 2 years (2026 and 2027) after the KSSC is operational and starts offering training.

ⁱ The baseline is a study team estimate based on interviews in Pinggui during project preparation.

Contribution to Strategy 2030 Operational Priorities

Expected values and methodological details for all OP indicators to which this operation will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix

2). In addition to the OP indicators tagged in the design and monitoring framework, this operation will contribute results for

OP 3.1: Total annual greenhouse gas emissions reduction (ton of carbon dioxide equivalent/year)

OP 3.1.1: Additional climate finance mobilized (\$)

OP 3.3: People benefiting from strengthened environmental sustainability (number)

OP 4.1: People benefiting from improved services in urban areas (number)

OP 5.1: People benefiting from increased rural investment (number)

Source: ADB.

B. Monitoring

101. **Project performance monitoring.** To monitor the progress of the project in achieving the planned outcome and outputs, HPMO will establish a project performance management system (PPMS) before the project's physical activities start (soon after the PMISC is mobilized, by Q3 2022) and will maintain it accordingly. PPMS design should reflect the requirements of ADB's project performance reporting system and gender monitoring system.⁴⁰ The basis for project performance monitoring and reporting will be the DMF, which identifies performance targets for the outcomes and outputs of the project. It will be designed to permit adequate flexibility to adopt remedial action regarding project design, schedules, activities, and development impacts. The PPMS will cover the following aspects of the project implementation: (i) physical and financial progress; (ii) progress and results of institutional strengthening and capacity development; (iii) updating and implementation of the resettlement DDR and LURT plan; (iv) implementation of the EMP; (v) implementation of EMDP; (vi) implementation of SGAP; and (vii) ensuring project compliance with loan covenants (policy, financial, economic, sector, and others).

102. HPMO agreed and confirmed that the targets are achievable, and they will (i) recruit a start-up project management consultant using advance action to help establish the PPMS before loan effectiveness; and (ii) develop recording, monitoring, and reporting arrangements. With inputs from PIUs and other stakeholders, HPMO, with support from the PMISC, will prepare quarterly project progress reports. Disaggregated baseline data for outputs and outcome indicators gathered during project preparation will be updated and reported in the quarterly progress reports and after each ADB review mission. At the start of project implementation, HPMO, PIUs, and ADB will develop and agree with integrated PPMS procedures to generate data systematically on the inputs and outputs, as well as the indicators to be used to measure the project's impact and outcome considering the project scope.

103. **Compliance monitoring.** During project implementation, ADB and HPMO will closely monitor the compliance of all the covenants under the project and will take necessary remedial actions for any noncompliance. The compliance status will be reported in the HPMO's quarterly progress reports and will be reviewed during project review missions, including the following:

- (i) **Legal covenants.** HMG shall ensure that in the event of (i) any change in ownership or control of the project facilities; or (ii) any sale, transfer, or assignment of the shares of PIUs is anticipated, HMG will consult with ADB at least 6 months prior to the implementation of such change. HMG shall cause PIUs to further ensure that such changes are carried out in a lawful and transparent manner.
- (ii) **Counterpart funding.** HMG shall provide the details of the sources of the counterpart funding as well as provide corresponding commitment letters. The total cost includes physical and price contingencies and interest during construction.

⁴⁰ ADB's project performance reporting system is available at <http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

- (iii) **Financial management.** HMG shall establish and maintain sound financial management systems in accordance with ADB's guidelines on the financial management and analysis of projects, including the establishment of separate project accounts and the maintenance of minimum balances to ensure smooth cash flow and the timely settlement of project construction liabilities and future debt servicing.⁴¹
- (iv) **Governance and anticorruption.** ADB explained ADB's Anticorruption Policy (1998, as amended to date) and discussed with the HMG, HPMO, implementing agencies, and PIUs.⁴² Specific policy requirements and supplementary measures are described in Section X.
- (v) **Technical aspects.** After the completion of the construction and operation of the building information management system installation, implementing agencies will request the smart building system contractors to provide 5 years maintenance warranty for their system. Implementing agencies (project owners), HPMO, and ADB can access the smart building system's real-time data. The summary of information on building environmental performance will be reported in the quarterly monitoring report.

104. **Safeguards monitoring (environment).** HPMO will prepare and submit semiannual HPMO's internal environmental monitoring reports (IEMRs) (template attached in the EMP) to ADB within 15 days of the end of each period covered. The first IEMR will cover the first 6 months from the date of loan effectiveness. In case of advance actions and works commencement prior to loan effectiveness, HPMO will include safeguards management and compliance report for that period in the first IEMR (IEMR-01). The IEMR will include a review of progress made on the implementation of the EMP, any grievances or problems encountered, and remedial measures taken. Quarterly project progress reports will include a section on environmental aspects of the project. Subproject completion reports shall be finalized within 3 months after completion of each subproject. HPMO will engage an environment consultant as part of PMISC to support HPMO and PIUs on the internal monitoring and preparation of the reports.

105. HPMO shall employ a qualified and experienced external environment monitoring consultant (EEMC) for environmental monitoring using loan proceeds. The external environment monitor shall monitor project on a semiannual basis until a project completion report is issued. The EEMC will review and evaluate the IEMR, including review and analysis of project-related significant environmental impacts, progress of implementation of mitigation measures as outlined in the project EIA and EMP, participation in ongoing stakeholder consultations and evaluation and reporting on how environmental grievances, if any, are handled. The EEMC will submit to ADB an external environmental monitoring report (EEMR) semiannually within 2 months from the respective IEMR submission for review and disclosure on the ADB website.

106. **Safeguards monitoring (involuntary resettlement).** HPMO, together with the PIUs, will monitor implementation of the actions identified in the resettlement DDR for Pinggui subproject and the LURT plan for Kedashan subproject and submit semiannual internal land acquisition and resettlement monitoring reports to ADB. HPMO will regularly report the implementation progress by summarizing the land acquisition and resettlement progress in the quarterly project progress reports. HPMO will engage a resettlement consultant as part of PMISC to support HPMO and PIUs on the internal monitoring and preparation of the reports.

107. HPMO will engage an external resettlement monitor to carry out verification and

⁴¹ ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

⁴² Anticorruption Policy: <https://www.adb.org/documents/anticorruption-policy>

compliance monitoring of the implementation of the DDR actions and the LURT plan. The external resettlement monitor will submit semiannual monitoring reports to HPMO and ADB during the period of resettlement safeguards implementation. After 1 year of the completion of implementation of the DDR actions and the LURT plan, the external resettlement monitor will evaluate the implementation of land acquisition and resettlement provisions in the project and submit a resettlement completion report to HPMO and ADB.

108. **Safeguards monitoring (indigenous peoples).** HPMO together with the concerned PIUs will monitor the implementation of the EMDP and submit semiannual EMDP implementation monitoring reports to ADB. The PIUs will regularly report on the implementation the EMDP by summarizing key actions, achievements, and delays in the HPMO's quarterly project progress reports. HPMO will engage a social consultant as a member of PMISC to support HPMO and PIUs in internal monitoring and preparing of the monitoring reports. A monitoring methodology and the framework for developing a detailed plan for monitoring and evaluation is included in the EMDP. The PPMS will include EMDP monitoring indicators and required frequencies of monitoring.

109. The HPMO will engage an external monitor to verify the results of monitoring of EMDP and SGAP implementation. The external monitor will submit semiannual monitoring reports to the HPMO and ADB during the project implementation period.

110. **Gender and social dimensions monitoring.** The DMF and SGAP include relevant targets and monitoring indicators. HPMO and social consultants of PMISC will establish a comprehensive project management system for all social and gender aspects of the project. During the project implementation phase, the results of monitoring of the SGAP's implementation will be incorporated in the PPMS reports. Data and information sources include project management information system, social surveys, and research. The actions outlined in the SGAP will be monitored, and sex-disaggregated data on project activities will be collected. HPMO's quarterly project progress report and the semiannual SGAP monitoring report will describe the progress of the implementation of the SGAP against the approved targets. The indicative format of HPMO's SGAP monitoring report is in Appendix 6. It will be finalized and agreed upon between ADB and HPMO at the project's inception mission. Although it is not mandatory, as a good practice, HPMO agreed to request the external EMDP monitor to verify the results of the SGAP implementation.

C. Evaluation

111. In addition to regular monitoring, ADB and HMG will jointly review project performance at least twice a year. The review will assess implementation performance and achievement of project outcomes and outputs, assess financial progress, identify issues and constraints affecting implementation, and work out a time-bound action plan for their resolution. ADB and HMG will undertake a midterm review to assess the implementation status and take appropriate measures if necessary—including a minor adjustment of the scope and implementation arrangements and reallocation of loan proceeds, as appropriate—to achieve the project impact and outcome.

D. Reporting

112. HMG will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) semiannual internal monitoring report on (a) environmental safeguard implementation, (b) resettlement safeguards implementation, (c) EMDP implementation, and (d) SGAP implementation; (iii) consolidated annual reports

including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iv) a project completion report within 6 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts, audited project financial statements, and the audited entity financial statements together with the associated auditor's report should be adequately reviewed. A technical report will be prepared before review missions and midterm review mission should any change in scope or project adjustment need to be discussed. The key reporting requirement is listed in Table 27. The reporting timing is for HMG/HPMO to submit to ADB. If the reporting is supported by consultants, HMG/HPMO should require consultants to provide drafts in advance. HPMO will review and request improvement/updates to consultants if necessary, and submit the HPMO's reviewed version to ADB on time. ADB will not accept the raw drafts from consultants simply forwarded to ADB, which are not reviewed and verified by the HPMO. Therefore, the timing for consultants to submit the drafts to HPMO is set earlier than the HPMO's submission date to ADB.

Table 27: Key Reporting Requirements to ADB

Report	Timing	Reference	Format
Audited financial statements	Not later than 6 months after the closure of the fiscal year (i.e., 30 June of each year)	Project agreement, section 2.09	PRC standard format with English translation
Quarterly project progress reports	Quarterly, within 15 days after the end of each reporting period (i.e., 15 April, 15 July, 15 October, 15 January)	Project agreement, section 2.08; Schedule para. 1	PAM Appendix 5
Environmental safeguard: (i) Construction phase <ul style="list-style-type: none"> HPMO's environmental safeguard monitoring reports Environmental acceptance reports 	Semiannually, within 15 days after the end of the half-year (i.e., 15 July and 15 January) Within 3 months after each subproject completion	Project agreement, schedule paras. 1 and 12	EIA Appendix 4
(ii) Operations phase <ul style="list-style-type: none"> Environmental safeguard monitoring reports 	Annually, within 1 month after the end of November		
Involuntary resettlement safeguard: <ul style="list-style-type: none"> Resettlement safeguards monitoring reports (internal) 	Semiannually, within 15 days after the end of the half-year (i.e., 15 July and 15 January)	Project agreement, schedule paras. 1 and 12	Resettlement DDR (section 8.2), LURT plan (section 9.1)
Indigenous peoples safeguard <ul style="list-style-type: none"> EMDP implementation progress and results (internal) 	Semiannually, within 15 days after the end of the half-year (i.e., 15 July and 15 January)	Project agreement, schedule paras. 1 and 12	EMDP Appendix 1

Report	Timing	Reference	Format
Social: <ul style="list-style-type: none"> • SGAP implementation progress and results (internal) 	Semiannually, within 15 days after the end of the half-year (i.e., 15 July and 15 January)	Project agreement, schedule paras. 1 and 12	PAM Appendix 6
External Monitor: <ul style="list-style-type: none"> • External environmental monitoring report • External resettlement monitoring report • External EMDP and SGAP monitoring report 	Semiannually, within 2 months after the receipt of the HPMP's monitoring reports (i.e., 15 September and 15 March)	Project agreement, schedule paras. 1 and 12	<ul style="list-style-type: none"> • EIA Appendix 5 • Resettlement DDR (section 8.1) and LURT plan (section 9.2) • EMDP Appendix 2
Technical: <ul style="list-style-type: none"> • Reporting required for processing change in scope 	HPMP, with the support of PMISC, draft and submit to ADB in English before the review mission to discuss the project adjustment and change in scope, etc.	Project agreement, schedule para. 1	Technical assessment and set of ADB required due diligence
Project completion report	Not later than 3 months after the physical completion of the project	Project agreement, section 2.08	

ADB = Asian Development Bank, DDR = due diligence report, EMDP = ethnic minority development plan, EMP = environmental management plan, HPMP = Hezhou project management office, LURT = land use rights transfer, PAM = project administration manual, PMISC = project management and implementation support consultant, PRC = People's Republic of China, SGAP = social and gender action plan.

Source: ADB.

E. Stakeholder Communication Strategy

113. Project information will be communicated through public consultation, information disclosure mechanism in ADB's and government's websites, meetings, interviews, focus group discussions, and community consultation meetings, in accordance with ADB's requirements of access to information.⁴³ The main stakeholders are the different agencies of the PIUs, beneficiaries, and participants in the project implementation. Stakeholder communication, including consultation, participation, and information disclosure, is part of the EMDP, EMP, resettlement DDR, LURT plan, and SGAP and will be monitored accordingly.

114. **Consultation and participation plan.** The consultation and participation plan (CPP) provides both consultation activities as well as methods by which stakeholders could participate in project implementation. The purpose of the CPP is to further consolidate and continue consultation and participation of stakeholders throughout the project implementation phase. The objectives of the CPP are to (i) provide a systematic basis for consultation of stakeholder groups and to create a platform for them to participate during project implementation, (ii) present time-bound activities, and (iii) identify institutions and people responsible for the implementation of consultation and participation activities. The consultation and participation methods in the CPP, which were also used for the poverty and social analysis, include consultation meetings, focus group discussions, and key informant interviews. Independent online consultation and

⁴³ Access to Information Policy: <https://www.adb.org/sites/default/files/institutional-document/450636/access-information-policy.pdf>.

participation platforms will be established to further accomplish consultation and participation. The consultation and participation activities will be focused on project outputs, and the content, purpose, and type of stakeholders to consult with will be output-specific. The details of the proposed consultation and participation activities are presented in Table 28.

115. HPMO, on behalf of HMG, will take the overall responsibility for the implementation of the CPP, while respective implementing agencies will lead the consultation and participation activities for Kedashan and Pinggui subprojects. To effectively implement consultation and participation activities, HPMO will assign a social officer who will lead the project level implementation and documentation of CPP, as well as the implementation and reporting of EMDP and SGAP. Each PIU will assign a social (and environmental) focal staff before the commencement of project implementation. These focal staff will assist the social officer in implementing the CPP and will lead and document the consultation and participation activities for his/her subproject.

116. The project will engage social, gender, indigenous people specialists under the PMISC. These specialists will provide necessary advice to and training of the social officer and focal staff on implementation and documentation of CPP. The project and subprojects will establish and maintain a GRM as an integral part of the EMP, EMDP, LURT plan, and resettlement DDR. Any grievances or complaints that are raised during consultation and participation will be coordinated through the GRM process. The aggrieved persons will be informed of decisions through the GRM mechanism. HPMO and PIUs will document the results of all consultation and participation activities. Extracts from the documentations will provide inputs to the project progress reports or internal monitoring reports.

Table 28: Consultation and Participation Plan

Output	Stakeholders	Purpose	Method	Time Period	Responsible agency
Output 1: Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented	<ul style="list-style-type: none"> • HMIGC • HPMO • HMG • Baisha Township • Baisha Community 	<ul style="list-style-type: none"> • Disclose information on employment, safeguards policies, and others • Seek suggestions for follow-up management of rehabilitated land • Resolve conflicts through GRM, if any • Share experiences and lessons • Monitor and evaluate subproject implementation status • Monitor and evaluate EMP, EMDP, LURTP, SGAP, and CPP implementation 	<ul style="list-style-type: none"> • Consultation meetings • Online C&P platform • Key informants interviews 	2022–2027	HMIGC
Output 2: Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened	<ul style="list-style-type: none"> • PDG • PUCIC • PDG's line agencies (health bureau and medical insurance bureau) • Medical institutes of the future medial consortium • Women's Federation and PWDA 	<ul style="list-style-type: none"> • Disclose information on employment, safeguards policies, and others • Seek partnership with government agencies and GONGOs for featured skills training for women and PWD • Resolve conflicts through GRM, if any • Assess training and other needs 	<ul style="list-style-type: none"> • District, township, and village/ community level consultation meetings • Online C&P platform • Village-level FGDs • Key informants interviews 	2022–2027	PDG, PUCIC

Output	Stakeholders	Purpose	Method	Time Period	Responsible agency
	<ul style="list-style-type: none"> Medical institutes at district and townships Villages/communities Resettlement affected people 	<ul style="list-style-type: none"> Monitor and evaluate EMDP, SGAP, CPP, LURTP, and resettlement DDR implementation 	<ul style="list-style-type: none"> Structured questionnaire survey, if needed 		
Output 3: Green and health care-related skills development institutions established	<ul style="list-style-type: none"> PUCIC PDG, PHRSSB, and various agencies mandated for vocational/technical training Women's Federation and PWDA Wanggao Industry Park and various enterprises Villages/communities 	<ul style="list-style-type: none"> Seek partnership with government agencies and GONGOs for featured skills training for women and PWD Assess training and other needs Monitor and evaluate EMDP, SGAP, CPP, LURTP, and resettlement DDR implementation 	<ul style="list-style-type: none"> District and village/community-level consultation meetings Online C&P platform Key informant interviews Structured questionnaire survey, if needed 	2022–2027	PDG, PUCIC
Project management	<ul style="list-style-type: none"> HPMO HMIGC PDG PUCIC 	<ul style="list-style-type: none"> Assess training and other needs Monitor and evaluate project and subproject implementation Monitor and evaluate EMP, EMDP, SGAP, CPP, LURTP, and resettlement DDR implementation 	<ul style="list-style-type: none"> Consultation meetings FGDs among social focal points Participation in C&P activities under outputs 1–3 	2022–2027	HPMO

C&P = consultation and participation, CPP = consultation and participation plan, DDR = due diligence report, EMDP = ethnic minority development plan, EMP = environmental management plan, FGD = focus group discussion, GONGO = government-organized nongovernment organization, GRM = grievance redress mechanism, HMG = Hezhou Municipal Government, HMIGC = Guangxi Hezhou Mining Investment Group Company Limited, HPMO = Hezhou project management office, LURTP = land use rights transfer plan, PDG = Pinggui District Government, PHRSSB = Pinggui Human Resource and Social Security Bureau, PUCIC = Hezhou Pinggui Urban Construction Investment Company Limited, PWD = person with disability, PWDA = persons with disabilities association, SGAP = social and gender action plan.

Source: Asian Development Bank.

117. **Environment.** In accordance with ADB's SPS, public consultations were held as part of the EIA preparation. Consultations were undertaken with project beneficiaries, local and municipal government officials, community leaders, civil societies, stakeholders in the project areas, and people likely to be affected due to project implementation. Specific attention was given to women and disadvantaged groups, including vulnerable communities, during the consultations. Topics of discussion included various issues affecting these stakeholders and appropriate responses that would result in the incorporation of beneficial environmental and social measures. Information disclosure and public consultation relating to environmental safeguards will continue throughout project implementation through questionnaire surveys and interviews by the safeguards unit of the HPMO and the external environmental monitoring consultant. The project's environmental information will be disclosed by the local Environmental Protection Bureau and ADB as follows:

- (i) The project EIA has been disclosed on the project website at www.adb.org on 15 July 2021.

- (ii) The EIAs in Chinese were disclosed on the website of the relevant environmental protection bureaus; all external environmental monitoring reports during the project implementation will be available at www.adb.org.
- (iii) The domestic environmental impact registration form will be available on the HMG's registration portal.
- (iv) The project information and GRM entry points will be disclosed on the information board of each construction site.

118. **Involuntary resettlement.** Consultation activities have been conducted with affected people, communities, and other relevant stakeholders during the project preparation and will continue during the implementation of the actions identified in the resettlement DDR for Pinggui subproject and LURT plan for Kedashan subproject. Resettlement information booklets have been prepared and distributed to the affected households during project preparation, and the resettlement DDR and LURT framework have been uploaded to ADB's website on 29 July 2021. Disclosure will continue to be carried out during the resettlement implementation.

119. **Indigenous Peoples.** Series of consultations with ethnic minorities were carried out through public meetings, focus group discussions, online surveys and will continue throughout project implementation. Key activities include but not limited to timely disclosure of project information, consultation meetings, and conduct of awareness training will be carried out in a locally acceptable manner, eliciting feedback from ethnic minority communities so they continue to participate during final design, implementation, and monitoring; culture, customs and traditions of ethnic minorities are taken into consideration during planning and implementation of trainings and provision of access to job opportunities.

120. **Social and gender.** During the project preparation, participation and consultations with stakeholders including teachers, students, migrant workers, technicians, entrepreneurs, implementing agencies, and relevant government officials will be conducted mainly through focus group discussions and key informant interviews. Project documents incorporate comments and suggestions received during social surveys and consultations. Further consultation activities will be conducted during project implementation. SGAP includes measures for participation of women in such activities and the presentation of sex-disaggregated data in monitoring reports.

121. **Public disclosure.** ADB and HMG will disclose relevant project information to the public and interested parties. The information disclosure measures for different stakeholders are described in Table 29.

Table 29: Public Disclosure Measures

Information	Means of Communication	Responsibility	Audience	Frequency
Report and recommendation of the President with links to relevant documents	ADB website	ADB	Public	Once
Project information during design and construction phase	Stakeholder consultations and public notice boards	HMG and PIUs	Project beneficiaries and affected people	Regular intervals during the design and construction phase
External environmental monitoring reports	ADB and HMG websites and public notice boards	ADB, HPMO, and PIUs	Affected people and other interested stakeholders	Semiannually

Information	Means of Communication	Responsibility	Audience	Frequency
External resettlement monitoring reports	ADB and HMG websites and public notice boards	ADB, HPMO, and PIUs	Affected people and other interested stakeholders	Semiannually
Information on EMDP, SGAP, and resettlement activities	Stakeholder consultation, ADB and HMG websites, and public notice boards	HPMO and PIUs	Affected people, beneficiaries, and other interested stakeholders	Semiannually
Project information documents	ADB website	ADB	Public	Semiannually
Project completion report	ADB website	ADB	Public	Once

ADB = Asian Development Bank, EMDP = ethnic minority development plan, HMG = Hezhou Municipal Government, HPMO = Hezhou project management office, PIU = project implementation unit, SGAP = social and gender action plan. Source: ADB.

X. ANTICORRUPTION POLICY

122. Although strict laws against corruption are in place in the PRC, there are still some challenges in implementation. Corruption is being handled mostly by the Communist Party of China disciplinary organs with only a few cases submitted to the stage judicial organs for prosecution. The HMG and the implementing agencies have committed to being active to detect acts of corruption or corruption-related activities such as money laundering. This will be aided by the enhancement of government interagency cooperation between stakeholder agencies, including financial, procurement, and audit. Integrity due diligence was conducted on HMIGC and PUCIC, the members of their Board of Directors and management, as applicable.⁴⁴ Based on the information available as of July 2021, they do not appear to constitute a significant or potentially significant integrity risk since no unresolved or other relevant information related to them exists. ADB has obtained reasonable assurance that HMIGC and PUCIC were not established and is not being used for money laundering or terrorism financing in the project jurisdiction. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the PRC and GZAR governments, HMG, and implementing agencies.

123. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.⁴⁵ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB financed activity and may not be awarded any contracts under the project.⁴⁶

124. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project. The project design and implementation arrangements provide for mitigating corruption risks. Risks associated with project management will be mitigated by (i) training of staff of the executing and implementing agencies' and project implementation units on procurement of works, goods, and services under the project; and (ii) periodic inspection of contractors' activities related to fund withdrawals and settlements by the executing agency's staff.

Table 30: Anticorruption Risk Assessment and Risk Management Plan

Risk Description	Rating	Mitigation Measures	Responsibility
Corrupt practices: Corrupt practices may affect project design, procurement, and implementation, leading to poor quality projects	M	Assurance that executing and implementing agencies will further undertake the following anticorruption actions: (i) involving full-time officials from the government discipline investigation bureau in the bidding process and award of contracts, and in the approval of variation during construction; and (ii) periodically inspecting the contractor's fund withdrawals and settlements, carrying out annual project auditing and submitting a copy of the audit report to ADB (During implementation)	HMG, HPMO, implementing agencies, PIUs

⁴⁴ ADB. 2003. *Enhancing the Asian Development Bank's Role in Combating Money Laundering and the Financing of Terrorism*. Manila.

⁴⁵ Anticorruption Policy: <https://www.adb.org/documents/anticorruption-policy>

⁴⁶ ADB's Office of Anticorruption and Integrity website: <https://www.adb.org/site/integrity/main>

Anticorruption measures: Limited enforcement of anticorruption measures	M	<ul style="list-style-type: none"> • Assist HPMO, implementing agencies, and PIUs to ensure good governance, accountability, and transparency in project operations • Consult with relevant central government ministries, update rules and regulations on local and corporate governance and anticorruption, and enhance the transparency of implementing agency operations (During project implementation) 	HMG, HPMO, implementing agencies, PIUs
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ADB = Asian Development Bank, HMG = Hezhou Municipal Government, HPMO = Hezhou project management office, M = moderate, PIU = project implementation unit.

Source: ADB.

XI. ACCOUNTABILITY MECHANISM

125. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. 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 people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.⁴⁷

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

126. All revisions and/or updates during the course of implementation should be retained in this section to provide a chronological history of changes to implemented arrangements recorded in the PAM, including revision to contract awards and disbursement s-curves.

⁴⁷ Accountability Mechanism. <https://www.adb.org/site/accountability-mechanism/main>.

SUMMARY OF PROJECT ACTIVITIES

No.	Components	Type	Unit	Amount
Output 1: Nature-Friendly Measures to Reduce Pollution in the Kedashan Former Mineral Mining Area Implemented				
1.1	Capacity development and technical research			
	NBS approach development and application for environmental restoration and policy framework	Technical support	each	1
1.2	Abandoned mining area environmental and ecological restoration	Site restoration	m ²	130,935
1.3	Mining wastes and tailings clean up and treatment			
	a. Mine tailing removal at Dahutang, Tianbao,	Pollutant removal, treat and landfilling	m ³	44,167
	b. Tailing treatment and stabilization plant	Pollutant treatment/stabilization plant	each	1
	c. Mine tailing landfill site (60,000 m ³)	Tailing landfill capacity	m ³	60,000
1.4	Surface water system restoration and water quality treatment	Environmental restoration		
	a. Eco-permeable dike	3 eco-permeable dikes	m	76
	b. Eco-pollution filter ditch (gravel topped with vegetation)	2 filter stripes	m	1,821
	c. Subsurface-flow constructed wetland at Dahutang inlet	Wetland	m ²	11,848
1.5	Mining area access roads	Domestic funding		
	a. New area entrance road (3 m concrete)	Branch	m	1,507
	b. New area trunk roads (3m concrete)	Branch	m	10,904
	c. Temporary road to tailing treatment plant (3m gravel)	Temporary road	m	364
1.6	Environmental monitoring during construction and operation	Environmental monitoring	each	1
Output 2: Institutional Mechanism, Skills Capacities, and Facilities in Health and Elderly Care Strengthened				
2.1	Capacity development and institutional strengthening			
	a. Design a practical institutional working mechanism and system to achieve a medical community	Technical support	each	1
	b. Establish a “medial community platform” at Pinggui Workers' Hospital	IT platform	each	1
2.2	Pinggui Integrated Health and Elderly Care Center	Health/elderly care center	each	1
2.3	Pinggui Workers' Hospital	New hospital	each	1
2.4	Service and capacity improvement of township-level hospitals	Equipment	each	9
Output 3: Green and Health Care-Related Skills Development Institutions Established				
3.1	Capacity Development			

No.	Components	Type	Unit	Amount
	Knowledge and Skills Sharing Center operation, HR planning, training course design, and certification study	Technical support	each	1
	TVET teacher HR development and training	Capacity development	each	1
3.2	Knowledge and Skills Sharing Center with training equipment			
	Building and structures (RC frame)	Domestic funding	m ²	29,826
	Laboratory and training building (2 stories)			
	Teaching and administration building (5 stories)			
	Track and field and cafeteria (2 stories)			
	Dormitory (6 stories, 2 buildings)			
	Underground structure (basement)			
3.3	Training equipment	Equipment	set	1
Project Management				
4.1	Project implementation management and support			
4.2	Environmental, resettlement, social and gender, and ethnic minority action plan implementation and monitoring			
4.3	Construction supervision			
4.4	Workshops, seminars, training, and study tours			

HR = human resource, IT = information technology, m = meters, m² = square meters, m³ = cubic meters, NBS = nature-based solution, RC = reinforced concrete, TVET = technical and vocational education and training.

Source: Asian Development Bank.

KEDASHAN MONITORING PROGRAM

1. As discussed in PAM paras. 19–20, to track the Kedashan subproject's environmental effect, the Guangxi Hezhou Mining Investment Group Company Limited will conduct Kedashan Monitoring Program on the Kedashan subproject site during the construction and operation period under the counterpart-financed procurement package CS-KDS-01.

A. Monitoring Plan for the Landfill Site

2. The monitoring plan for the landfill site is in Table A2.1.

Table A2.1: Environmental Monitoring for Landfill site

Monitoring Target	Monitoring Indicators	Monitoring/Sampling Sites	Frequency
Retaining wall displacement	The displacement of walls comparing with the original location	Couple points on landfill retaining wall	2 times a year
Leachate monitoring	pH, suspended solids, CODcr, ammonia nitrogen, mercury, cadmium, chromium, hexavalent chromium, arsenic, lead, nickel, copper, zinc	1 point ^a	<ul style="list-style-type: none"> During construction, 1 time/month, each monitoring lasts 1 day, sampling 4 times a day After the closure of the site, monitoring frequency of 1 time/month, each monitoring lasts 1 day, sampling once a day, until the leachate is no longer produced for 2 consecutive years
Wastewater after treatment monitoring	pH, suspended solids, CODcr, ammonia nitrogen, mercury, cadmium, chromium, hexavalent chromium, arsenic, lead, nickel, copper, zinc	1 site ^b	<ul style="list-style-type: none"> During construction, 1 time/month, each monitoring lasts 1 day, sampling 4 times a day After the closure of the site, monitoring frequency of 1 time/month, each monitoring lasts 1 day, sampling once a day, until the leachate is no longer produced for 2 consecutive years
Surface water monitoring around the landfill site (upstream and downstream ends)	pH, CODcr, BOD5, ammonia nitrogen, arsenic, cadmium, chromium (hexavalent), copper, lead, mercury	4 points See pink points in Figure A2.2 for the location of surface water monitoring points around landfill site	<ul style="list-style-type: none"> Construction period 4 times/year (quarterly), each monitoring lasts 3 days, sampling once a day Keep monitoring until the surface water quality for 2 consecutive years to meet ADB's target value
Groundwater monitoring around the landfill site (Upstream and downstream ends)	Turbidity, pH, dissolved solids, chloride, nitrate (as N), nitrite (as N), oxygen consumption, ammonia nitrogen, mercury, cadmium, chromium, hexavalent chromium, arsenic, lead, nickel, copper, zinc, while monitoring water level	5 points See red points in the Figure A2.1 for the location of groundwater monitoring points around landfill site	<ul style="list-style-type: none"> During operation, monitoring frequency of 2 times/quarter, with an interval of not less than 1 month between each monitoring, each monitoring lasts 1 day, and 1 sampling per day After the closure, monitoring frequency of once every 6 months, each monitoring lasts 1 day, sampling 1 time per day until the groundwater quality does not exceed the background level of groundwater for 2 consecutive years
Rainwater monitoring for landfill site	CODcr, suspended solids	1 point ^c	<ul style="list-style-type: none"> Monthly monitoring is carried out when there is a flowing water discharge

Monitoring Target	Monitoring Indicators	Monitoring/Sampling Sites	Frequency
		Located at the rainstorm drain of the landfill site	
Surface soil monitoring around the landfill site	Arsenic, cadmium, chromium (hexavalent), copper, lead, mercury, nickel, and volatile organic compounds and semi-volatile organic compounds, a total of 46 indicators	3 points ^d One point is located around the landfill site, one point is located at the treatment plant site, one is located at Chachongkou (north of landfill site)	<ul style="list-style-type: none"> Monitoring frequency of soil monitoring points during construction and operation 2 times/year

a Leachate will be sampled at leachate collecting pool at the landfill.

b Treated wastewater will be sampled at the Wanggao Wastewater Treatment Plant, where the leachate would be treated finally according to the national/local standard defined in the environmental impact assessment.

c The point will be located at the drain of landfill site, which will be further defined within the detailed design of the landfill.

d The points will be defined within the detailed design of the landfill.

ADB = Asian Development Bank, BOD5 = five-day biochemical oxygen demand, CODcr = chemical oxygen demand chromium, N = nitrogen.

Source: ADB.

Figure A2.1: Locations of Groundwater Monitoring Points Around the Landfill Site



Figure A2.2: Locations of Surface Water Monitoring Points Around the Landfill Site

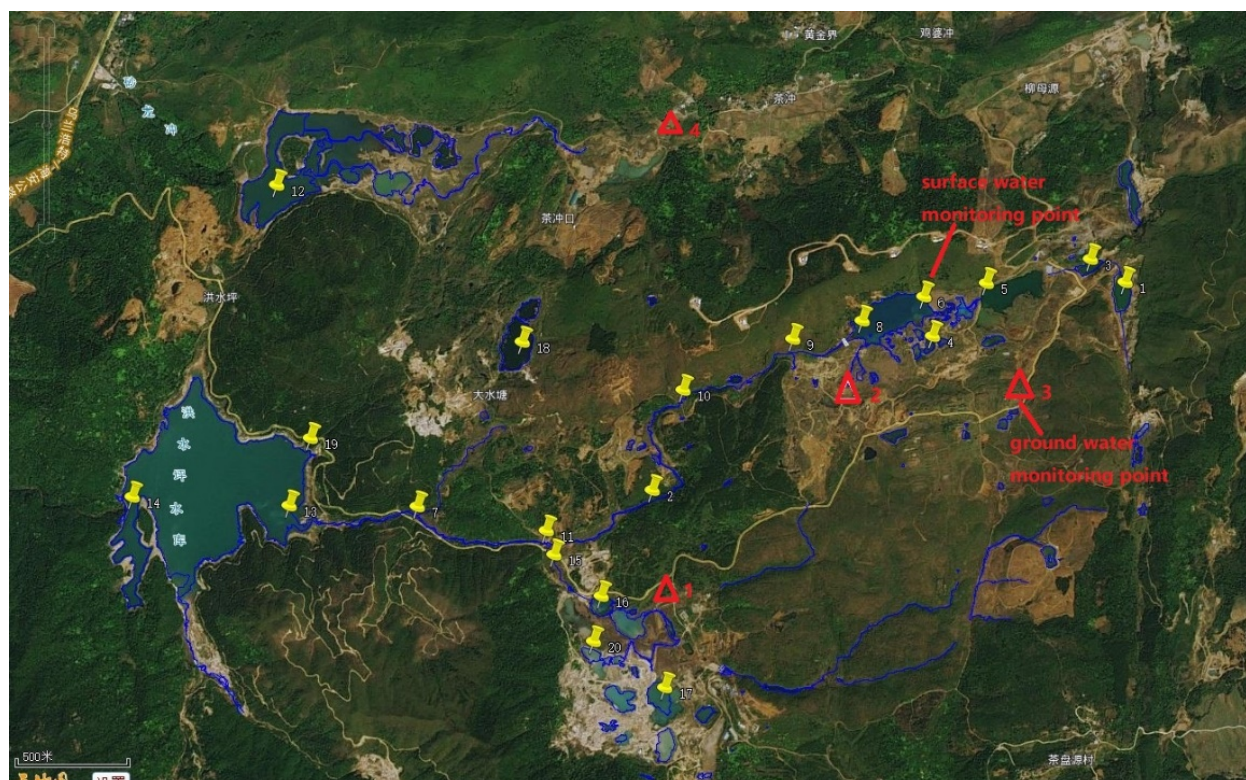
B. Environmental Monitoring for Kedashan Water Quality

3. Monitoring on the water quality will focus on the Dahu Pond and Zhongnan water systems to illustrate the effect of the water quality improvement component. The monitoring plan and locations are shown in Table A2.2 and Figure A2.3.

Table A2.2: Environmental Monitoring for Kedashan Water Quality

Monitoring Target	Monitoring Indicators	Number of Monitoring location (No.)	Frequency
Surface water monitoring (upstream and downstream ends)	pH, CODcr, BOD5, ammonia nitrogen, arsenic, cadmium, chromium (hexavalent), copper, lead, mercury	20 See the yellow mark in Figure A2.3	<ul style="list-style-type: none"> Construction period 4 times/year (quarterly), each monitoring lasts 3 days, sampling once a day; until the surface water quality for 2 consecutive years to meet the ADB assessment target value
Groundwater monitoring (upstream and downstream ends)	Turbidity, pH, dissolved solids, chloride, nitrate (as N), nitrite (as N), oxygen consumption, ammonia nitrogen, mercury, cadmium, chromium, hexavalent chromium, arsenic, lead, nickel, copper, zinc, while monitoring water level	4 See the red triangle mark in Figure A2.3	<ul style="list-style-type: none"> Monitoring frequency 1 time every 6 months (abundant water period, dry water period), each monitoring lasts 1 day, daily sampling 1 time; until the groundwater quality does not exceed the groundwater background level for 2 consecutive years

BOD5 = five-day biochemical oxygen demand, CODcr = chemical oxygen demand chromium, N = nitrogen.
Source: Asian Development Bank.

Figure A2.3: Locations of Monitoring Points on Kedashan Water Quality

C. Monitoring of Kedashan Soil Quality

4. Monitoring of soil will be conducted downstream of the Dahu Pond area (Tianbao Mining area) to illustrate how the soil pollution changes after the removal of mining tails. The monitoring plan and locations are in Table A2.3 and Figure A2.4.

Table A2.3: Environmental Monitoring for Kedashan Soil Quality

Monitoring Target	Monitoring Indicators	Number of Monitoring location (No.)	Frequency
Ground soil	Arsenic, cadmium, chromium (hexavalent), copper, lead, mercury, nickel, and volatile organic compounds and semi-volatile organic compounds, a total of 46 items	5 See the yellow mark in Figure A2.4	Once per year
Column soil sample	Arsenic, cadmium, chromium (hexavalent), copper, lead, mercury, nickel, and volatile organic compounds and semi-volatile organic compounds, a total of 46 items	2 See the green mark in Figure A2.4	Once per year

Source: Asian Development Bank.

Figure A2.4: Locations of Kedashan Soil Monitoring Points



DRAFT CAPACITY DEVELOPMENT PLAN

1. The project has training programs for health-care staff and elderly-care staff, not only for staff working in the proposed Pinggui Workers' Hospital and Pinggui Integrated Health and Elderly Care Center, but also for staff at township-level hospitals and village-level hospitals to improve the capacity of medical and elderly-care staff and to further improve the medical and health-care service quality in Pinggui.

2. A draft training activity is provided below as an example of practical training activities. The Pinggui Health Bureau shall prepare a training program at the beginning of each year, and the Hezhou project management office (HPMO) submits it to Asian Development Bank (ADB) for review and approval. After the agreement between HPMO (on behalf of Pinggui Health Bureau) and ADB, the training activity can be implemented and then claim for expenditure. The design of training programs shall be based on the outcomes of "CS-08: Pinggui Comprehensive Public Health-care System Study and Design" (CS8)."

Table A3.1: Pinggui Urban-Rural Health-care Staff Capacity Development Plan

No.	Training Content	Trainees
1	The PRC's population health strategy, health service system and health policy	Health-care system medical staff (including village doctors)
2	Health project management and evaluation, health insurance and long-term care insurance	Health-care system medical staff (including village doctors)
3	Medical community policy research and interpretation	Health-care system medical staff (including village doctors)
4	Occupational health training	Health-care system medical staff (including village doctors)
5	Health poverty alleviation	Health-care system medical staff (including village doctors)
6	Family doctor contracting	Health-care system medical staff (including village doctors)
7	Hospital infection knowledge training	Health-care system medical staff (including village doctors)
8	Standardized training for resident doctors	Physicians for in-patients
9	CDC key business work training (immunization planning, tuberculosis, leprosy STD control, severe mental disorders, cause of death surveillance, health literacy monitoring)	The head of each township health center
10	New crown epidemic flow transfer, mass sampling, sending samples for disinfection, laboratory-related business	Head of each township health center
11	AIDS control knowledge business-related training	Head of each township health center
12	Infectious disease reporting quality management and public health emergencies training	Head of each township health center

AIDS = acquired immunodeficiency syndrome, CDC = Centers for Disease Control and Prevention, PRC = People's Republic of China, STD = sexually transmitted diseases.

Source: Asian Development Bank.

Table A3.2: Pinggui Integrated Health and Elderly Care Center Staff Training Program

No.	Training content	Trainees
1	Total quality management training and education, mastering one or more common technical tools for management; mastering relevant laws, regulations and departmental rules	Administrators
2	Knowledge of geriatrics, familiarization with the assessment of geriatric syndromes and the diagnosis and treatment routines of common geriatric diseases	Physicians
3	Basic theoretical knowledge, theoretical knowledge of geriatric specialties, nursing knowledge, health education, etc.	Nurses
4	Professional ethical quality and knowledge of relevant laws and regulations, physiological and psychological characteristics of the elderly, nursing characteristics, common diseases, nutritional needs, life care methods, etc.	Caregivers

Table A3.3: Pinggui Workers' Hospital Staff Training Program

No.	Training content	Trainees
1	Total quality management training and education, mastering one or more common technical tools for management	Management
2	Mastering relevant laws, regulations and departmental rules	Management staff
3	Training in emergency-related laws, regulations, plans and emergency knowledge, skills and abilities	All physicians
4	Basic theory, basic knowledge and operational skills of cardiopulmonary resuscitation, and proper use of various resuscitation equipment in the emergency department	All physicians
5	To protect the legitimate rights and interests of patients, informed consent and notification, medical staff to master the skills of notification and patient communication in a way that is easily understood by patients	All physicians
6	Dispute prevention and handling	All physicians
7	Mastering and strictly following the relevant norms and guidelines of the specialty to carry out medical work	All physicians
8	Professional theory and skills training, advanced training in pulmonary resuscitation	Anesthesiologists
9	Basic theory, basic knowledge, basic skills training and assessment	Staff on duty
10	Epidemiology, prevention, diagnosis, treatment, occupational exposure management and protection of infectious diseases	Infectious disease department or infectious disease triage site staff
11	Combining clinical needs and fully reflecting the characteristics of nurses of different specialties and levels	Nursing staff

PROCUREMENT PLAN

Basic Data

Project Name: Guangxi Hezhou Environment Restoration and Sustainable Development Project		
Project Number: 51384-001	Approval Number: XXXX	
Country: China, People's Republic of	Executing Agency: Hezhou Municipal Government	
Project Procurement Risk: Medium	Implementing Agency: Guangxi Hezhou Mining Investment Group Company Limited, Pinggui District Government	
Project Financing Amount: US\$ 236,060,000 ADB Financing: US\$ 100,000,000 Cofinancing (ADB Administered): Non-ADB Financing: US\$ 136,060,000	Project Closing Date: 30 June 2028	
Date of First Procurement Plan: 9 April 2021	Date of this Procurement Plan: 10 September 2021	
Procurement Plan Duration (in months): 18	Advance Contracting: Yes	e-GP: Yes www.cebpubservice.cn

A. Methods, Review and Procurement Plan

Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods, works, and consulting services.

Procurement of Goods and Works	
Method	Comments
Open Competitive Bidding (OCB) for Goods	Based on risk, competitiveness, value, complexity of the package
Open Competitive Bidding (OCB) for Works	Based on risk, value, complexity of the package All works contracts will be OCB (advertised nationally)

Consulting Services	
Method	Comments
Quality- and Cost-Based Selection for Consulting Firm	Prior review, full technical proposal, quality and cost ratio = 90:10
Consultant's Qualification Selection for Consulting Firm	Prior review, simplified technical proposal
Competitive for Individual Consultant	Prior review

B. Lists of Active Procurement Packages (Contracts)

The following table lists goods, works, non-consulting and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration.

Goods and Works							
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
G-RH-01	Township/ community clinic medical equipment	8,990,000.00	OCB	Prior	1S1E	Q2 / 2022	Non-Consulting Services: No Advertising: National No. of Contracts: 1 Prequalification of Bidders: No

Goods and Works							
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
							Domestic Preference Applicable: No Advance Contracting: No Bidding Document: Goods High Risk Contract: No e-GP: No COVID-19 Response? No
W-HE-01	Pinggui Integrated Health and Elderly Care Center building works and installation engineering	5,170,000.00	OCB	Prior	1S1E	Q2 / 2022	Non-Consulting Services: No Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: No Bidding Document: Small Works High Risk Contract: No e-GP: No COVID-19 Response? No
W-KDS-01	Mineral mining site environment and surface water restoration	9,590,000.00	OCB	Post	1S1E	Q2 / 2022	Non-Consulting Services: No Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: No Bidding Document: Small Works High Risk Contract: No e-GP: No COVID19 Response? No
W-KDS-02	Mineral mining tailings collection, treatment, and disposal in landfill	8,080,000.00	OCB	Prior	1S1E	Q2 / 2022	Non-Consulting Services: No Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic

Goods and Works							
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
							Preference Applicable: No Advance Contracting: No Bidding Document: Small Works High Risk Contract: No e-GP: No COVID-19 Response? No
W-WH-01	Pinggui Workers' Hospital works and installation engineering	71,000,000.00	OCB	Prior	1S1E	Q1 / 2023	Non-Consulting Services: No Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: No Bidding Document: Small Works High Risk Contract: No e-GP: No COVID-19 Response? No

COVID-19 = coronavirus disease, e-GP = electronic government procurement, OCB = open competitive bidding, Q= quarter.

Consulting Services							
Package Number	General Description	Estimated Value (in US\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/year)	Comments
CS-01	Project management and implementation support	2,300,000.00	QCBS	Prior	FTP	Q1 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Quality-Cost Ratio: 90:10 Advance Contracting: No e-GP: No COVID-19 Response? No
CS-02	External environment monitoring	350,000.00	CQS	Prior	STP	Q1 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: No e-GP: No COVID-19

Consulting Services							
Package Number	General Description	Estimated Value (in US\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/year)	Comments
CS-03	External resettlement monitoring	200,000.00	CQS	Prior	STP	Q2 / 2022	Response? No Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: No e-GP: No COVID-19 Response? No
CS-04	External EMDP and SGAP monitoring	200,000.00	CQS	Prior	STP	Q2 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: No e-GP: No COVID-19 Response? No
CS-05-a	Start-up support: project management and procurement	50,000.00	Competitive	Prior	N/A	Q4 / 2021	Non-Consulting Services: No Type: Individual Assignment: National Expertise: Project management and procurement Advance Contracting: Yes e-GP: No COVID-19 Response? No
CS-05-b	Start-up support: Environment (national)	50,000.00	Competitive	Prior	N/A	Q4 / 2021	Non-Consulting Services: No Type: Individual Assignment: National Expertise: Environment Advance Contracting: Yes e-GP: No COVID-19 Response? No
CS-05-c	Start-up support: Resettlement (national)	50,000.00	Competitive	Prior	N/A	Q4 / 2021	Non-Consulting Services: No Type: Individual Assignment: National Expertise: Resettlement Advance Contracting: Yes e-GP: No COVID-19 Response? No

Consulting Services							
Package Number	General Description	Estimated Value (in US\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/year)	Comments
CS-05-d	Start-up support: Green procurement (international)	100,000.00	Competitive	Prior	N/A	Q4 / 2021	Non-Consulting Services: No Type: Individual Assignment: International Expertise: Green procurement Advance Contracting: Yes e-GP: No COVID-19 Response? No
CS-06	Construction supervision for all works	2,400,000.00	QCBS	Prior	STP	Q1 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Quality-Cost Ratio: 90:10 Advance Contracting: No e-GP: No COVID-19 Response? No
CS-07	NBS approach for environmental restoration and policy framework	250,000.00	CQS	Prior	STP	Q3 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: No e-GP: No COVID-19 Response? No
CS-08	Pinggui comprehensive public health-care system (medical community) study and design	450,000.00	CQS	Prior	STP	Q2 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: No e-GP: No COVID-19 Response? No
CS-09	Pinggui Integrated Health and Elderly Care Center operation study and capacity development	350,000.00	CQS	Prior	STP	Q2 / 2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: No e-GP: No COVID-19 Response? No

CQS = consultant's qualifications selection, COVID-19 = coronavirus disease, e-GP = electronic government procurement, FTP = full technical proposal, NBS = nature-based solutions, OCB = open competitive bidding, Q= quarter, QCBS = quality- and cost-based selection, STP = simplified technical proposal.

C. List of Indicative Packages (Contracts) Required Under the Project

The following table lists goods, works, non-consulting and consulting services contracts for which procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e., those expected beyond the current procurement plan duration).

Goods and Works						
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Comments
G-HE-01	Elderly care rehabilitation equipment	800,000.00	OCB	Prior	1S1E	Non-Consulting Services: No Advertising Type: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No Comments: Quarter 4 2022
G-VT-01	Vocational training experiment and testing equipment	2,400,000.00	OCB	Post (Sampling)	1S1E	Non-Consulting Services: No Advertising Type: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No
G-WH-01	Smart hospital information system and community medical service platform	7,690,000.00	OCB	Prior	1S1E	Non-Consulting Services: No Advertising Type: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No
G-WH-02	Pinggui Worker's Hospital medical equipment (Lot 1)	8,170,000.00	OCB	Prior	1S1E	Non-Consulting Services: No Advertising Type: International No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No
	Pinggui Worker's Hospital medical equipment (Lot 2)	8,170,000.00	OCB	Prior	1S1E	Non-Consulting Services: No Advertising Type: International

Goods and Works						
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Comments
						No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No
	Pinggui Worker's Hospital medical equipment (Lot 3)	8,170,000.00	OCB	Prior	1S1E	Non-Consulting Services: No Advertising Type: International No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No
	Pinggui Worker's Hospital medical equipment (Lot 4)	8,170,000.00	OCB	Prior	1S1E	Non-Consulting Services: No Advertising Type: International No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Goods e-GP: No COVID-19 Response? No

COVID-19 = coronavirus disease, e-GP = electronic government procurement, OCB = open competitive bidding.

Consulting Services						
Package Number	General Description	Estimated Value (in US\$)	Selection Method	Review	Type of Proposal	Comments
CS-10	Knowledge and Skills Sharing Center operation, curriculum setting, and certification study	300,000.00	CQS	Prior	STP	Non-Consulting Services: No Type: Firm Advertising: National e-GP: No COVID-19 Response? No Comments: Q1 2023
CS-11	Human resources development and training for vocational training teacher	150,000.00	CQS	Prior	STP	Non-Consulting Services: No Type: Firm Advertising: National e-GP: No COVID-19 Response? No Comments: Q2 2023

COVID-19 = coronavirus disease, CQS = consultant's qualifications selection, e-GP = electronic government procurement, Q = quarter, STP = simplified technical proposal.

D. Non-ADB Financing

The following table lists goods, works, non-consulting and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments
W-KDS-03: Access roads	3,100,000.00	1	OCB	COVID-19 Response? No PRC domestic procedure
W-VT-01: Knowledge and Skills Sharing Center	19,310,000.00	1	OCB	COVID-19 Response? No PRC domestic procedure
W-HE-02: Pinggui Integrated Health and Elderly Care Center supporting building – decoration	460,000.00	1	OCB	COVID-19 Response? No PRC domestic procedure

COVID-19 = coronavirus disease, OCB = open competitive bidding.

Consulting Services				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
CS-KDS-01: Kedashan Monitoring Program	390,000.00	1	OCB	Covid-19 Response? No PRC domestic procedure; TOR to be approved by ADB before the advertisement advertising

REQUIRED CONTENTS OF HEZHOU PROJECT MANAGEMENT OFFICE'S QUARTERLY PROJECT PROGRESS REPORT

A. Introduction and Basic Data

- (i) loan number, project title, borrower, executing agency (EA), implementing agencies;
- (ii) total estimated project cost and financing plan;
- (iii) status of project financing, including the availability of counterpart funds;
- (iv) dates of approval, signing, and effectiveness of ADB loan;
- (v) original and revised (if applicable) ADB loan closing date and elapsed loan period based on original and revised (if applicable) loan closing dates; and
- (vi) date of last ADB review mission.

B. Utilization of Funds

- (i) cumulative contract awards financed by the ADB loan and counterpart funds (commitment of funds to date), and comparison with time-bound projections (targets);
- (ii) cumulative disbursements from the ADB loan and counterpart funds (expenditure to date), and comparison with time-bound projections (targets); and
- (iii) re-estimated costs to completion, need for reallocation within ADB loan categories, and whether an overall project cost overrun is likely.

C. Project Purpose and Implementation Progress

(Please add appendixes to provide detailed progress, if necessary)

- (i) status of project scope and implementation arrangements compared with those in the report and recommendation of the President (RRP), and whether major changes have occurred or will need to be made;
- (ii) an assessment of the likelihood that the project outcome and outputs will be achieved in part or in full, and whether remedial measures are required based on the current project scope and implementation arrangements;
- (iii) an assessment of changes to the key risks that affect the achievement of the outcome and outputs, and quantifiable implementation targets;
- (iv) other project developments, including monitoring and reporting on gender, safeguards (environment, resettlement, and indigenous peoples), and social safeguards requirements that might adversely affect the project's viability or accomplishment of project outcome;
- (v) assessment of project implementation arrangements such as establishing, staffing, and funding of the project management office or project implementation units;
- (vi) financial management monitoring, including financial management action plan;
- (vii) information relating to the EA's internal operations that impacts on implementation arrangements or project progress;
- (viii) assessment of the progress of each implementation activity, such as,
 - (a) recruitment of consultants and their performance;
 - (b) procurement of goods and works (from the preparation of detailed designs and bidding documents to contract awards);
 - (c) progress and evaluation of the human capital development activities;

- (d) the performance of suppliers, manufacturers, and contractors for goods and works contracts; and
- (e) comparison with the original implementation schedule—quantifiable and monitorable target, (include charts such as bar or milestone to illustrate progress and actual versus planned expenditure, S-curve graph showing the relationship between physical and financial performance, and actual progress in comparison with the original schedules and budgets). The reference framework or guidelines in calculating the project progress, including examples, are shown in Appendix 2 of PAI 5.01.⁴⁸

D. Compliance with Covenants

- (i) the borrower's compliance with policy loan covenants such as sector reform initiatives and EA reforms, and the reasons for any noncompliance or delay in compliance;
- (ii) the borrower's and EA's compliance with financial loan covenants, including the EA's financial management and the provision of audited project accounts or audited agency financial statements; and
- (iii) the borrower's and EA's compliance with project-specific loan covenants associated with implementation, safeguards (environment, resettlement, and indigenous peoples), social and gender dimensions, and other requirements specified in the loan agreement.⁴⁹

E. Major Project Issues and Problems

Summarize the major problems and issues affecting or likely to affect implementation progress, compliance with covenants, and achievement of project outputs and outcome, including the findings of any project procurement related review that may have been undertaken. Recommend actions to overcome these problems and issues (e.g., changes in scope, changes in implementation arrangements, and reallocation of loan proceeds).

⁴⁸ <https://www.adb.org/sites/default/files/institutional-document/33431/pai-5-01.pdf>

⁴⁹ Sections VII. Safeguards and VIII. Gender and Social Dimensions of the PAM.

SOCIAL AND GENDER ACTION PLAN SEMIANNUAL MONITORING REPORT FORMAT

(This is an indicative format for HPMO's semiannual reporting. For external reporting, see EMDP Appendix 2)

1. Project Description
2. Gender Analysis and Project Design Features
 - A. Gender Issues and SGAP Features
 - B. Overall Assessment of Gender-related Results and Achievements
 - C. Gender Equality Results
(include photos, case stories, etc. if available)
 1. Participation, access to project resources and practical benefits
 2. Strategic changes in gender relations
 3. Contribution of gender equality results to overall loan outcomes and effectiveness
3. Lessons Learned and Recommendations

Table: SGAP Monitoring Table

Date of update: DD MMMM 20YY

Outputs	SGAP Action/Targets	Results	Challenges/Issues
		• Implemented: xxxxx	
		• Achieved: xxxxx	
		• xxxxx	

INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES

No.	Package	Package name
I	CS-01	Project Management and Implementation Support
II	CS-02	External Environmental Monitor
III	CS-03	External Resettlement Monitor
IV	CS-04	External EMDP and SGAP Monitor
V	CS-05-a, b, c, d	Start-up Support: <ul style="list-style-type: none"> • a: Project management and procurement • b: Environment • c: Resettlement • d: Green procurement
VI	CS-06	Construction Supervision
VII	CS-07	NBS Approach for Environmental Restoration and Policy Framework
VIII	CS-08	Pinggui Comprehensive Public Health-care System (Medical Community) Study and Design
IX	CS-09	Pinggui Integrated Health- and Elderly-Care Operation Study and Capacity Development
X	CS-10	Knowledge and Skills Sharing Center Operation, Curriculum Development, and Certification Study
XI	CS-11	Human Resources Development Training for Technical and Vocational Training Teachers

I. CS-01: Project Management and Implementation Support

A. Objective of Project Management and Implementation Support Consulting Services

1. The objective of the project management and implementation support consulting service is to assist the Hezhou project management office (HPMO) and project implementing agencies with management and support of the project implementation, monitoring, and reporting (in accordance with the Asian Development Bank (ADB) project implementation policies and procedures) as well as project implementation documentation. The consulting services shall include both managerial and technical aspects and will also include ADB safeguards and implementation and monitoring of social and gender action plans.

C. Scope of Work

2. The project management and implementation support consultant (PMISC) shall provide project implementation management support for all major aspects during the entire project implementation period, which may include general project management and coordination, design review and design improvement, bidding documentation review and procurement support, construction management and construction supervision, contract management, project progress and investment control, financial management and disbursement, safeguard management and action plans, implementation and monitoring for environmental management plan (EMP), resettlement DDR, LURT plan, ethnic minority development plan (EMDP), social and gender action plan (SGAP), project performance management system (PPMS), consultation and participation plan (CPP), capacity development plan, coordination and management of the project technical assistance, and capacity development and training activities. The detailed scope of work may include but is not limited to:

- (i) **Project Management and Coordination.** During the entire duration of the project, the PMISC shall provide overall project management and coordination support for

the HPMO and project implanting agencies. The specific tasks may include but are not limited to:

- (a) Develop and establish the project management system covering all major project implementation aspects;
- (b) Evaluate the project's institutional arrangement, refine the duties and responsibilities of each relevant project implementation unit, and provide recommendations on institutional strengthening;
- (c) Develop the project implementation procedures by defining the responsible parties, approaches, and methods for carrying out the tasks, and establishing deadlines for completing the tasks;
- (d) Develop the management tools and templates needed for carrying out the developed implementation procedures;
- (e) Develop a project reporting system for management, progress, monitoring associated with each of the specified tasks listed below;
- (f) Provide project coordination support for communication and liaison with the ADB project management team, relevant government agencies, and project implementation-related contractors, consultants, monitors, etc.

(ii) **Design Review and Design Improvement.** The design review and design improvements are required for all project components during both project preliminary design and construction document development. The design review and improvement shall focus on the functional and detailed designs for the integrated health/elderly-care building, the Pinggui Workers' Hospital, and the environmental restoration of the Kedashan mining area. The specific tasks may include but are not limited to:

- (a) Review and improvement of the engineering design for the elderly-care building in the PIHECC, including functional design, architectural design and floor layout, structural, MEP (mechanical, electrical, and plumbing), green building design, and other relevant items;
- (b) Review and improvement of the engineering design for the Pinggui Workers' Hospital, including general site plans, hospital building design in functional, architectural and plan layouts, structural, MEP, energy conservation, green building, etc.
- (c) Review and refine the design and selection of medical equipment for the Pinggui Workers' Hospital, including aspects pertaining to equipment selections, function requirements, key control parameters, market investigation and procurement considerations, etc.
- (d) Review and improve the hospital information system for a "Smart Hospital" design, including information system structure, functional design, service platforms, interfaces, cloud and data security, etc.
- (e) Review and improve the engineering design of the environmental restoration for the Kedashan component, especially through development and improvement by applying an NBS approach and relevant technologies;
- (f) Design review for other project-related items, including the Knowledge and Skills Sharing Center, and other structures.

(iii) **Bidding Document Review and Procurement Support.** The consultants shall provide technical support and assistance in bidding document review, bidding

process, bid review, and contract awards. The specific tasks may include but are not limited to:

- (a) Bidding document review including both commercial and technical parts, bills of quantities (BOQ), technical specifications, and other procurement submittals;
- (b) Coordinate with the tendering company to assist the bidding process, including the preparation of the bidding package, advertisement, response to inquiries, bidding document revising and updating, etc.
- (c) Bid evaluation, bid evaluation report review, contract awards, contract negotiation, and contract signing;
- (d) Provide assistance in coordinating and communicating with the ADB project management team and other procurement entities and agencies.
- (e) A green procurement specification shall be developed for this project, and make sure it is followed during the procurement process.
- (f) Conduct training to HPMO, implementing agencies, and PIUs on procurement regulations and green procurement concepts.

- (iv) **Construction Management and Inspection.** The consultants shall provide construction management and shall oversee the construction supervision during the entire period of the construction phase. The specific tasks may include but are not limited to:

- (a) Construction planning and plan development implementation;
- (b) Review contractor prepared construction organization planning, construction schedule, construction sequence, etc.
- (c) Review the contractor's EMP implementation and monitoring plan;
- (d) Review the contractor's quality control and quality assurance plan;
- (e) Review the contractor's safety and risk management plan;
- (f) Construction schedule control;
- (g) Construction investment control;
- (h) Check and oversight construction supervision work for accuracy and completeness;
- (i) Coordinate with contractors and supervision companies to prepare and submit monthly progress reports and monthly supervision reports;
- (j) Prepare and submit (on a quarterly basis) consultant progress reports;
- (k) Provide training on construction management and construction techniques;
- (l) Provide assistance to implementing agencies and PIUs on the utilization of building information modeling (BIM).

- (v) **Contract Management.** The consultant shall provide assistance in contract management for each contract package, which may include but is not limited to:

- (a) Contract execution and management;
- (b) Contract construction progress and contract payment;
- (c) Review and assistance in contract variations, application, and approval;
- (d) Contract extension, application, and approval;
- (e) Contract completion, final inspection acceptance, and contract closeout.

- (vi) **Project Progress and Investment Control.** The consultant shall provide assistance in contract progress and investment planning, which may include but is not limited to:
 - (a) Develop a construction implementation schedule, including the planned and actual progress comparison to be consistent with the overall project implementation schedule;
 - (b) Develop the construction investment plan and the ADB loan disbursement projection;
 - (c) Update and adjust the construction schedule and investment schedule periodically based on the actual progress and overall project implementation schedule.
- (vii) **Financial Management, Payment and Disbursement.** Financial management, contract payment and disbursement assistance shall be provided during the entire period for each contract execution. The specific tasks may include but are not limited to:
 - (a) Financial management assistance for EA, implementing agencies, and PIUs in project funding management, accounting system establishment, and payment and disbursement system set-up;
 - (b) Assistance in contract payment, including withdrawing applications, preparation and submission, payment processing and disbursement;
 - (c) Assistance in preparing and submitting project financial statements semiannually;
 - (d) Assistance in project auditing and coordinating to submit an auditing report annually;
 - (e) Provide training and capacity development for financial management, project accounting, withdrawal application, disbursement, etc.
- (viii) **EMP Implementation and Monitoring**
 - (a) Update the EMP before the construction of the project;
 - (b) EMP implementation and place mitigation measures according to the EMP;
 - (c) Carry out EMP internal monitoring and prepare HPMO's environmental monitoring report semiannually;
 - (d) Coordinate with external monitor(s) to conduct external environmental monitoring and prepare external environmental monitoring reports semiannually;
 - (e) Provide training and capacity building for ADB environmental safeguard policies and procedures for project management staff from PIUs/implementing agencies/HPMO and contractors.
- (ix) **Resettlement Implementation and Monitoring**
 - (a) Prepare a LURT plan for the Kedashan subproject in line with the LURT framework;;
 - (b) Assist implementing agencies and PIUs to carry out land acquisition and resettlement according to the resettlement DDR and LURT plan;

- (c) Assist implementing agencies and PIUs to conduct internal monitoring of implementation of resettlement DDR and LURT plan, and support HPMOs preparation of resettlement monitoring report semiannually;
- (d) Coordinate with the external resettlement monitor to conduct external resettlement monitoring and prepare the external monitoring reports semiannually;
- (e) Provide training and capacity building on ADB involuntary resettlement safeguard policies and procedures for relevant project management staff from HPMO, implementing agencies, and PIUs.

(x) EMDP implementation and Monitoring

- (a) Assist implementing agencies and PIUs to implement EMDP and introduce mitigation measures, where necessary;
- (b) Assist implementing agencies and PIUs to conduct EMDP internal monitoring and prepare HPMO's EMDP monitoring report semiannually;
- (c) Support HPMO to engage the external EMDP monitor and ensure that the external EMDP monitoring and preparation of the semiannual external monitoring reports are conducted;
- (d) Provide training and capacity building on ADB indigenous people safeguard policies and procedures for relevant project management staffs from HPMO, implementing agencies and PIUs.

(xi) SGAP implementation and monitoring

- (a) Update the SGAP, as needed, before the start of project implementation;
- (b) Assist implementing agencies and PIUs to implement SGAP, including mitigation measures;
- (c) Assist implementing agencies and PIUs to conduct SGAP internal monitoring and prepare an internal SGAP monitoring report semiannually;
- (d) Provide training and capacity building on ADB's social development and gender development policies and procedures for project management staff at the HPMO, implementing agencies, and PIUs.

(xii) Project Performance Management System (PPMS) Monitoring

- (a) Review and update the project PPMS system as needed before the start of project implementation. Any update and revision of the PPMS indicators shall be approved by the ADB;
- (b) Develop and establish a project PPMS monitoring system and define the data collection and monitoring methodology;
- (c) Conduct PPMS monitoring semiannually and incorporate the monitoring results into the project progress report;
- (d) Prepare and submit PPMS monitoring report annually;
- (e) Provide training and capacity building on ADB PPMS and monitoring policies and procedures for relevant project management staff from HPMO, implementing agencies, and PIUs.

A. Coordination and Management of Project Technical Assistance and Capacity Development Packages. The PMISC shall assist the HPMO, implementing agencies, and PIUs in coordinating and carrying out the technical assistance and capacity development

packages, manage the packages for mobilization, inception, preliminary report submission and expert review and approval as needed, final output review and acceptance, including the final expert review, and output results dissemination and publicity activities.

- B. Project Midterm Adjustment Report. The PMISC shall assist the HPMO, implementing agencies, and PIUs in preparing the project midterm adjustment report based on the project progress and completion status at the middle point of the project implementation and provide suggestions on the necessary project adjustment to meet the project development objective and to utilize the ADB loan proceed effectively.
- C. Project Completion Report. The PMISC shall assist HPMO, implementing agencies, and PIUs in preparing the project completion report by the end of the project implementation according to ADB guidelines. The project completion report shall include the overall project implementation and completion status, evaluation of the project preparation and implementation effectiveness and efficiency, and the project performance required to achieve the project design objectives, and target values for the project performance monitoring indicators.

D. Capacity Development and Training

- (i) Conduct training demand analysis and prepare the training and capacity development plan;
- (ii) Provide training on ADB project development and implementation policies and procedures from the HPMO, implementing agencies, PIUs, contractors, and suppliers' relevant project management staff;
- (iii) Coordinate with consultants regarding technical assistance and capacity development packages to provide training and capacity building for the project related to studies, human resource developments, and staff training;
- (iv) Coordinate with the HPMO, implementing agencies, and PIUs in organizing the study tours, both domestics and oversight if applicable, and preparing training report for each study tour.
- (v) Coordinate and organize workshops, seminars, special forums and conferences as appropriate for knowledge dissemination and project outcome publicity. Prepare and publish technical and managerial papers to publicize and promote valuable project outcomes.

C.1 Deliverables and Schedule

3. The technical assistance project will last for 60 months (to be consistent with the project implementation period) after the mobilization of the consultants. The schedule and major deliverables are summarized in the following table.

No	Deliverables	Submission Date
1	Inception Report – to outline the project overview, latest development, project understanding, methodology and approach, and work plan	1 month after mobilization
2	Project Management Manual – to outline the project management system for management, procurement, financial management, and other project implementation tasks	3 months after mobilization
3	Capacity Development and Training Plan	3 months after mobilization

No	Deliverables	Submission Date
4	Project Progress Report (quarterly)	Submit to HPMO by 5 April (for Q1), 5 July (for Q2), 5 October (for Q3), 5 January (for Q4) for HPMO to review and request improvement to PMIC within 10 days and submit to ADB by 15 April (for Q1), 15 July (for Q2), 15 October (for Q3), 15 January for (Q4)
5	HPMO's Environmental Monitoring Report (semiannually)	End of July and January of the following year
6	HPMO's Resettlement Safeguards Monitoring Report (semiannually)	End of July and January of the following year
7	HPMO's Ethnic Minority Development Plan Monitoring Report (semiannually)	End of July and January of the following year
8	HPMO's social and gender action plan monitoring report (semiannual)	
9	PPMS Monitoring Report (annually)	End of January of the following year
10	Project Financial Statement (semiannually)	End of July and January of the following year
11	Project Auditing Report (annually)	End of January of the following year
12	Project Adjustment Report	Anytime when the changes are anticipated during the project implementation
13	Draft Project Completion Report	3 months before project closing
14	Final Project Completion Report	3 months after project closing

C.2 Consultant Team and Qualifications

4. The PMISC team consists of specialists with the expertise required for project management and technical support for the project implementation. The summary of the PMISC team and required person-months are shown in the following table:

No	Title	International (person-months)	National (person-months)
1	Project Management Specialist/team leader	12	
2	Construction Management Specialist/deputy team leader		40
3	Civil and Low Impact Development Specialist	1	12
4	Health-care and Medical Service Specialist		12
5	Elderly care and Health/Elderly-Care Specialist		12
6	Medical and Health/Elderly-Care Facility Architect	2	12
7	Medical and Health/Elderly-Care Building Engineer		12
8	Health-care Facility Construction Management Specialist		12
9	Medical and health-care Equipment Specialist	1	6
10	TVET Curriculum Development Specialist		10
11	Medical and Health-care Information System Specialist	1	6
12	Procurement and Contract Management Specialist		12
13	Financial and Economic Specialist		10
14	Environmental Specialist	3	10
15	Social, Gender, Indigenous People Specialist	1	11
16	Resettlement Specialist		6
17	PPMS Specialist		8
18	Human Resource Development & Training Specialist		6
19	BIM engineer		4
	Subtotal	21	201

- (i) Project Management Specialist (Team Leader, International) – a master’s degree or above in civil engineering or related field, minimum of 15 years of experience both in the PRC and other developed countries, demonstrated project management experience in the development and construction of health-care and elderly-care facilities, civil engineering and environmental protection and ecological restoration, minimum of three ADB/WB project experiences as a team leader in civil engineering and environmental projects, fluent in English and must possess good communication skills, demonstrated project management skills and capacity.
- (ii) Construction Management Specialist (Deputy Team Leader, national) – a bachelor’s degree or above in civil engineering, environmental, or related field, minimum of 10 years of experience in construction management of civil works and environmental protection and ecological restoration projects, minimum of three ADB/WB project experiences as a team leader, deputy team leader or other key positions, and must have good communication skills.
- (iii) Civil and Low Impact Development Specialist (1 international and 1 national) – The international/national specialist shall have a master’s degree (for international) and a bachelor’s degree (for national) or above in civil engineering, water resource, or a related field with a minimum of 15/8 years of experience, respectively, in stormwater management, low impact development, and sponge city development. ADB/WB project experience is preferred.
- (iv) Health-care and Medical Service Specialist (national) – a bachelor’s degree or above in medical and health care, or related fields, minimum of 8 years of experience in the health-care and medical service sector, demonstrated experience in hospital operation, management and administration, familiar with services and functions of the PRC’s Class IIA hospitals.
- (v) Elderly Care and Health/Elderly-Care Specialist (national) – a bachelor’s degree or above in medical and health care, or a related field, minimum of 8 years of experience in elderly care and integrated health/elderly-care service sectors, strong experience in integrated health/elderly-care services is preferred, demonstrated experience in integrated health/elderly care or elderly-care facility operation, management and administration.
- (vi) Medical and Health/Elderly Care Facility Architects (1 international and 1 national) – The international/national health-care facility architects shall possess a master’s degree (for international) and a bachelor’s degree (for national) or above in architectural engineering, minimum of 15/8 years of experience, respectively, in the design and development of health care and health/elderly-care facilities. The international facility architect shall have health facility design experience in both PRC and developed countries.
- (vii) Medical and Health/Elderly Care Building Engineer (national) – a bachelor’s degree or above in structural, or building-related field, minimum of 8 years of experience in design and development of hospitals and health/elderly-care buildings and facilities, demonstrated experience in technical and management skills in the design and construction of hospital and health/elderly-care buildings.

- (viii) Health-care Facility Construction Management Specialist (national) – a bachelor's degree or above in construction management, or building-related field, minimum of 8 years of experience in construction management of hospitals and health/elderly-care buildings and facilities, demonstrated experience in construction management skills in construction management and construction supervision, good communication skills.
- (ix) Medical and Health-care Equipment Specialists (1 international and 1 national) – The international/national health-care equipment specialists shall possess a master's degree (for international) and a bachelor's degree (for national) or above in medical, medical equipment, and related fields, minimum of 15/8 years of experience, respectively, in the development and design of medical equipment, familiar with the latest technology development in medical equipment. A minimum of three similar project experiences in medical equipment development and design of similar nature is required. The international medical equipment specialist shall have medical equipment development experience in both PRC and developed countries.
- (x) TVET Development Specialist (national) – a bachelor's degree or above in TVET, education, or related field, minimum of 8 years of experience in vocational education and training service sectors, demonstrated experience in TVET school and facility operation, management and administration, experience in vocational training curriculum development.
- (xi) Medical and Health-care Information System Specialist (1 international and 1 national) – The international/national health-care information system specialists shall possess a master's degree (for international) and a bachelor's degree (for national) or above in computer, information system, or related fields, minimum of 10/8 years of experience, respectively, in the development and design of information systems in the health-care sector, demonstrated experience in developing "smart hospital" information systems. The international health-care information system specialist shall have health-care information system development experience in both PRC and developed countries.
- (xii) Procurement and Contract Management Specialist (1 international and 1 national) – the national procurement specialist shall have a master's degree (for international) and a bachelor's degree (for national) or above in civil engineering, environmental, or related field, minimum of 8 years of experience in procurement and contract management of civil engineering and environmental protection and ecological restoration projects, minimum of three ADB/WB project experiences as a procurement specialist, English communication capacity and good communication skills. The international specialist shall have relevant project experience in both PRC and developed countries. It should have working experience on green procurement for at least two projects.
- (xiii) Financial and Economic Specialist (1 national) – The national financial and economic specialists shall possess a bachelor's degree or above in financial, economic, accounting, or related fields, minimum of 10/8 years of experience, respectively, in financial management and economic assessment, minimum of three ADB/WB project experiences in environmental protection and infrastructure

development, and must be very familiar with ADB requirements on financial and economic analysis.

- (xiv) Environmental Specialist (1 international and 1 national) – The international/national environmental specialists shall possess a master's degree (for international) and a bachelor's degree (for national) or above in environmental, or related fields, minimum of 10/8 years of experience, respectively, in environmental management and monitoring, minimum of three ADB/WB project experiences in environmental protection and infrastructure development, and must be very familiar with ADB requirements on EMP implementation and monitoring, and must be capable of having good communication capacity in English with the ADB project management team.
- (xv) Social Gender and Indigenous Peoples Specialist (1 international and 1 national) – The international/national social specialists shall possess a master's degree (for international) and a bachelor's degree (for national) or above in social, or related fields, minimum of 10/8 years of experience, respectively, in social, gender, and indigenous people project management and monitoring, minimum of three ADB/WB project experiences in environmental protection and infrastructure development, and familiar with ADB requirements on SGAP, and EMDP implementation and monitoring, and must possess good communication skills in English and the ability to work with the ADB project management team.
- (xvi) Resettlement Specialist (1 national) –The Resettlement Specialist will have a university degree or above in resettlement, social, or related field with demonstrated experience. The specialist is expected to be proficient in English and shall have at least 10 years of experience in resettlement on projects funded by ADB or other international funding agencies. Knowledge in resettlement safeguard policies and procedures by ADB or other international funding agencies is required in addition to knowledge of the various PRC laws and regulations related to involuntary resettlement and land use rights transfer.
- (xvii) Project Performance Management System Specialist (national) – a bachelor's degree or above in project management, engineering, or related field, minimum of 8 years of experience in PPMS monitoring and project management of civil engineering and environmental protection and ecological restoration project, minimum of three ADB/WB project experiences as a project performance management specialist, English communication capacity to communicate with ADB project team and good communication skills.
- (xviii) Human Resource Development and Training Specialist (national) – a bachelor's degree or above in project management, or related field, minimum of 8 years of experience in human resource development, capacity building, training coordination, and related project management experience for civil engineering and environmental protection and ecological restoration projects, minimum of three ADB/WB project experiences and familiar with ADB policy and procedures in capacity building and training, English communication capacity and good communication skills.
- (xix) BIM engineer (national) – a bachelor's degree or above in project management, civil engineering or related field, have minimum 2 working project experience with BIM, have BIM certification.

CS-02: External Environmental Monitor

5. HPMO will appoint an external environment monitoring consultant for third-party review, verification, and validation of the implementation of the project EMP, compliance issues, and corrective actions. The EEMC will provide technical guidance and monitor the implementation and effectiveness of all the environmental safeguards activities. The EEMC should have bachelor's degree in environment or related field with 7-10 years' experience in implementation and monitoring of EMPs for externally funded projects. The EEMC will: (i) review EIA (including the EMP and environment monitoring and inspection plan) and all monitoring reports prepared for the project to understand the environmental issues in the project area and mitigation and monitoring requirements of the project; (ii) ensure that environmental impact assessment fully comply with ADB Safeguards Policy Statement (SPS, 2009) and ensure that all required mitigation measures are identified and acceptable. (iii) review EMP for the inclusion of all site-specific issues and make necessary amendments if any issues are not covered. Ensure that the environmental management and monitoring plans reflecting full details regarding the estimated mitigation costs are in place through the site-specific environmental management plan (SSEMP); (iv) review the environment monitoring and inspection plan and ensure that the location and timing of checking/testing all environmental parameters are in accordance with the site conditions; (v) prepare or review (if already existing) monitoring checklists for monitoring implementation of the EMP by the contractor; (vi) prepare or review (if already existing) reporting formats for semiannual monitoring reports; (vii) include test results of environment monitoring carried out in the monitoring reports and advise/support the contractor in taking remedial actions if any of the test results are not within the required limits; (viii) confirm and verify presence or absence of complaints in relation to the project and selected sites. (ix) recommend corrective actions for any noncompliance; and (x) prepare semiannual external environmental monitoring reports (EEMR) in English based on monitoring site visits and inspection for submission to HPMO and ADB.

No	Title	Unit	Cost
1	Environmental External Monitoring	LS	\$350,000
	Indicative specialist inputs	International	National
	Environmental monitoring specialist (team leader)	3	
	Environmental monitoring specialist		6
	Environmental monitoring technician 1		9
	Environmental monitoring technician 2		9
	Subtotal	3	24

CS-03: External Resettlement Monitor

6. A national resettlement consulting firm or institute will be engaged to act as external monitor to carry out monitoring and evaluation of resettlement safeguards compliance of the project during and after resettlement implementation. The external monitoring agency with an estimated total input of 22 person-months of national consultants will be engaged by CQS method. The consultants will be duly qualified with respective relevant academic degrees equivalent to master's degrees or higher and have at least 10 years of experience in their respective fields relevant to the project's requirements.

No	Title	Unit	Cost
1	Resettlement External Monitoring	LS	\$200,000
	Indicative specialist inputs	International	National
	LAR monitoring specialist (team leader)		6
	LAR monitoring specialist 1		8
	LAR monitoring specialist 2		8
	Subtotal		22

7. **Objectives and requirements of monitoring and evaluation.** The external monitor will (i) assess the effectiveness, impacts and sustainability of land acquisition, compensation, and resettlement measures; (ii) determine whether such activities have met the safeguard policy requirements of the project; and (iii) extract and highlight lessons for future social safeguard policy formulation and project planning. All data and analysis will be disaggregated by gender, if applicable. The external monitor will carry out semiannual monitoring of the resettlement DDR actions and the land use rights transfer (LURT) plan implementation, which includes the payment of compensation, assistance, and implementation of livelihood restoration programs, if any. The findings of the monitoring exercise will be presented in a resettlement monitoring report to be submitted to PMO and ADB for review prior to disclosure on ADB website. This semiannual monitoring will continue for a year after the completion of the implementation of the DDR actions and LURT plan, after which a resettlement completion report will be prepared to assess the overall effectiveness of resettlement implementation, evaluation of whether the affected persons have been able to at least restore their original livelihoods prior to relocation, if not improved. The external monitoring process will include the following activities:

- (i) review and verification of the internal monitoring reports and resettlement completion reports of the PMO;
- (ii) impact assessment (e.g., restoration of incomes and living conditions) through quantitative and qualitative studies;
- (iii) gender-sensitive consultations with affected persons;
- (iv) assessment of compliance with government's laws and regulations and the ADB Safeguard Policy Statement's (SPS, 2009) involuntary resettlement policy requirements outlined in the DDR and LURT plan;
- (v) effectiveness of the grievance redress mechanism (GRM); and
- (vi) lessons learned.

8. The specific roles and responsibilities for each of the two subprojects are outlined below:

(i) **Kedashan subproject**

9. **Baseline monitoring:** Prior to initiation of civil works in the subproject, the external monitor will carry out (i) consultations with the Baisha village community on the process of finalization of LURT agreements with the IA; (ii) review whether the provisions of the agreement are in line with the LURT framework and the relevant national laws and regulations in addition to ADB good practice on voluntary land use; and (iii) confirm if all the ground attachments including trees, sheds and any other structures identified in the area proposed for LURT consistent with the compensation standards agreed as part of the LURT framework. Gaps if any, will be identified, and raised with Hezhou PMO and ADB for addressing, prior to implementation.

10. **Semiannual monitoring during LURT implementation.** During the implementation of the project, the external monitoring agency will carry out regular monitoring of the LURT twice a year through onsite surveys. The following activities will be monitored: (i) consultations with the participating households, (ii) payment and amount of LURT fees; (iii) organization of LURT, (iv) impacts on community, (v) LURT agreement negotiation and satisfaction; (vi) use of LURT rental; and (vii) GRM functioning.

11. The external monitoring agency will participate in public consultations to be held during the LURT implementation of the project. Through participation in these consultations, the external monitoring agency will evaluate the effectiveness of public participation and LURT implementation effectiveness. The external monitor will also monitor, evaluate and report on the key consultation meetings (including observing some of key consultations during negotiation) to assess if the LURT process is being followed. Based on the information obtained from monitoring and survey, the external monitoring agency will prepare external monitoring reports and regularly submit reports to the Hezhou PMO and ADB.

(ii) **Pinggui subproject**

12. **Baseline monitoring.** Prior to award of civil works contract for the Pinggui subproject, the external monitoring agency will conduct baseline survey on the affected households to collect baseline data on the detailed status (current use and loss estimate of affected land, houses, structures and ground attachments) of all APs. The baseline report can be included into the 1st external monitoring report.

13. **Semiannual monitoring.** The external monitoring agency will conduct monitoring during the implementation of the DDR and the subproject, monitoring will be conducted twice a year. The monitoring will be conducted through site observation, follow-up survey and interviews with APs. The monitoring will include (i) The payment of compensation; (ii) Technical and skills training conducted; (iii) Livelihood restoration status including vulnerable groups; (iv) Construction progress and facilities of houses at the resettlement site; (v) Moving into new houses on the resettlement site; (vi) Resettlement organization structure and capacity; (vii) Utilization of compensation; (viii) Whether the APs are benefiting from the project; and, (ix) Grievances if any related to land acquisition and resettlement.

14. The external monitoring agency will participate in some of the public consultation meetings conducted during the DDR implementation to evaluate the outcome and effectiveness of public participation.

15. The external monitoring agency will conduct regular visit to the affected villages, and follow-up with the concerned subdistrict government and implementing agency on the handling of the complaints. If there are any issues identified during monitoring, corrective measures should be proposed to PMOs for effective resettlement implementation. The reporting schedule for LURT monitoring reports is presented in Table 1.

Table 1 Schedule of Comprehensive Social Monitoring and Evaluation

#	Report	Timeline	Remarks
1	Baseline survey and monitoring report (No.1)	March 2022	Including the baseline survey report
2	Monitoring report (No.2)	September 2022	Semiannual report
3	Monitoring report (No.3)	March 2023	Semiannual report
4	Monitoring report (No.4)	September 2023	Semiannual report

#	Report	Timeline	Remarks
5	Monitoring report (No.5)	March 2024	Semiannual report
6	Monitoring report (No.6)	September 2024	Semiannual report
7	Completion report (No.7)	September 2025	LURT Completion report

CS-04: External EMDP and SGAP Monitor

16. A national consulting firm or institute will be engaged to act as external monitor to carry out monitoring and evaluation of EMDP compliance of the project during and after implementation. The external monitoring agency with an estimated total input of 12 person-months of international and national consultants will be engaged by CQS method. The consultants will be duly qualified with respective relevant academic degrees equivalent to master's degrees or higher and have at least 10 years of experience in their respective fields relevant to the project's requirements.

17. External monitoring will be performed semiannually by an external agency (together with the SGAP implementation monitoring) until the project completion. The EMDP monitoring reports (together with the SGAP implementation monitoring report) will be submitted semiannually to HPMO and ADB by 15 September (for verifying the HPMO's EMDP reporting covering January–June) and 15 March (for verifying the HPMO's EMDP reporting covering July–December).

No	Title	Unit	Cost
1	Ethnic Minority External Monitoring	LS	\$200,000
	Indicative specialist inputs	International	National
	Social and Gender monitoring specialist (team leader)	3	
	Ethnic minority monitoring specialist 1		6
	Social and gender monitoring specialist 2		6
	Subtotal	3	12

CS-05: Start-up Support

No	Title	International (person-months)	National (person-months)
a	Project management and procurement	0	8
b	Environment	0	4
c	Resettlement	0	3
d	Green procurement	4	0
	Subtotal	4	15

CS-05-a: Start-up Support: Project Management and Procurement

(national, 8 person-months, intermittent)

18. Objective and Purpose of the Assignment. The objective of the assignment is to assist Hezhou Municipal Government (HMG), Hezhou project management office (HPMO), two implementing agencies (IAs) (Guangxi Hezhou Mining Investment Group Company Limited [HMIGC] and Pinggui District Government [PDG]) and two project implementation units (PIUs) (HMIGC and Hezhou Pinggui Urban Construction Investment Company Limited [PUCIC]) for timely start-up and implementation of the project in accordance with ADB procedural requirements in general project management and preparation of procurement activities.

19. Work Location. A mixture of field (Guangxi Hezhou) and home-based work
20. Expected duration. December 2021 to January 2023 (8 person-month in total, intermittent)
21. Scope of Work. On project management, the consultant will provide advice and support to HMG, HPMO, IAs, and PIUs, in understanding and digesting all aspects of the ADB project requirements, including loan and project agreements, all sections and appendices of project administration manual (PAM) and other project-related documents, and guide them set up efficient implementation/practice arrangements. On procurement, the consultant will work with HMG, HPMO, IAs, PIUs, procurement agent, in preparing and recruiting consulting services and procuring works, and goods that are to be advertised in 2022. The consultant will coordinate with other three individual start-up consultants and guide HPMO to properly reflect their inputs into consolidated project management arrangements, reporting, and procurement documents. At the end of the assignment, the consultant will handover the deliverables, documents, information, and data to HPMO to be utilized by forthcoming CS-01 consulting firm.
22. Detailed Tasks and/or Expected Output. The detailed tasks to be carried out by the consultant will include, but not be limited, to the following:

On project management

- ensure that HMG, HPMO, IAs, PIUs' staff have proper understanding of ADB project and have the latest documents in hand, including loan and project agreements, all sections and appendices of project administration manual (PAM) and other project-related documents
- if HMG, HPMO, IAs, PIUs are referring to Chinese translated documents, check if any inconsistencies/misunderstanding in Chinese version and if any, correct them and inform HMG, HPMO, IAs, PIUs with correct information (English version is official)
- provide field support as agreed with the HPMO
- work with HMG, HPMO, IAs, PIUs to map out project management roles and procedures (including linkages among different aspects of project aspects)
- ensure the stakeholder communication, consultation and participation plan (CPP) are start implementing (PAM Table 28)
- ensure the public disclosure measures are followed (PAM Table 29)
- ensure HMG, HPMO, IAs, PIUs follow anticorruption measures (PAM Table 30)
- ensure all parties understands quality requirements of the project and monitor the implementation process of quality control measures (PAM Table 2)
- set up communication channels,
- update himself/herself in ADB's latest policies, guidelines, documents, templates, and provide training on the latest ADB project management/implementation requirements to HMG, HPMO, IAs, and PIUs
- identify needs for further training by ADB or other parties and discuss capacity development plan, and help HPMO in drafting the annual capacity development plan for 2022 (PAM Table 3)
- set up training record system
- monitor the implementation arrangements and if any changes in personnel, roles, and responsibilities, support HPMO in record them and report to ADB (PAM Table 6–13, Figure 1–4)
- support HMG, HPMO, IAs, PIUs, in implementing financial management action plan (PAM Table 24)

- ensure two entity audited financial report submitted on time
- coordinate the fulfillment of conditions for withdrawal, and support the first withdrawal application submission process
- support HMG, HPMO, IAs, PIUs, in implementing social and gender action plan (SGAP) (SGAP is in PAM Table 25)
- support HMG, HPMO, IAs, PIUs, in achieving targets required in the design and monitoring framework (DMF) (DMF is in PAM Table 26)
- help set up project performance monitoring system and start monitoring/reporting
- map out reporting structure/system (reporting requirement is in PAM Table 27)
- update and report the project implementation schedule if any changes required, and propose updating of procurement plan (PAM Table 4, Appendix 4)
- support in updating the s-curve before the loan effectiveness (PAM Table 23)
- identify issues and discuss with HPMO and have HPMO to report to ADB
- regularly communicate with three other start-up consultants, and identify project management/implementation challenges, and improve them
- collect inputs from three other start-up consultants timely
- support HPMO in drafting quarterly progress reports and submit on time
- join ADB missions and support HPMO, IAs, PIUs in reporting and discussions
- upon mobilization of PMISC team, provide handholding support to ensure smooth transition of the activities achieved by the start-up consultant.
- support HMG, HPMO, IAs, PIUs in other project management-related aspects

On procurement

- ensure that HMG, HPMO, IAs, PIUs' staff have proper understanding of the latest ADB procurement policy and guidelines, and have documents/templates for use
- if HMG, HPMO, IAs, PIUs are referring to Chinese translated documents, check if any inconsistencies/misunderstanding in Chinese version and if any, correct them and inform HMG, HPMO, IAs, PIUs with correct information (English version is official)
- update himself/herself in ADB's latest policies, guidelines, documents, templates, and provide training on the latest ADB procurement requirements to HMG, HPMO, IAs, and PIUs
- identify needs for further training by ADB or other parties in terms of procurement and discuss with HPMO and ADB for aspects for training/further consultations
- communicate with HPMO and green procurement consultant and ensure the procurement related documents reflects the inputs from green procurement consultant
- ensure that in addition to the template, add project-specific requirements to the commercial parts of the bid documents or request for proposal (RFP), such as environmental safeguard clauses, are properly inserted in the bidding documents/terms of reference, as required in EMP, and other project documents, by consulting with other start-up consultants and HPMO/PIUs
- ensure that the project-specific technical requirements and green and inclusive requirements are properly reflected in the technical specifications (e.g., bidding document section VI)
- assist HPMO, IA, PIUs in making detailed procurement step-by-step planning (e.g., preliminary design review, approval, detailed drawing, ADB review, bidding documents preparation, ADB review, etc.) for each recruitment/procurement packages
- assist HPMO in engagement of the following consulting services (indicative list for 2022 as of September 2021) in accordance with ADB guidelines and procedural

- requirements, including TOR finalization; ensure proper documentations (submissions) are prepared and submitted to ADB.
- CS-01: Project management and implementation support (QCBS, FTP) to be advertised in Q1 2022
 - CS-06: Construction supervision for all works (QCBS, STP) to be advertised in Q1 2022
 - CS-02: External environment monitoring (CQS, STP) to be advertised in Q1 2022
 - CS-03: External resettlement monitoring (CQS, STP) to be advertised in Q2 2022
 - CS-04: External EMDP and SGAP monitoring (CQS, STP) to be advertised in Q2 2022
 - CS-08: Pinggui comprehensive public healthcare system (medical community) study and design (CQS, STP) to be advertised in Q2 2022
 - CS-09: Pinggui Integrated Health and Elderly Center operation study and capacity development (CQS, STP) to be advertised in Q2 2022
 - CS-07: NBS approach for environmental restoration and policy framework (CQS, STP) to be advertised in Q3 2022
 - assist HPMO in procurement of the following works and goods packages (indicative list for 2022 as of September 2021) in accordance with ADB guidelines and procedural requirements, including bidding document finalization; ensure proper documentations (bid evaluation report, etc.) are prepared and submitted to ADB.
 - W-HE-01: Pinggui Integrated Health and Elderly Care Center building works and installation engineering (prior review), to be advertised in Q2 2022
 - W-KDS-02: Mineral mining tailings collection, treatment, and disposal in landfill (prior review), to be advertised in Q2 2022
 - W-KDS-01: Mineral mining site environment and surface water restoration (post review), to be advertised in Q2 2022
 - G-RH-01: Township/community clinic medical equipment (prior review), to be advertised in Q2 2022
 - W-WH-01: Pinggui Worker's Hospital works and installation engineering (prior review), to be advertised in Q1 2023
 - upon mobilization of PMISC team, provide handholding support to ensure smooth transition of the activities achieved by the start-up consultant.
 - other matters relating to the recruitment or procurement as required by HPMO.

Expected deliverables

- (i) Work plan and schedule
- (ii) Quarterly project progress report
 - QPR-01 submit to HPMO by 5 April 2022
 - QPR-02 submit to HPMO by 5 July 2022
 - QPR-03 submit to HPMO by 5 October 2022
 - QPR-04 submit to HPMO by 5 January 2023
- (iii) Assignment completion report and handover notes

The following four individual consultants will be engaged through individual consultant selection (ICS) for start-up support, and the start-up support: Project management and procurement consultant will take lead in consolidating the inputs of other three consultants.

- CS-05-a: Start-up support: Project management and procurement (national)
- CS-05-b: Start-up support: Environment (national)
- CS-05-c: Start-up support: Resettlement (national)

- CS-05-d: Start-up support: Green procurement (international)

23. Minimum Qualifications Requirements

(i) Academic Qualifications: Postgraduate qualification in social science, including project management, business management, engineering, environmental studies or related fields.

(ii) Experience: (a) Minimum 8 years of working experience in complex project management, including construction and capacity development project experiences in environmental protection and infrastructure development. Have good working knowledge of ADB business practices, including, procurement, financial management and disbursement, and ADB Safeguard Policy Statement (2009). Required to be capable of performing tasks and properly guide the HPMO and implementing agencies; (b) Working experience with international development organizations is considered advantageous

(iii) Skills: Communication. Speaks and writes clearly and effectively; listens to others, correctly interprets messages from others and responds appropriately; asks questions to clarify and exhibits interest in having two-way communication; tailors language, tone, style and format to match audience; demonstrates openness in sharing information and keeping people informed.

(iv) Language: Both Chinese and English good communication capacity is essential, as the consultant will work closely with the HPMO and support HPMO in preparing quarterly project progress reports to be submitted to ADB.

CS-05-b: Start-up Support: Environment

(national, 4 person-months, intermittent)

24. Objective and Purpose of the Assignment. The objective of the assignment is to support the Hezhou project management office (HPMO) in establishing systems and procedures to coordinate environmental management activities, including staffing, provision of training, and implementation of the environmental management plan (EMP).

25. Work Location. A mixture of field (Guangxi Hezhou) and home-based work

26. Expected duration. December 2021 to January 2023 (4 person-month in total, intermittent)

27. Scope of Work. A national start-up support: environment consultant is required to assist the project's HPMO, implementing agencies (IAs), and project implementation units (PIUs) with the start-up activities required in the implementation of EMP and provide support to ensure safeguard compliance required under the environment category-A project.

28. Detailed Tasks and/or Expected Output. The detailed tasks to be carried out by the consultant will include, but not be limited, to the following:

(i) Prepare work plan and schedule.

(ii) Support HPMO or PIUs in selection and use of environmental monitoring station(s)

- (iii) Ensure project environmental readiness, including (a) all contractor contracts include, and will comply with, the EMP; and (b) relevant sections of the EMP are incorporated in construction plans and contracts.
- (iv) Assist the HPMO, IAs, and PIUs in conducting consultation meetings with relevant stakeholders, informing them of imminent construction works, updating them on the latest project development activities and grievance redress mechanism (GRM),
- (v) Update the EMP as needed, including mitigation measures, monitoring program, institutional arrangements, and training plan as necessary, to reflect the detailed design, submit to ADB for review and disclosure
- (vi) Support the HPMO, IAs, PIUs to ensure that the bidding and contract documents and civil works contracts contain provisions requiring contractors to comply with the mitigation measures in the EMP
- (vii) Support HPMO to establish the proper HPMO, implementing agencies, and PIUs' staffing and initiate training activities for staff of HPMO, implementing agencies, and PIUs on the implementation of EMP, environmental laws, regulations, and policies, ADB's Safeguard Policy Statement (SPS) 2009, and GRM.
- (viii) Assist HPMO, implementing agencies, and PIUs in establishing and maintaining an effective GRM tracking system and an effective coordination and monitoring system
- (ix) Support HPMO and PIUs in reviewing and approving contractors' site-specific EMPs and conducting periodic environmental site inspection, identify any environment-related implementation issues, propose necessary corrective actions, reflect these in a corrective action plan
- (x) Provide environmental section inputs to HPMO for quarterly progress reports.
- (xi) Develop procedures to (a) monitor EMP implementation progress, (b) collate and evaluate data collected in the EMP environmental monitoring program, and (c) prepare semiannual internal (HPMO's) environmental monitoring reports on behalf of HPMO
- (xii) Undertake site visits to all IAs and project sites during subprojects' construction phase. Assist in the public consultation process.
- (xiii) Conduct EMP compliance assessments, identify any environment-related implementation issues, and propose necessary responses in corrective action plans.
- (xiv) Join ADB missions and support HPMO, IAs, PIUs in reporting and discussions.
- (xv) Upon mobilization of PMISC team's environmental consultants, provide handholding support to ensure a smooth transition of the activities achieved by the start-up consultant.

For start-up support activities, the following four individual consultants will be engaged through individual consultant selection (ICS). The Start-up support: environment consultant will provide updates and inputs to the Start-up support: Project management and procurement consultant for overall understanding of the project progress and reporting.

- CS-05-a: Start-up support: Project management and procurement (national)
- CS-05-b: Start-up support: Environment (national)
- CS-05-c: Start-up support: Resettlement (national)
- CS-05-d: Start-up support: Green procurement (international)

29. Minimum Qualifications Requirements

(i) Academic Qualifications: Postgraduate qualification in environmental management, engineering, environmental studies or related fields.

(ii) Experience: (a) Minimum 5 years of working experience in environmental management and monitoring, ADB or World Bank's project experiences in environmental protection and infrastructure development, and must be very familiar with ADB safeguards requirements, including EMP implementation and monitoring. Required to be capable of performing tasks and properly guide the HPMO and implementing agencies; (b) Working experience with international development organizations is considered advantageous

(iii) Skills: Communication. Speaks and writes clearly and effectively; listens to others, correctly interprets messages from others and responds appropriately; asks questions to clarify and exhibits interest in having two-way communication; tailors language, tone, style, and format to match audience; demonstrates openness in sharing information and keeping people informed. Ability to analyze data and prepare technical reports; and proficiency in spoken and written English.

(iv) Language: Both Chinese and English good communication capacity is essential. Proficiency in spoken and written English is required, as the consultant will work closely with the HPMO and support HPMO in preparing internal environmental reporting to be submitted to ADB.

CS-05-c: Start-up Support: Resettlement

(national, 3 person-months, intermittent)

30. Objective and Purpose of the Assignment. The objective of the assignment is to support the Hezhou project management office (HPMO) in establishing systems and procedures to coordinate resettlement activities, including staffing, provision of training, and implementation of actions agreed in land use rights transfer framework (LURTF) and resettlement due diligence report (DDR).

31. Work Location. A mixture of field (Guangxi Hezhou) and home-based work

32. Expected duration. December 2021 to January 2023 (3 person-month in total, intermittent)

33. Scope of Work. The national start-up support: resettlement consultant is required to (i) assist the project's HPMO, implementing agencies (Guangxi Hezhou Mining Investment Group Company Limited, and Pinggui District Government) with the start-up activities required in the implementation of LURTF and corrective actions proposed in DDR and (ii) provide support to establish procedures and systems to ensure compliance related to involuntary resettlement safeguards under the project.

34. Detailed Tasks and/or Expected Output. The detailed tasks to be carried out by the consultant will include, but not be limited, to the following:

- (i) Prepare work plan and schedule for activities related to land acquisition, resettlement, and land use for the project, and assist HPMO and implementing agencies in establishing systems and procedures to coordinate resettlement activities, including preparation of LURT plan, monitoring of resettlement actions in accordance with the resettlement due diligence report, and other actions agreed in the resettlement DDR.
- (ii) Provide practical advice to HPMO and implementing agencies on implementation of LURT plan and corrective actions of DDR within both ADB and PRC policies and legislations.
- (iii) Work closely with HPMO and implementing agencies on accelerating adjustment of land use planning to ensure that the land uses for the subproject locations are fully compliant with the applicable requirements.
- (iv) Support HPMO to establish the proper staffing in HPMO and implementing agencies to be in charge of land acquisition and resettlement activities.
- (v) Provide training on ADB involuntary safeguard requirement and project-specific covenants and requirements listed under the project administration manual (PAM), including monitoring, reporting, and consultations.
- (vi) Assist HPMO and implementing agencies in establishing and maintaining an effective grievance redress mechanism (GRM) tracking system and an effective coordination and monitoring system.
- (vii) Provide land acquisition and resettlement section inputs to HPMO for quarterly progress reports compiled by the Start-up support: Project management and procurement consultant.
- (viii) Guide the HPMO in the preparation of the first and second semiannual internal (HPMO's) resettlement monitoring report.
- (ix) Assist in selecting a resettlement external monitoring agency and coordinating with the external agency on all monitoring activities as requirements set in DDR.
- (x) Join ADB missions and support HPMO, IAs, PIUs in reporting and discussions.
- (xi) Upon mobilization of PMISC team's resettlement consultants, provide handholding support to ensure a smooth transition of the activities achieved by the start-up consultant.

For start-up support activities, the following four individual consultants will be engaged through individual consultant selection (ICS). The Start-up support: resettlement consultant will provide updates and inputs to the Start-up support: Project management and procurement consultant for overall understanding of the project progress and reporting.

- CS-05-a: Start-up support: Project management and procurement (national)
- CS-05-b: Start-up support: Environment (national)
- CS-05-c: Start-up support: Resettlement (national)

- CS-05-d: Start-up support: Green procurement (international)

35. Minimum Qualifications Requirements

(i) Academic Qualifications: At least a bachelor's degree in social sciences, sociology, and anthropology.

(ii) Experience: (a) Minimum 7 years of experience in preparing and implementing involuntary resettlement safeguard for projects financed by Asian Development Bank and/or World Bank in accordance with the national requirements for involuntary resettlement in the People's Republic of China. Required to be capable of performing tasks and properly guide the HPMO and implementing agencies; (b) Working experience on projects funded by international development organizations on the implementation of land acquisition and resettlement will be advantageous.

(iii) Skills: Communication: Speaks and writes clearly and effectively; listens to others, correctly interprets messages from others and responds appropriately; asks questions to clarify and exhibits interest in having two-way communication; tailors language, tone, style, and format to match audience; demonstrates openness in sharing information and keeping people informed.

(iv) Language: Both Chinese and English good communication capacity is essential, as the consultant will work closely with the HPMO and support HPMO in preparing reports for submission to ADB.

CS-05-d: Start-up Support: Green Procurement

(international, 4 person-months, intermittent)

36. Objective and Purpose of the Assignment. Support to the Hezhou project management office (HPMO) for delivering their functions to finalize scoping of green procurement action plan for the project, including contract specific considerations in procurement document as well as institutional capacity building and green procurement key performance indicator (KPI) development, monitoring and reporting.

37. Work Location. Home-based (depending on PRC entry visa requirements and quarantine requirements but assuming home-based for non-PRC based experts; if PRC-based qualified expert is selected, field work input would be discussed with the HPMO)

38. Expected duration. December 2021 to December 2022 (4 person-month in total, intermittent)

39. Scope of Work. An expert international consultant is required to assist the project with the detailed development and implementation of the green procurement work plan and the overall support in training and activities related to the promotion of international good practices in the areas of green and sustainable procurement in the HPMO system for this project and future projects.

40. Detailed Tasks and/or Expected Output

(i) Agree with the HPMO on the top priorities and impact areas in the project green procurement action plan and implement them. An example of the items is energy-

efficiency or waste minimization guidance for various products, guidance for circular procurement considerations, or green building design, construction, operation and maintenance plan. The deliverable will be the green procurement action plan and its implementation plan/strategy to be submitted to HPMO (then shared with ADB).

(ii) Assist the HPMO, in consultation with other stakeholders in the project such as design institute, in carrying out their responsibilities in developing and agreeing on the project's implementation work plan, KPIs, reporting and monitoring arrangement, as well as training activities. This progress, achievements, and issues will be reported/updated in the consultants' own quarterly progress reports to be submitted to HPMO (then shared with ADB) by the end of every quarter.

(iii) Work with design team to develop green building related requirements and incorporate related evaluation criteria in the physical works contracts procurement bidding document and technical specification. The progress, achievements, and issues will be reported/updated in the consultants' own quarterly progress reports to be submitted to HPMO (then shared with ADB) by the end of every quarter.

(iv) Work with HPMO to develop and promote green procurement guidelines for goods and works procurement in the future projects, including content development of enhanced guidance, training material and capacity building, as well as tools for monitoring and reporting of green procurement components in the project, such as a green procurement audit. The deliverable will be green procurement guidelines for goods and works procurement; training materials; and training delivery reports to be submitted to HPMO (then shared with ADB).

(v) Undertake the envisaged implementation, communication, knowledge management and reporting activities, and a completion report on this task. If the consultant is physically based in the PRC, field-workshop/training sessions (estimated twice) can be delivered in the field. The progress will be reported/updated in the consultants' own quarterly progress reports to be submitted by the end of every quarter, and completion report due by end of the assignment to be submitted to HPMO (then shared with ADB).

Note: Information from the client such as design document may be shared with the consultant only in Chinese. The consultant is responsible for translation for own interpretation if required. All deliverables to Client (HPMO) is to be in both English and Chinese, with a copy also to be provided to ADB. Provisional sum for translation service is available as part of this contract.

41. Minimum Qualifications Requirements

(i) Skills: Communication. Speaks and writes clearly and effectively; listens to others, correctly interprets messages from others and responds appropriately; asks questions to clarify and exhibits interest in having two-way communication; tailors language, tone, style and format to match audience; demonstrates openness in sharing information and keeping people informed.

(ii) Academic Qualifications: (a) Postgraduate qualification in environmental studies or development studies, environmental science, engineering or public administration management; (b) Internationally recognized sustainable procurement /green procurement qualification adopted in practice by multiple economies, such as Certification of ISO

20400, LEED green building council credentials, ITCILO sustainable public procurement certificate, EDGE green building certification, MAPS practitioner, CIPS sustainable procurement.

(iii) Experience: (a) Minimum 15 years of working experience in green/sustainable procurement policies, analysis of international sustainable procurement practices, both in environmental and social aspects and training experience in this field, development and implementation of organizational /project level sustainable/green procurement framework, develop and deliver related training, in at least 3 economies; (b) Working experience with international development organizations and in PRC on sustainable procurement matters is considered advantageous.

(iv) Language: English is essential. Both English and Chinese is advantageous.

CS-06: Construction Supervision

H.1 OBJECTIVES OF CONSTRUCTION SUPERVISION SERVICES

42. The proposed construction supervision services are requested to establish the "Construction Supervision Department" on site for the Project, in full compliance with the terms and conditions of the contract, ADB procurement regulations, and the requirements of relevant national laws and regulations, to conscientiously perform the supervision responsibilities, carry out corresponding supervision services, and ensure the high-quality completion of the project and meet the requirements of ADB and national laws and regulations. Specific construction supervision services tasks include:

1.1 Quality Management

43. Assist the HPMO, implementing agencies, and PIUs in formulating the quality supervision control system of the project according to the quality targets set for the project and submit it to the project employer for approval and filing. Based on prevention and control, strictly control the quality of raw materials, construction process and product inspection used in each subproject and part of the project, and carefully manage to ensure that the quality of the project meets the qualified standard.

1.2 Progress Management

44. The basis of project progress control is the construction period target agreed in the construction contract of the construction project. Under the principle of ensuring the project quality and safety, the progress is controlled by adopting a dynamic control method to carry out active control, mainly in advance control. The progress control of the project must meet the requirements of the optimization of the economic interests of the HPMO, implementing agencies, and PIUs; the progress control of the project must establish detailed progress control targets or make necessary decomposition of the overall progress plan targets to ensure that the progress control responsibility is implemented to all participating units and functional departments.

1.3 Cost Management

45. Assist the HPMO, implementing agencies, and PIUs in formulating the investment control targets according to the construction targets of the project: control the investment within the

approved limit and correct the deviation at any time-based on the contract price by means of technology, economy, and management.

1.4 Safety Management

46. Assist the HPMO, implementing agencies, and PIUs to achieve "four no" (no major personal safety accidents, no major mechanical equipment accidents, no major fire accidents, no major traffic accidents), "one-stop" (no human casualties in construction) to ensure the smooth progress of the project.

1.5 Other Coordination Management

47. Include coordination with the Project owners, Coordination with Contractors, Coordination with Design Institutes, Coordination with Governmental Authorities, Coordination with Project Implementation Units and Coordination between supervision engineers.

H.2 Scope of Construction Supervision Services

48. The construction supervision services shall be the full-cycle construction supervision requested for the entire construction process of the project. It is also requested for the warranty period of the project.

49. The above construction supervision services shall include but not limited to:

- (i) assist the implementing agencies and PIUs to handle: technical services in the process of construction application, approval, review, construction bidding, review of construction drawings, formulation and negotiation of construction contract, application for construction license, preparation work in the early stage of the project site, coordination of survey and design, quality control of survey and design, completion acceptance, preliminary review of project settlement, project filing and construction period control, etc.
- (ii) Provide the corresponding data required by ADB for withdrawal and reimbursement according to the supervision responsibilities.
- (iii) Ensure that the project construction meets the requirements of ADB project management and security policy management, check and supervise whether the contractor implements corresponding measures as described in EMP, resettlement DDR, LURTP, and SGAP in the contract;
- (iv) If necessary, cooperate with the project inspection of the ADB delegation;
- (v) The supervision engineer needs to coordinate and communicate closely with the project management consultants at the project implementation stage and share the project information at the project implementation stage.
- (vi) Participate in ADB's review missions, as required.
- (vii) Prepare reports on project construction supervision and project management, monthly progress reports, clarification, and interpretation documents, etc.
- (viii) Perform other duties appointed by the HPMO, implementing agencies, and PIUs in a reasonable manner in writing from time to time in accordance with the terms of the contract.
- (ix) Assist in the review of design outcome documents, and provide review opinions and improvement suggestions on technical feasibility, rationality, and economy. Assist in reviewing the major design plans of the design unit to pass economic and technical certification.

- (x) Organize and participate in the selection of equipment and materials as required, and review the list of main equipment and materials and the feasibility of equipment and pipeline installation and construction. Put forward reasonable suggestions to the HPMO, implementing agencies, and PIUs on the determination of building structure system, the selection of materials, systems, equipment, instruments and meters, and the use of construction site.
- (xi) Assist the HPMO, implementing agencies, and PIUs to review the design results of each stage, check whether the design meets the requirements of the design assignment and design contract, put forward reasonable suggestions, and submit the corresponding review report to the HPMO, implementing agencies, and PIUs.
- (xii) Assist in establishing a reasonable organization structure of all parties involved in the construction site (HPMO, implementing agencies, PIUs, design institute, consulting agency, tendering company, cost consulting unit, other supervision company and other service units, contractors, and suppliers), clarify the scope of responsibilities and authorities of all parties, and timely put forward reasonable suggestions for the unreasonable organization structure and authority setting.
- (xiii) The supervision engineers shall put forward scientific, advanced, and effective rationalization suggestions for the project in the bidding process. During the performance of the contract, the winning bidder may propose reasonable suggestions for the purchaser's requirements and submit them to the purchaser in written form.

H.3 QUALIFICATION REQUIREMENTS FOR CONSTRUCTION SUPERVISION COMPANY AND SUPERVISION ENGINEERS

50. The HPMO will be responsible for engaging the construction supervision company for this contract, and requests the shortlisted project supervision company to provide detailed technical proposals and financial suggestions by means of quality and cost-based selection (QCBS), to participate in the selection and recruitment. The contract will be paid in a time-based manner. According to national laws and regulations, technical specifications, the design documents and technical information of the project, the needs and management requirements of the HPMO, implementing agencies, and PIUs, the construction companies are requested to provide a full-cycle supervision for the entire project implementation process, and provide comprehensive construction supervision and related consulting services for the project components as specified in this TOR. The shortlisted supervision companies are required to provide detailed technical proposals and financial proposals.

51. The supervision companies shall have the engineering supervision comprehensive qualification issued by the Ministry of Housing and Urban-Rural Development.

52. As a project supervisor, the supervision company shall have at least successfully completed the supervision performance loaned by an international financial organization with an amount of more than CNY40 million in the past 10 years (2010-2019).

53. As a project supervisor, the supervision company shall have at least one or more successfully completed supervision performance of hospital engineering supervision project with an amount of more than CNY20 million in the past 10 years (2010-2019).

54. When the joint bidding of the joint venture: When bidding in a joint venture, the member of JV shall not be more than two companies.

Qualification Requirements for Supervision Engineers

55. The following conditions shall be met for the personnel to be assigned to the relevant positions of the project:

Position	Title and Qualification Requirements	Similar project experience (years)	Management experience in similar positions and projects (years)	Performance experience requirements (Similar projects refer to water conservancy projects similar to this project)
Chief Resident Engineer	Senior engineer, national registered supervision engineer	15	5	At least one project supervision performance loaned by an international financial organization as the chief supervision engineers in recent 8 years and at least have one CNY 40 million as the chief supervisory engineer in municipal engineering project; Familiarity with ADB processes; Should obtain the qualification of national registered supervision engineers and senior engineer of municipal engineering project.
Deputy Chief Resident Engineer - representative of chief resident engineer	Senior engineer, national registered supervision engineer	15	5	At least have one CNY 40 million as the deputy chief or chief supervisory engineer in municipal engineering project; Familiarity with ADB processes; Should obtain the qualification of national registered supervision engineers and senior engineer of municipal engineering project.
Specialty project supervision engineer - Civil	Junior or senior Engineer, national registered supervision	10	5	In recent 5 years at least one project supervision performance as civil engineering supervision engineer in municipal engineering project
Specialty project supervision engineer - cost	Junior or senior Engineer, national registered supervision	8	3	In recent 3 years at least one project supervision performance as cost supervision engineer in municipal engineering project
Specialty project supervision engineer – material testing	Junior or senior Engineer, national registered supervision	8	3	In recent 3 years at least one project supervision performance as material testing supervision engineer in municipal engineering project
Specialty project supervision engineer - electricity	Junior or senior Engineer, national registered supervision	8	3	In recent 3 years at least one project supervision performance as electricity supervision engineer in municipal engineering project
Specialty project supervision engineer - safety	Junior or senior Engineer, national registered supervision	8	3	In recent 3 years at least one project supervision performance as safety supervision engineer in municipal engineering project
Specialty project supervision engineer - HAVC	Junior or senior Engineer, national registered supervision	8	3	In recent 3 years at least one project supervision performance as HAVC supervision engineer in municipal engineering project
Specialty project supervision engineer – contract and documentation	Junior or senior Engineer, national registered supervision	8	3	In recent 3 years at least one project supervision performance as contract management and documentation supervision engineer in municipal engineering project

Position	Title and Qualification Requirements	Similar project experience (years)	Management experience in similar positions and projects (years)	Performance experience requirements (Similar projects refer to water conservancy projects similar to this project)
Site inspector - Kedashan	Assistant Engineer, Supervisor Qualification Certificate shall be provided or professional qualification recognized by relevant provincial and city authorities	5	3	At least one project supervision performance as a supervisor in mining projects or environmental projects in last 5 years
Site inspector – Health care	Assistant Engineer, Supervisor Qualification Certificate shall be provided or professional qualification recognized by relevant provincial and city authorities	5	3	At least one project supervision performance as a supervisor in hospital construction projects in last 5 years
Site inspector - TVET	Assistant Engineer, Supervisor Qualification Certificate shall be provided or professional qualification recognized by relevant provincial and city authorities	5	3	At least one project supervision performance as a supervisor in school construction projects in last 5 years

H.4 Job Responsibilities

56. The responsibilities of the supervision engineers and supervisors include but are not limited to the following:

4.1 Chief Resident Engineer

- (i) Undertake the authority of project supervision (Chief Supervision Engineer) in accordance with the terms of the contract and the code of construction project supervision of the people's Republic of China (GB / T50319-2013);
- (ii) Approve the Contractor's construction organization plan and construction safety plan;
- (iii) Responsible for the preparation of project supervision plan and approval of project supervision implementation rules;
- (iv) Resident at the construction site to supervise the works and installation works of the contractor;
- (v) Measurement and acceptance of works completed by the contractor, issuance of interim payment certificate and final payment certificate;
- (vi) Participate in the completion acceptance of the project;
- (vii) Evaluate the deviation between actual performance and design performance;
- (viii) Preside over weekly and monthly working meetings of construction site supervisor;
- (ix) Prepare monthly supervision report, supervision summary and quality inspection operation report on the construction site, and other work tasks arranged by the HPMO, implementing agencies, and PIUs or supervision company;
- (x) Have primary responsibility for ensuring that ADB's safeguards provisions (EMP, resettlement DDR, LURT plan, SGAP) which form part of the contracts, are adhered to by the contractors.

- (xi) Indicate the status of compliance by contractors of ADB's safeguards provisions in the supervision reports.

4.2 Deputy Chief Resident Engineer – representative of chief resident engineer

- (i) Undertake the authority of project supervision with the authorization of chief resident engineer in accordance with the terms of the contract and the code of construction project supervision of the people's Republic of China (GB / T50319-2013);

4.3 Specialty project supervision engineer with different specialty

- (i) Participate in the preparation of supervision planning, and be responsible for the preparation of supervision implementation details.
- (ii) Review the documents submitted by the construction unit involving this specialty and report to the superintendent engineer.
- (iii) Participate in auditing the qualification of subcontracting units.
- (iv) Guiding and inspecting the work of supervisors, and regularly reporting to the superintendent engineer on the implementation of supervision work in this specialty.
- (v) Check the quality of incoming engineering materials, components and equipment.
- (vi) Accept inspection batches, concealed works and subprojects, and participate in the acceptance of divisional works.
- (vii) Dispose of the quality problems and safety accident hidden dangers found.
- (viii) Conduct engineering measurement.
- (ix) Participate in the review and processing of engineering changes.
- (x) Organize the preparation of supervision log and participate in the preparation of supervision monthly report.
- (xi) Collect, summarize, and participate in organizing supervision documents and information.
- (xii) Participate in project pre-acceptance and completion acceptance.

4.4 Site *inspector*

- (i) check the construction unit into the project's manpower, the use of major equipment and operating conditions.
- (ii) Witness sampling.
- (iii) Review the data related to engineering measurement.
- (iv) Check the construction results of the process.
- (v) Find the problems in construction operation, point out and report to professional supervision engineer in time.

Note: The CVs of the proposed Specialty supervision engineers and supervisors, including any supporting documents, shall be submitted in the proposal of the supervision company.

The position of supervision engineers and inspectors are only used for the indicative purpose/

H.5 Time Schedule and Deliverables

57. Within 5 working days after the signing of the contract, the winning bidder shall establish a project supervision department and submit the organization structure, personnel list and other information of the project department to the HPMO, implementing agencies, and PIUs. HPMO,

implementing agencies, and PIUs shall be dispatched to the site for relevant work within 3 working days after approval.

58. After entering the site, the project supervision department shall be responsible for the preparation of the quality, safety, progress, investment, and other aspects of the project within 28 working days. In terms of supervision service tasks, scope of work and work contents,

59. They shall submit the inception report and the supervision plan of the whole project. According to the progress of the project and the agreement of this contract, the implementation rules for supervision of the Project shall be submitted. Hold weekly supervision meetings and regular meetings deemed necessary by HPMO, implementing agencies, and PIUs, and carry out specific supervision services after approval by HPMO, implementing agencies, and PIUs.

60. The supervision company shall prepare various work reports and submit them to the HPMO, implementing agencies, and PIUs, according to the task arrangement or the needs of the HPMO, implementing agencies, and PIUs. The basic requirements and format of different reports shall be described in the technical proposal submitted by the consultant and determined in the initial report agreed by the HPMO, implementing agencies, and PIUs. In addition to the required work report, the consultant shall prepare the following comprehensive report (including but not limited to the following contents):

Supervision report	Report submission time
Start-up Report	Within the 28 days after the contract signing.
Supervision plan	Within the 28 days after the contract signing.
Supervision implementation rules	Submit before the first site meeting
Monthly report, including monthly construction schedule of each contract package	Submit the report of last month on the 10th of every month
Conference records of regular supervision meeting	Submit after holding regular supervision meeting
Supervision work summary	Submit within 14 days after completion and acceptance of each contract project
Project complete summary	Submit the draft version one month before Project complete. Submit the final version one month before Project complete.
Notice on probity and self-discipline of supervision service	To be submitted within 7 days after the commencement of the construction
Reports required in various civil engineering contracts, such as monthly measurement report, payment certificate, etc.	Submit once a month, on the 10th day of next month
Other matters	according to employer's notice

H.6 Task Time

61. The task time is from the effective date of signing the contract to the completion of project acceptance, and the relevant work is completed. The estimated implementation time of this consulting task is about 72 months, and the planned commencement date is from Jan. 2022 to Dec. 2027.

62. The total input is estimate around 936 person-month. The actual input time (start time and term) of each expert shall be determined by the agreement signed with the employer. The

supervision company shall arrange specific personnel input according to the overall contract input proposed in the proposal.

H.7 Personnel Input

63. The supervision company shall ensure that the personnel nominated in the technical proposal can participate in the completion of various tasks. Personnel can only be changed with the written approval of the HPMO, implementing agencies, and PIUs.

H.8 Facilities Provided by the Employer

64. The employer will provide the following information to the supervision engineer

- The appropriate corresponding personnel shall cooperate with the supervision engineer in the work and relevant coordination work;
- Documents (such as drawings, reports and data) required to help the supervision engineer to complete the supervision task;
- Provide relevant assistance for the supervision engineer to enter the site

H.9 Facilities and Related Expenses Provided by the Supervision Company

65. The supervision company shall equip the project with complete instruments and equipment for engineering measurement and necessary testing according to the project content; the model, quantity and accuracy of instruments and equipment must meet the project requirements, and have effective identification certificate.

Related Expenses includes:

- All expenses incurred on site, such as on site transportation cost, service cost, international and domestic travel expenses, accommodation cost, communication cost, medical treatment, labor insurance, living facilities cost, etc.;
- Office facilities such as computers required for work, including relevant software and hardware and consumables, printers, copiers and consumables, fax machines, daily office equipment for consultants, etc.;
- All expenses for labor, management, insurance, taxes, profits, etc. required for the implementation and completion of the work specified in the contract, as well as all responsibilities, obligations and general risks expressed or implied in the contract;
- If necessary, the work cost of collecting paid data and atlas or the paid cooperation cost of water conservancy department shall be included in the total cost;
- Local transportation facilities related to supervision tasks;
- Parallel testing cost related to supervision task;
- The cost of preparation and printing of all reports and documents shall be borne by the supervision.

Note: The related expenses mentioned above shall be borne by the supervision company undertaken by the supervision company and shall include all expenses for completing all quantities of consulting and supervision services of the project.

Indicative Supervision Staff Inputs			
No	Title	International (person-months)	National (person- months)
1	Chief Resident Engineer		72
2	Deputy Chief Resident Engineer		72
3	Specialty project supervision engineer - Civil		72
4	Specialty project supervision engineer - cost		72
5	Specialty project supervision engineer – material testing		72
6	Specialty project supervision engineer - electricity		72
7	Specialty project supervision engineer - HAVC		72
8	Specialty project supervision engineer - safety		72
9	Specialty project supervision engineer – contract management and documentation		72
10	Inspector 1 - Kedashan		72
11	Inspector 2 - Health care		72
12	Inspector 3 - Health care		72
13	Inspector 4 - TVET		72
Subtotal		0	936

CS-07: NBS Approach for Environmental Restoration and Policy Framework

I.1 Objective of Technical Assistance and Capacity Development

66. The objective of this technical assistance is to introduce the nature-based solution (NBS) concept and NBS approach and applications, evaluate and update the typical NBS details and technics, and develop the policy framework of NBS development and application. At the meantime, the outcome of the study will be used to enhance the implementation of the project component for Kedashan mining area environmental and ecological restoration.

I.2 Scope of Work

67. The consultant team shall conduct detailed literature review and investigation of the latest development on NBS applications, innovations and technologies, NBS application case studies, lessons learned, and other NBS related developments. Then the consultants shall collect all relevant NBS best practices and details and develop the technical specifications and guidelines for the NBS designs, details, and applications. Based on the developed NBS designs and specifications, a policy framework and approach on how to develop and implement the environmental and ecological protection and restoration projects utilizing the NBS approach and methodology. The consultants will use the developed NBS designs, specifications, and NBS application policy framework to assist and guide the development and implementation of the Kedashan mining area environmental restoration component. The detailed scope of the work may include but is not limited to:

- (i) Literature reviews and investigations on NBS development and application, including the available regulations and standards, the latest development of NBS technologies, successful application case studies, lessons learned, social and economic impacts from NBS applications, etc. A summary report of literature review and investigation shall be prepared.
- (ii) Development of NBS design standards and details. All relevant NBS technologies, practices, designs and details, shall be summarized and each of them shall be analyzed and evaluated for engineering soundness, effectiveness, and constructability. Upgrades and improvements of these NBS designs and details

will be provided. The guidelines and directions for applying these NBS measures shall be provided.

- (iii) Development of NBS technical specifications and design guidelines. Based on the developed NBS designs and details, the design standards and technical specifications including the detailed guidelines and instructions for both design and construction shall be developed.
- (iv) NBS policy framework development – With the NBS designs and details as well as the technical specifications developed, a policy framework for NBS development and application shall be developed which shall cover the approach for NBS application, governing policies and regulations, and the procedures for the NBS development and implementation.
- (v) Provide guidance and directions based on the developed NBS design standards and specifications to the implementation of the project component for Kedashan mining area environmental restoration components. The current designs and construction details shall be updated and improved as appropriated.
- (vi) Development of capacity development and training plan on NBS development and applications and provide training for both the relevant project managerial and technical staff.
- (vii) Publicity and public education for NBS application. A publicity and public education program shall be developed and carried out to promote the NBS development and application and publicize the output of the study as the demonstration feature.
- (viii) A workshop on the NBS applied to abandoned mining restoration shall be conducted by inviting relevant government agencies, mining experts, NBS specialists to share the outcomes of this project.

I.3 Deliverables and Schedule

68. The technical assistance project will last for 18 months after the mobilization of the consultants. The major deliverables and schedule are summarized in the following table.

No	Deliverables	Submission Date
1	Inception Report – to outline the project overview, latest development, project understanding, methodology and approach, and work plan	1 month after mobilization
2	Literature review and investigation of the current status of NBS development and application	3 months after mobilization
3	Draft NBS design standards – to include all relevant NBS designs and details, including the guidelines and instructions for the NBS designs	6 months after mobilization
4	Draft technical specifications for NBS application – to detail the requirements in design and construction	8 months after mobilization
5	Draft policy framework for NBS development and application	10 months after mobilization
6	Submission of Final NBS Design Standards, Final NBS Technical Specifications, and Final Policy Framework of NBS Development and Application	18 months after mobilization

I.4 Consultant Team and Qualifications

69. The consultant team shall include the following specialists:

- (i) Civil and Environmental Restoration Specialist (Team Leader, International) – a master's degree or above in civil engineering, environmental, or related field, minimum of 15 years of experience both in the PRC and other developed countries, experience in environmental protection and ecological restoration, must have experience in NBS development and application, fluent in English and must possess good communication skills, demonstrated project management skills and capacity.
- (ii) Civil and Wetland Specialist (Deputy Team Leader, national) – a bachelor's degree or above in civil engineering, environmental, or related field, minimum of 8 years of experience both in environmental protection and ecological restoration, must have experience in NBS development and application, good communication skills.
- (iii) Environmental and Natural Resource Specialist (national) – a bachelor's degree or above in environmental, natural resource or related field, minimum of 8 years of experience in environmental and natural resource protection, must have experience in wetland development and protection, good communication skills.
- (iv) Heavy Metal Mining Pollution Remedy Specialist (national) – a bachelor's degree or above in environmental, pollution remedy or related field, minimum of 8 years of experience in pollution control, heavy metal pollution cleanup, environmental protection, good communication skills.

I.5 Estimated Inputs

No	Title	International (person-months)	National (person-months)
1	Civil and Environment Restoration Specialist/team leader	3	
2	Civil and Wetland Specialist/deputy team leader		10
3	Environmental and Natural Resource Specialist		4
4	Heavy Metal Mining Pollution Remedy Specialist		4
	Subtotal	3	18

J. CS-08: Pinggui Comprehensive Public Health-care System (Medical Community) Study and Design

J.1 Scope of Work

70. The main purpose of the project is to provide technical assistance for the construction of a regional compacted medical and health community in Pinggui District, to ensure that the construction of a regional compact medical and health community in Pinggui District can achieve the expected results and goals. The following works will be conducted, but during the implementation, the scope of work can be discussed and adjusted according to the actual demand of the project.

- (i) Literature reviews and investigations on the medical community, including the research background, the general concept, available regulations and standards, the latest development, successful application case studies, lessons learned, etc. A summary report of literature review and investigation shall be prepared, including domestic policy analysis and international experiences.
- (ii) A detailed case study on a county-level medical community development shall be conducted, to learn the current condition of the medical community at county-level, the lesson learned, any experience and problems etc.
- (iii) Health and Demand survey: in-depth analysis of Population Health Status and Supply and Demand of Medical and Health Services in Pinggui District.
- (iv) Study on the institutional arrangement and management mechanism for the medical community, provide specific design on the institutional arrangement and management mechanism for Pinggui Workers' Hospital and medical institutions at township and village-level.
- (v) Study on the service, management, and monitoring for medical community, provide specific design for the service, management and monitoring at different level.
- (vi) Human resource and capacity. Create a comprehensive human resource development plan for Pinggui's medical and health staff at each level to satisfy the demand of medical services.
- (vii) Study on medical security system and supporting policies, provide recommendations on the reformation of current medical protection system and supporting policies.
- (viii) Research on integrated health- and elderly-care services to promote the integrated health- and elderly-care service in Pinggui, including policy study, current status in Pinggui, related financial mechanism, governance mechanism, etc. and provide recommendations on how to promote the integrated health and elderly-care service in Pinggui.
- (ix) Research on the infrastructure support construction, including information construction and management study, risk management study. Meanwhile, this output shall provide design recommendations and framework for the medical community information platform.
- (x) Evaluation system for the construction of regional close health medical communities. The consultant shall final evaluation on the medical community construction in Pinggui.
- (xi) Public publicity on the benefits and impact of medical community. Hold a workshop on promoting the outcomes of the study and the construction of medical community construction in Pinggui.

J.2 Deliverables and Schedule

71. The technical assistance project will last for 24 months after the mobilization of the consultants. The major deliverables and schedule are summarized in the following table.

No	Deliverables	Submission Date
1	Inception Report – to outline the project overview, latest development, project understanding, methodology and approach, and work plan	1 month after mobilization
2	Literature reviews and investigation report	3 months after mobilization
3	Case study report	3 months after mobilization

No	Deliverables	Submission Date
4	Supply and demand survey report	3 months after mobilization
5	Institutional and mechanism design in Pinggui for medical community	6 months after mobilization
6	Study on the service, management, and monitoring for medical community	8 months after mobilization
7	human resource development plan	10 months after mobilization
8	Study on the medical protection system under medical community	18 months after mobilization
9	Study on integrated health and elderly-care services	18 months after mobilization
10	Study on Medical infrastructure construction	18 months after mobilization
11	Evaluation system for the construction of medical community in Pinggui	18 months after mobilization
12	Final report on the Pinggui Comprehensive Public health-care system study and design (medical community)	24 months after mobilization

J.3 Consultant Team and Qualifications

No	Title	International (person-months)	National (person-months)
1	Public Health-care Management Specialist/team leader	5	
2	Public Health-care Specialist /deputy team leader		10
3	Public Health Economy Specialist		8
4	Public Health-care Planning Specialist		7
5	Hospital management specialist		5
6	Social security specialist		5
	Subtotal	5	35

72. The consultants should have background in health management, health policy, health economics and other related professions; senior experts shall have with years of experience in providing policy advice to national and provincial and municipal governments, and whose research results have been adopted by the government. The consultant team shall include the following specialists:

- Public Health-care management specialist (Team Leader, International) a master's degree or above in health management, health policy, health economics and other related professions, or related field, minimum of 15 years of experience both in the PRC and other developed countries, experience in health policy study and health-care management, whose research results have been adopted by the government; fluent in English and must possess good communication skills, demonstrated project management skills and capacity. The study or research experience on medical community is highly recommended.
- Public Health-care specialist/deputy team leader. A master's degree or above in health management, health policy, health economics and other related professions, or related field, minimum of 10 years of experience both in the PRC and other developed countries, experience in health-care policy study and health-care management, whose research results have been adopted by the government; possess good communication skills, demonstrated project management skills and capacity.

- Public Health-care economy specialist. a bachelor's degree or above in health management, health policy, health economics and other related professions, or related field, minimum of 10 years of experience on health sector economy or financial analysis in the PRC or other developed countries.
- Public Health-care Planning Specialist. a bachelor's degree or above in health management, health policy, health economics and other related professions, or related field, minimum of 10 years of experience on health-care planning in the PRC or other developed countries.
- Hospital management specialist. A bachelor's degree or above in public management, medical, health management, and other related professions, or related field, minimum of 10 years of experience on the operation or management of hospitals in the PRC or other developed countries on hospital management.
- Social security specialist. A bachelor's degree or above in health management, health policy, health economics and other related professions, or related field, minimum of 10 years of working experience on medical insurance or social security area in the PRC or other developed countries.

K. CS-09: Pinggui Integrated Health and Elderly-Care Operation Study and Capacity Development

K.1 Objective of Technical Assistance and Capacity Development

73. The objectives of this technical assistance and capacity development tasks are to assist the Pinggui Integrated Health and Elderly-Care Center, the owner, in developing the operation and management system to be implemented once the construction of the center is completed, developing the integrated health and elderly-care system, and to prepare the human resource development and staff training plan for current and future staff who will operate and manage the center after the construction completion of the center.

K.2 Scope of Work

74. The consultants shall conduct detailed surveys and investigations for the current situation regarding health care, elderly care, integrated health/elderly care in Hezhou and Pinggui, conduct literature review and investigation on the current development of the integrated health/elderly-care sector in the PRC and other countries, carry out detailed assessment on the operation and management system of the current Xiwan Community Medical Center (which will provide the medical services for the PIHECC under construction), develop an operation and management system, prepare the human resource development plan and training plan for the center. The detailed scope of the work may include but is not limited to:

- (i) Detailed survey and investigation of the current health care, elderly, and integrated health/elderly-care situation in Pinggui, including existing facilities, capacities, occupancy rates, demand and supply, operation and management systems, the effectiveness of the current system, and other relevant information.
- (ii) Literature review and research on the current integrated health/elderly-care service in the PRC as well as in other countries, including the current development trends, establishment and set-up of the integrated health/elderly-care facilities and management systems, good practices and experience, and lessons learned.

Based on the review of other facilities in the PRC and other countries, the best practices that are suitable for Pinggui's local situation shall be recommended.

- (iii) Detailed assessment and analysis of the Xiwan Community Medical Center. The hospital will provide health and medical services to the integrated health/elderly care that is to be constructed under this ADB financed project. The hospital will also service as the operating center of the PIHECC after the completion of its construction. The assessment shall cover institutional organization, duties and responsibilities, management, financial analysis, operation and maintenance, staff and personnel arrangement and development, consideration of the PIHECC operation, and other operation related issues.
- (iv) Development of the operation and management system for the PIHECC. Based on the detailed assessment of the current situation in Pinggui and experience from other successful integrated health/elderly-care facilities, the operation and management system for the new PIHECC shall be developed and may include policy framework, regulations and guidelines, institutional organization, duties and responsibilities, operation procedures, staff and personnel arrangement, operation and maintenance, monitoring and control system, and other operation related items.
- (v) Create a performance and service evaluation system for the operation of proposed facilities.
- (vi) PIHECC human resource (HR) development and training plan. Based on the institutional establishment and required personnel and staff, the HR development plan and training plan shall be developed, which may include a recruitment plan for new staff, a training need analysis, and a training plan for both existing and new staff.
- (vii) Training and capacity development for the existing health-care and elderly-care staff in the Xian Community Hospital, as well as for the management staff in the government relevant agencies overlooking the management and operation of the center.

K.3 Deliverables and Schedule

75. The technical assistance and capacity development project will last for 12 months after the mobilization of the consultants. The major deliverables and schedule are summarized in the following table.

No	Deliverables	Submission Date
1	Inception Report – to outline the project overview, latest development, project understanding, methodology and approach, and work plan	1 month after mobilization
2	Literature review and existing situation survey and investigation report	3 months after mobilization
3	Preliminary Report – to summarize the detailed assessment on the Xiwan Community Medical Center, preliminary management and operation system, preliminary HR development and training plan	9 months after mobilization
4	Final HR development plan and staff training plan	10 months after mobilization

No	Deliverables	Submission Date
5	Draft Final Report – updated from the preliminary report	11 months after mobilization
6	Final Report Submission – including the final report, HR development plan, and staff training plan	12 months after mobilization
7	Performance evaluation report	12 months after mobilization

K.4 Consultant Team and Qualifications

76. The consultant team shall include the following specialists:

- (i) An integrated health/elderly-care management specialist (Team Leader, International). A bachelor's degree or above in health care, elderly care, or related field, minimum of 15 years of experience both in the PRC and other developed countries, must have experience in management and operation of health-care, elderly-care facilities, fluent in English, and must possess good communication skills, demonstrated project management skills and capacity.
- (ii) An integrated health/elderly-care service specialist (Deputy Team Leader, National). A bachelor's degree or above in health care, elderly care, or related field, minimum of 8 years of experience in health care and elderly care field, technical and management experience in the operation of health-care, elderly-care facilities, English communication capacity, and good communication skills.
- (iii) Elderly-care specialist (National). A bachelor's degree or above in health care, elderly care, and related fields, a minimum of 8 years of experience in elderly care and related fields, strong technical background and knowledge in elderly-care services, and familiarity with the current elderly-care sector in the PRC.
- (iv) Medical rehabilitation specialist (National). A bachelor's degree or above in health care, elderly care, and related fields, minimum of 8 years of experience in medical rehabilitation, disabled care, and related fields, strong technical background and knowledge in medical rehabilitation services, and familiarity with the current medical rehabilitation sector in the PRC.

No	Title	International (person-months)	National (person-months)
1	Integrated Health/Elderly-Care Management Specialist/team leader	4	
2	Integrated Health/Elderly-Care Service Specialist/deputy team leader		15
3	Elderly-Care Specialist		6
4	Medical Rehabilitation Specialist		6
	Subtotal	4	27

L. CS-10: Knowledge and Skills Sharing Center Operation, Curriculum Development, and Certification Study

L.1 Objective of Technical Assistance and Capacity Development

77. A technical assistance study on the operation, curriculum development and skill certification is proposed to ensure that the proposed facilities can achieve the expected results. The main objective of this study is to design a completed operation system for the proposed skill and knowledge sharing center; developed a curriculum design system based on the demand of market and the needs of green industry transformation; conduct skill certification study to promote the potential skill certification system under the proposed facilities.

L.2 Scope of Work

78. The consultants shall conduct detailed surveys and investigations for the current situation regarding technical and vocational training in Hezhou and Pinggui, conduct literature review and investigation on the current development of TVET sector in the PRC and other countries, carry out detailed assessment on the operation and management system of the TVET, design the operation system, curriculum development and skill certification system under the skill and knowledge sharing center. The detailed scope of the work may include but is not limited to:

- (i) Detailed survey and investigation of the current technical and vocation training in Pinggui including existing facilities, capacities, rates, demand and supply, operation and management systems, effectiveness of the current system, and other relevant information. And also conduct an in-depth labor market research on the demand of market.
- (ii) Conduct a case study on existing facilities with similar functions in GZAR, to learn their experience and problems, give recommendation to our proposed projects.
- (iii) Development of the operation and management system for the skill and knowledge sharing center. Based on the detailed assessment of the current situation in Pinggui and experience from other successful TVET facilities, the operation and management system shall be developed and may include identify institutional organization, duties and responsibilities, operation mode, staff and personnel arrangement, service provided, etc.
- (iv) Based on the demand of labor market and the proposed operation system, introduce a short-term and long-term curriculum development system. The short-term curriculum request for a detail curriculum design for the proposed facilities, included type of curriculum, session hours provided, draft outline of curriculums, target students etc. the long-term curriculum is a dynamic system which allows the skill and knowledge sharing center can adjust curriculums based on the economic development and the demand of market. Meanwhile, during the stage of curriculum, it shall not only satisfy the demand of market, but also consider about how to promote and guide the industry to be greener and healthier.
- (v) Develop the skill certification system for the proposed facilities. The skill certification is an evaluation and certification system following the national standard to judge the skill capacity of students. Through a completed survey and researches, the consultant shall developed a skill certification system for the

proposed facility, which can provide a clear road map for the proposed facility on skill certification.

- (vi) Researches on the construction of information system. With the development of information technology, it is encouraged that up-to-date information technology can be applied on the operation of proposed facility, as well as provide trainings virtually, to promote the efficiency and accessibility of education. The consultants shall provide a framework and proposal for the proposed information system and infrastructure.
- (vii) Risk management. Risk management is an approach to reduce the impact of negative effect. The TVET facility is very sensitive to the market and to the change of policy as well, which can cause risks and losses during operation. Thus, the consultant shall provide a risk assessment and management system for the proposed facility, and provide risk mitigation measures at both project level and program level.

L.3 Deliverables and Schedule

79. The technical assistance and capacity development project will last for 12 months after the mobilization of the consultants. The major deliverables and schedule are summarized in the following table.

No	Deliverables	Submission Date
1	Inception Report – to outline the project overview, latest development, project understanding, methodology and approach, and work plan	1 month after mobilization
2	Literature review and existing situation survey and investigation report Case study report	3 months after mobilization
3	Preliminary Report – to summarize the proposed operation system, curriculum development and skill certification system	9 months after mobilization
4	HR development plan and staff training plan	10 months after mobilization
5	Risk management and mitigation plan	11 months after mobilization
6	Information infrastructure proposal	
7	Final Report Submission – including the final report, HR development plan, and staff training plan, risk management plan, information infrastructure proposal	12 months after mobilization

L.4 Consultant Team and Qualifications

80. The consultant team shall include the following specialists:

- (i) An TVET institute operation and management specialist (Team Leader, International) – a master's degree or above in education, public management, or related field, minimum of 15 years of TVET operation or research experience in the PRC or other countries, must have experience in management and operation of TVET facilities, fluent in English and must possess good communication skills, demonstrated project management skills and capacity.

- (ii) An TVET curriculum development specialist (Deputy Team Leader, National) – a bachelor's degree or above in education or related field, minimum of 10 years of experience in the PRC or other countries, must have experience in curriculum development or TVET facilities management and must possess good communication skills, demonstrated project management skills and capacity.
- (iii) TVET program and certification specialist (National) – a bachelor's degree or above in education or related field. minimum of 10 years of experience in the PRC or other countries, must have experience in skill certification in the PRC, must have a good understanding on the national certification standards.
- (iv) IT specialist (National) – a bachelor's degree or above in IT or related fields, minimum of 8 years of experience, strong technical background and knowledge in IT system construction in college or TVET.

No	Title	International (person-months)	National (person- months)
1	TVET Institute Operation and Management Specialist/team leader	3	
2	TVET Curriculum Development Specialist		8
3	TVET Program and Certification Specialist		6
4	IT Specialist		2
	Subtotal	3	16

M. CS-11: Human Resources Development Training for Technical and Vocational Training Teachers

M.1 Objective of Technical Assistance and Capacity Development

81. A technical assistance study on HR development and training is proposed to ensure that the proposed facilities can achieve the expected results. The main objective of this study is to develop a detailed human resource development plan on how to ensure and promote the capacity of managers and staffs, to provide or organize trainings for teachers and managers.

M.2 Scope of Work

82. The level of skills and knowledge of teachers and managers is a key determinant of the quality of education and trainings. A long-term training and capacity development program is needed to ensure the quality of training. The scope of work included:

- (i) Based on the operation system and curriculum design conducted by other consultants, prepare a HR development and training plan for the new employee (one-time training plan).
- (ii) Based on the demand of employee, prepare a long-term training and capacity development program for the employees, to make sure that skills of teachers can be upgraded, and introduce new technologies and concepts for teachers.
- (iii) Provide trainings to employees based on the training plan by themselves or inviting professional teachers to conduct trainings on site.
- (iv) Organize training activities or visiting tours for teachers to other colleges or TVETs.

M.3 Deliverables and Schedule

83. The technical assistance and capacity development project will last for 36 months after the mobilization of the consultants. The major deliverables and schedule are summarized in the following table.

No	Deliverables	Submission Date
1	Inception Report – to outline the project overview, latest development, project understanding, methodology and approach, and work plan	1 month after mobilization
2	One-time HR development and training plan	3 months after mobilization
3	Long-term HR development and training plan	At the beginning of Every year
4	Performance evaluation report	At the end of every year

M.4 Consultant Team and Qualifications

84. The consultant team shall include the following specialists:

- (i) An TVET HR development specialist (Team Leader, International) – a master's degree or above in education, public management, Human resource management or related field, minimum of 15 years on HR development in the PRC or other countries, must have related experience with TVET facilities, must possess good communication skills, demonstrated project management skills and capacity.
- (ii) An TVET staff training specialist (Deputy Team Leader, National) – a bachelor's degree or above in education, public management, Human resource management or related field or related field, minimum of 8 years of experience in the PRC, must have experience on providing or organizing training activities for teachers.

No	Title	International (person-months)	National (person-months)
1	TVET Staff HR Development Specialist		6
2	TVET Staff Training Specialist		6
	Subtotal	0	12

STRATEGIC PROCUREMENT PLANNING

SECTION 1: PROJECT CONCEPT

Project Title	Guangxi Hezhou Environment Restoration and Sustainable Development Project
Country	People's Republic of China (PRC)
Executing Agency (EA)	Hezhou Municipal Government (HMG)
Implementing Agencies (IAs)	Guangxi Hezhou Mining Investment Group Company Limited (HMIGC) Pinggui District Government (PDG)
Project Implementation Units (PIUs)	Guangxi Hezhou Mining Investment Group Company Limited (HMIGC) Hezhou Pinggui Urban Construction Investment Company Limited (PUCIC)
Project development objectives	<p>Outcome:</p> <ul style="list-style-type: none"> (i) Abandoned mining areas pollution cleanups and ecological restoration (ii) The natural resources exhausted city livelihood, especially health-care capacity improvement (iii) Promote green economic development and green transformation <p>The project is aiming to support Hezhou to transform from polluting mineral mining dependency to a nature-friendly, healthy, and sustainable development path.</p>
Project Description	<p>The investment component of the project will improve the environment that has been damaged by past mining and quarrying activities and improve the rural and urban communities' livability through the following activities:</p> <p>Output 1: Nature-friendly measures to reduce pollution in the Kedashan former mineral mining area implemented. The output includes: (i) nature-based solutions (NBS) approach for environmental restoration and policy framework development; (ii) abandoned mining area environmental and ecological restoration of 130,935.04 m²; (iii) dumped mine tailings and waste collection and treatment of 44,167 m³, onsite safety disposal of waste landfill of 60,000 m³; (iv) surface water system cleanups and restoration with 3 eco-permeable dikes (76 m), pollution filter strips (1,821 m), a subsurface-flow constructed wetland (11,849 m²); (v) construction and rehabilitation of access roads of 12.78 km; and (vi) development of the environmental and pollution monitoring system.</p> <p>Output 2: Institutional mechanisms, skills capacities, and facilities in health and elderly care strengthened. The output includes: (i) Medical, health, and elderly-care capacity development including Pinggui comprehensive public health system study and design, Pinggui rural health-care staff training, Pinggui health/elderly-care operation and capacity development study, Pinggui health/elderly-care staff training, Pinggui Workers' Hospital staff training; (ii) Pinggui Workers' Hospital with a 13-story medical building and associated</p>

	<p>facilities (total 101,791 m² building area, and a total of 499 hospital beds); (iii) Pinggui Integrated Health and Elderly Care Center (PIHECC) with a new 6-story elderly-care facility and existing 3-story building of total 8,006.13 m² building area; and (iv) Township/community level hospital health-care service capacity improvement with the medical equipment upgrades for nine township-level hospitals in Pinggui.</p> <p>Output 3: Green and health care-related skills development institutions established. The output includes the establishment of a vocational training program including the center operation, curriculum development study and certification study, staff training and human resource development, and the construction of a Knowledge and Skills Sharing Center with buildings from 2 to 6 stories (total 29,826.01 m² building area), essential training equipment will be provided as well.</p> <p>Project management. The project management activities include (i) project implementation management support; (ii) environmental, resettlement, social safeguards, gender and indigence people action plans implementation and monitoring; (iii) construction supervision of all works; and (iv) project management workshops, seminars, training, and study tours.</p>
Description of Indicative Contract packages	<p>Indicative contract packages for the project will comprise of the following:</p> <p><u>Civil Work packages:</u></p> <p>Civil works packages are expected to include:</p> <ul style="list-style-type: none"> (i) Mining area site restoration and water treatment infrastructure (ii) Mine tailing collection, treatment, and disposal (iii) Construction of access roads (iv) Construction of PIHECC (v) Construction of Pinggui Workers' Hospital (vi) Construction of knowledge and skill sharing center <p><u>Goods and supply packages:</u></p> <p>Goods and supply packages are expected to include:</p> <ul style="list-style-type: none"> (i) Packages for the procurement of Medical equipment for Pinggui Workers' Hospital (ii) Packages for IT equipment in Pinggui Workers' Hospital (iii) Packages for elderly-care and rehabilitation equipment for the integrated health and elderly-care center (iv) Packages for vocational training and teaching equipment for the knowledge and skill sharing center (v) Packages for medical equipment for township/community clinics <p><u>Consulting Services Packages:</u></p> <p>Consulting services packages are expected to include:</p> <ul style="list-style-type: none"> (i) Project management consultancy service

	(ii) Construction supervision (iii) External monitoring agencies (resettlement, social, minority action, and environmental) (iv) Researches and studies on health-care system, curriculum development study etc. (v) Staff Training and human resource development
Summary of the financing agreement	The final financing plan is not agreed yet. Based on the FSR, the current financing plan is: Project Financing Amount: \$ 232.18 million ADB Financing: \$ 100.00 million Cofinancing (ADB Administered): \$ 0.00 Non-ADB Financing: \$ 132.18 million

SECTION 2: OPERATING ENVIRONMENT

A. Capacity and Capability Assessment of the Borrower

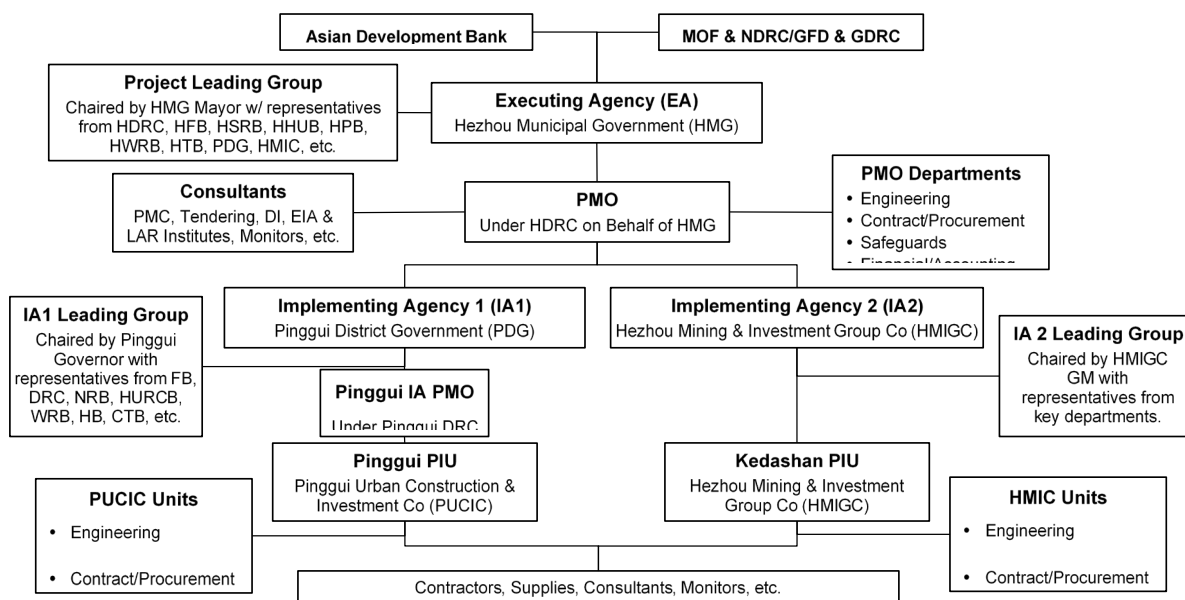


Figure 1: Project Organization Structure

1. Hezhou Municipal Government (**HMG**) is the executing agency (**EA**) for the Project. A municipal level Project Leading Group (**PLG**) has been established to provide oversight and coordination among government agencies and guidance to the project preparation and implementation. Under the Project Leading Group, the Hezhou project management office (**HPMO**) has been established to carry out the daily operation of the project during the entire period of the project preparation and implementation. The HPMO is located under Hezhou Development and Reformation Committee (**HDRC**).

2. There are two project implementing agencies, the Guangxi Hezhou Mining Investment Group Corporation Limited (**HMIGC**) and Pinggui District Government (**PDG**). **HMIGC** is the

implementing agency and also the project implementation unit (PIU), and it will be responsible for the preparation and implementation of the Kedashan subproject (output 1). The relevant departments in HMIGC are responsible for the engineering, procurement and contract management, safeguards for environmental, social, land acquisition and resettlement, financial and accounting for the project preparation and implementation in accordance with government and ADB policies and procedures requirements.

3. PDG is responsible for preparing and implementing the Pinggui subproject (outputs 2 and 3). A Pinggui PMO has been established to carry out the daily operation of the Pinggui subproject. The Pinggui PMO is located under Pinggui Development and Reformation Bureau (PDRB). The Hezhou Pinggui Urban Construction Investment Company Limited (PUCIC) will be the PIU for the PDG. The relevant units in PUCIC are working as PIU to be responsible for the engineering, procurement and contract management, safeguards for environmental, social, land acquisition and resettlement, financial and accounting according to the policies and procedures from both domestic government authorities and ADB.

4. From the procurement aspect, HPMO will only be responsible for the procurement and management of project management and implementation support consultant (PMISC), construction supervision company, external monitoring agencies for safeguards, etc. under project management activities. Two PIUs are responsible for the procurement and management of all works, goods, and consulting contracts under its subprojects.

5. There will be some consulting contracts under both Kedashan and Pinggui subprojects. Those consultants will be procured and managed by HMIGC and PUCIC, respectively. Meanwhile, at Hezhou Municipal level, a working group will be established with all related departments such as Hezhou Natural Resource Bureau, Hezhou Healthcare Commission, etc., to be responsible for the overall quality control, outcomes review, and application of consulting results and recommendations into policy or practical guidance. The working group established at Hezhou Municipal level can provide an effective guarantee to the successful implementation and promotion of researches.

6. A SWOT analysis has been carried out to assess the current capacity of the EA, HPMO, and IAs.

Table 1: SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> Both the Tendering and Bidding Law (TBL) and the Government Procurement Law (GPL) are available. Standard national competitive bidding documents for works and goods issued by the Ministry of Finance in 2015 are in place and can be applied for the procurement activities of the project. The EA and PMO has conducted several IFI financed projects including several ADB financed projects. PMO staffs have received trainings on IFI's procurement policies already. PMO is the only designated department to be 	<ul style="list-style-type: none"> There is no comprehensive training program available by executing and implementing agencies of projects for procurement accreditation or professionalization in the PRC. Although training has been received, the EA and HPMO have weak procurement capacity in implementing ADB project. There is a shortage of staff in PMO and sub-PMO. Based on the ongoing WB financed project, it takes more than a year for PMO to recruit individual project specialists on procurement and project management.

<p>responsible for IFI loan projects, thus they have risk experience on project management and how to working with IFI staffs.</p> <ul style="list-style-type: none"> • PMO are located under the HDRC, it is easier for them to work and cooperate other departments. • IAs (PIUs) has multiple experience on project management and implementations, especially for mineral treatment and infrastructure construction projects. • The IAs (PIUs) has rich experience in procurement in accordance with the domestic procurement law and procedure. • Low risk on corruptions because of the mature anticorruption system in the PRC. • Experienced procurement agency has been recruited for other IFI financed project, which can transfer some knowledge to PMO staffs. • Based on the experience of ongoing WB financed project, the PMO has access to many consultants and construction companies. • Complaint management mechanism is in place, which addresses grievances related to procurements and contract administration; • PPMOs have appointed in staffs with different professional experience from different sectors related to subprojects under the project. 	<ul style="list-style-type: none"> • PMO's capacity to administer procurement to multiple IFI financed project at the same time in a timely manner remains limited. • Two IAs (PIUs) has no experience on IFI financed project. • Local PMO staffs and PIU staffs have limited skills or proficiency in the English language. • PMO does not have staff with professional background in green procurement. • Lack of technical skills at hospital to prepare technical specifications, resulting in delays, inefficiency, and ineffectiveness of procurement activities. • Lack of staff can fully understand health and medical related concepts at this moment.
Opportunities	Threats
<ul style="list-style-type: none"> • ADB will provide relevant procurement staff with guidance and instructions on ADB's procurement and consultant recruitment procedures. • PMO and sub-PMO will recruit new staff from different sectors to be responsible for different subprojects. • Through the design-ready and procurement-ready concept, we can reduce the delays on procurement. • The procurement specialist provided relevant staff of the PMO and the local PMOs with on-the-job training on ADB's procurement and consultant recruitment procedures during project preparation. • Construction supervision companies will be recruited to conduct site supervision during the implementation of all work contracts. 	<ul style="list-style-type: none"> • The HPMO have four IFI financed projects undergoing, thus there were no enough qualification staff on ADB project management and procurement. • Potential delays in bidding documents preparation. • It is still focusing on the lowest price instead of the lowest project life cycle cost. • Since Hezhou is a relatively undeveloped region in the PRC, the interest from innovative suppliers is limited. • Lack of technical skills at hospital and knowledge sharing center design, construction, and operation. • The COVID-19 globally remains a challenge on the implementation of the project.

B. Support Requirement

7. The following factors are considered for the successfully implementation of the project.

Procurement Capability and Capacity	<p>The EA and PMO both have rich experience on international financial institution (IFI) financed projects, including WB, ADB and AFD financed project. The IFI financed projects covered different sectors, including water treatment, environmental improvement, elderly care and TVET. Through the experience, the EA and PMO have gained certain experience on WB and ADB procurement policies.</p> <p>PMO has 2 staff in its Procurement Division, they have some experience of procurement and contract management for domestic projects, but not under ADB procedures or in English. One staff will work full-time on this ADB financed project during project implementation.</p> <p>For the WB financed Hezhou Urban Water Infrastructure and Environment Improvement Project, there is no institutionalized project management consultancy firm and individual procurement specialist recruited yet. Thus, PMO staffs can only receive procurement knowledge through limited WB training seminars. Thus, the procurement and contract management capacity for PMO staff on IFI projects is limited.</p> <p>The IAs (PIUs) have full-time staffs to be responsible for procurement.</p> <p>The IAs (PIUs) have rich experience on domestic financed project, but they have no experience on IFI financed project.</p> <p>PMO needs to recruit experienced procurement agency to support the project procurement and provide guidance to PIUs.</p> <p>IAs (PIUs) have adequate technical staff on design review and management for civil engineering project. However, their experiences are more restricted to local-based knowledge.</p> <p>PMO does not have staff with professional background in green procurement or sustainable procurement⁵⁰, therefore, to achieve the project objectives, an international green procurement specialist will be recruited to support the implementation of green procurement related activities.. Meanwhile, PMO will appoint green procurement focal to be responsible for executing the green procurement outputs with the support of external consultants, to maximize institutional capacity building and ensure sustainability of the initiatives.</p>
Experience in Implementing Similar Projects	<p>The EA and PMO have been involved in multiple IFI financed project, including WB, ADB and AFD financed project.</p> <p>WB Financed Hezhou Urban Water Infrastructure and Environment Improvement Project</p> <p>The project objectives are to improve flood risk management and reduce discharge of water pollutants in Hezhou Municipality. The total investment is around \$359.4 million, in which WB financed \$150 million.</p>

⁵⁰ Green procurement represents selectively choosing products with less environmental impact during procurement activity. Currently, this is no national green procurement regulations available, thus a green procurement specialist shall be recruited to develop specifications during the procurement.

	<p>This project has three components: (i) the first component, Improving Flood Risk Resilience of the He River, aims to reduce flood risks along the mainstream He River by connecting mainstream to tributaries, improving flood drainage capacity, removing obstructions, and upgrade river infrastructure in the mainstream channel. (ii) the second component, Improving Urban Drainage and Wastewater Management, aims to reduce urban waterlogging by diverting flood waters, enhancing tributary drainage capacities, and storing/absorbing flood waters in lakes, improved canals, and elements of green infrastructure; and at the same time, reduce water pollution by separating storm and sewage systems, and providing full collection and treatment of wastewater. (iii) the third component, Institutional Strengthening, Capacity Building and Project Management, aims to strengthen the capacity and coordination of local institutions by using the development of an integrated flood risk and urban drainage masterplan as a Coordination platform for coordinated water planning and management (led by Hezhou Municipality), support the development of smart water and flood monitoring systems, and support effective project management.</p> <p>The approval date for this project 13 June 2018. This project is ongoing.</p> <p>ADB Financed Demonstration of Guangxi Elderly Care and Health Care Integration and Public–Private Partnership Project</p> <p>This project aims to support Guangxi Zhuang Autonomous Region (GZAR) to promote, coordinate, and deliver integrated elderly-care and health-care services to provide continued care for those in need. It will serve as a demonstration for the People's Republic of China (PRC) of an integrated elderly-care and health-care system and will be the first project in GZAR to introduce internationally accepted public–private partnership (PPP) principles and standards in the elderly-care sector.</p> <p>It will build an elderly-care facility in Hezhou municipality through a PPP modality, which will include arrangements to build, operate, and maintain the facility. It will also improve coordinated care services and facilities in the municipalities of Nanning and Hezhou by building four elderly-care facilities and a medical institution with age-friendly designs.</p> <p>This project is approved in 24 Sep 2019, and be effective on 04 March 2020. The total investment is around \$193 million, in which ADB financed \$100 million.</p> <p>ADB Financed Guangxi Modern Technical and Vocational Education and Training Development Program</p> <p>This is a RBL project.</p> <p>The program will provide, in 2017–2022, timely and essential support for the establishment of a technical and vocational education and training (TVET) system that provides graduates with better employment opportunities in industries in Guangxi Zhuang Autonomous Region (GZAR) by enhancing the industry relevance of TVET, improving the quality of TVET, increasing the inclusiveness of TVET, and expanding the role of TVET in regional economic development. The proposed results-based lending (RBL) program is critical for GZAR to implement a comprehensive TVET system reform package with a focus on results and system improvements, in accordance with the GZAR's Thirteenth Five-Year Plan, 2016–2020, which is in the second year of implementation. It is expected to create strong synergetic effects, together with the Guangxi Regional Cooperation and Integration</p>
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	<p>Promotion Investment Program, on cross-border cooperation and training, particularly benefiting bordering Viet Nam.</p> <p>The Hezhou Collage is involved into this project as one of the demonstration collages.</p> <p>This project is undergoing at present.</p> <p>AFD Financed Hezhou Ecological Environment and Biodiversity Protection Project</p> <p>This project includes ecological environment and biodiversity conservation projects with Gupo mountain and forest biodiversity protection of ecological restoration, the development of jade stone forest eco-tourism area, and Yao river ecological restoration and Huangyao ancient town of ancient building repair and construction of public space governance</p> <p>Through the introduction of advanced ideas in the field of biodiversity and cultural heritage protection and technical means, it will strengthen the Gupo mountain national forest park of biodiversity conservation and construction, promote the stability and development of geological heritage jade stone forest, the famous historical and cultural towns raise Huangyao ancient town protection and surrounding environment governance, congratulation state environmental protection and economic development to realize the sustainable development.</p> <p>This project is undergoing at present.</p> <p>Both IAs (PIUs) staffs have good knowledge and experiences in similar projects, including school construction, environmental restoration, etc. However, those were all domestic government financed and only domestic contractors used.</p>
<p>Contract Management Capability and Experience</p>	<p>As of April 2021, the PMO is responsible for around 4 different IFI financed projects, but there were no external consultants recruited yet.</p> <p>As mentioned above, there are two staffs under the procurement division, however, only one staff has been assigned to work on this ADB project full-timely. Meanwhile, this one full-time staff will be responsible for both procurement and contract management. Thus, due to the inadequate staff on contract management, the contract management capability of the PMO is limited.</p> <p>For the current IFI financed projects, the day-to-day contact management and construction supervision is delegated to PIUs. There were enough engineering and technical staffs for PIUs to supervise the progress and quality of works contracts. But the management capability and experience on IFI financed project is limited, since they only have experience on government financed projects, and using domestic contractors. FIDIC based contract will be applied.</p> <p>Thus, trainings on contract management, particularly in understanding of contract risks and mitigation, will be beneficial for EA, PMO, IAs and PIUs.</p> <p>PMO will recruit Procurement and Contract Management Specialist to guide and support the contract management and capacity building. This procurement and contract management specialist have been included into the TOR of Project Management Consulting firm.</p> <p>Additional PMO staff shall be assigned during the project implementation period based on the working load, as needed.</p>

<p>Level of Reliance on External Consultants</p>	<p>The PMO and PIU rely quite extensively on external consultants. Right now, there were no external procurement and contract management specialist working under the current WB financed water treatment project.</p> <p>The procurement and contract management staff in PMO is inadequate. It is important for the PMO staff to continue build its understanding and capacity in procurement and contract management.</p> <p>None of existing staff have experience and capacity on conducting green procurement.</p> <p>The capacity of PIU staffs remains a constrain, they have rich experience on domestic procurement, but no experience on IFI financed project,</p> <p>Overall, there will be a high reliance on external consultants for PMO, and PIUs.</p> <p>Draft TORs for Procurement and Contract Management Specialists during the start-up phase and implementation phase (as a part of TOR for Project Management Consulting Firm) will be listed in the project administration manual (PAM).</p>
<p>Existence and Description of Complaints Management System</p>	<p>A formal complaint management mechanism, which addresses grievances related to procurement and contract administration is in place.</p> <p>According to Article No. 13 of GPL, finance departments at all levels are responsible for supervision and management of government procurement. At central level, MOF administers the GPL and supervises day-to-day procurement through its provincial, municipal, and county bureaus.</p> <p>According to Article No. 4 of Regulations on Implementation of Tendering and Bidding Law of PRC (No. 613 Order of the State Council), NDRC guides and coordinates tendering and bidding in the PRC and the Key Projects Inspectorate Office (KPIO) under the NDRC monitors and inspects procurement for key projects and “makes recommendations when there is a breach of national regulations.”</p> <p>Audit departments at all levels carry out audit supervision on fund security and efficiency of funds utilization for construction projects financed by state-owned fund;</p> <p>Public resource trading centers at all levels will witness public resource trading activities, rectify illegal behaviors or violations, assist administrative supervision departments, supervision departments to investigate and handle complaints;</p> <p>PMO will coordinate with the Public resource trading center and all finance departments on handling complaints;</p> <p>Based on the existing complaint system, PMO will establish its own complaint mechanism in accordance with the complaint handling requirements of ADB, and PMO will be the center of complaint handling</p> <p>Each IAs (PIU) will assign a focal point to handle complaints.</p> <p>The procurement agency also has arrangements to accept complaints and participate in complaint handling coordination.</p> <p>Consultants and contractors will be informed of ADB Procurement Tracking System available from ADB website.</p> <p>No additional support is required</p>

C. Key Procurement Conclusions

Although the EA and PMO have rich experience to administer and supervise procurement activities under the project, it lacks capacity and has a shortage of staff to be able to carry out procurement activities on its own. Both IAs (PIUs) have no experience on IFI financed projects. Thus, an external consulting firm will be required for the incoming project.

Training on EA, PMO, IAs and PIUs' staff on ADB's procurement framework, contract management, contract variation is necessary. Budget for trainings has been allocated in the total project cost.

A formal complaint management mechanism, which addresses grievances related to procurement and contract administration is in place. However, it is still critical to establish a specific complaint management system and designated staffs for this project to make sure it is more visible and accessible.

ADB's Anticorruption Policy shall be explained to all stockholders.

The PMO is authorized by the EA to coordinate and handle project procurement and contract management matters on behalf of the EA to ensure that all ADB procurement policies and regulations are fully complied with. The relevant procurement supervision agencies, such as the Finance Bureau and the local trading center, will support and assist the PMO in coordinating the procurement activities.

The PMO will recruit a procurement agency with sufficient ADB procurement experience to support the entire procurement process.

All PIUs are familiar with the technical practices of their respective sectors. But none of them had ADB project procurement experience. Therefore, PMO and PCM will aid PIUs on the preparation of bidding documents, and review construction drawings, bill of quantities and technical specifications, TOR of consulting services, etc.

To strengthen the PMO's project and contract management capabilities, external expertise will be required for FIDIC contract administration, safety and risk management, procurement management, quality management, green procurement, and contract management as well as support in certain technical areas.

D. External Influences Analysis

8. The objective of the external influences analysis is to consider any external drivers of change specific to the project. The external influences analysis includes:

Governance	<p>PRC level's law and regulation on procurement</p> <p>In the PRC, public procurement is conducted in accordance with the Law on Tendering and Bidding of the PRC (1999) and the Government Procurement Law (2003).</p> <p>The Law of Tendering and Bidding of the PRC (1999) (TBL) which became effective on 1 January 2000 applies to all tendering and bidding activities in PRC and includes extensive articles on tendering, bidding, bid opening, evaluation and winning, legal liabilities, etc. The key contents of TBL include:</p> <p>It is specified in the Article No. 67 that procurement for projects financed by international organizations or foreign governments can follow their requirements and procedures if not against the social and public interest of</p>
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	<p>PRC. By following this article, ADB's Procurement Guidelines are currently applied for ADB financed projects in PRC.</p> <p>Another law, Government Procurement Law of PRC (2002) (GPL), plays a fundamental role for governmental entities, institutions or organizations at all levels that procure works, goods and services using fiscal funds. The Regulations on Implementation of Government Procurement Law of PRC became effective on 1 March 2015.</p> <p>Meanwhile, ADB's procurement policies have been well implemented in the PRC for ADB financed projects for more than 30 years.</p> <p>ADB carried out country procurement review for PRC in 2016 and is finalizing the findings. The issues preliminarily identified include: (i) The system needs further (countrywide) harmonization and integration; (ii) the separation of regulatory and service delivery functions needs to continue; (iii) Local protectionism may undermine competition; (iv) Cost estimates often err on the high side, (v) Bid evaluation committees tend to apply rules to rigidly and make too many mistakes; (vi) the comprehensive bid evaluation system provides room for manipulations; (vii) insufficient attention to procurement during project preparation/procurement agents involved too late; (viii) risk of collusion through networks of affiliated companies.</p> <p>The HMG fully supports the project. A project leading group (PLG) has been established under the HMG, and chaired by the Mayor and Party Secretary with representative from all major departments in Hezhou.</p>
<p>Economic</p>	<p>The PRC's Economy</p> <p>The Chinese economy experienced astonishing growth in the last few decades that catapulted the country to become the world's second largest economy. In 1978—when the PRC started the program of economic reforms—the country ranked ninth in nominal gross domestic product (GDP) with USD 214 billion; 35 years later it jumped up to second place with a nominal GDP of \$9.2 trillion.</p> <p>The PRC weathered the global economic crisis better than most other countries. In 2020, during the COVID-19 pandemic, the economy grew by 2.3% for the whole year, and is expected to be the only major economy in the world to achieve positive economic growth. It is expected that the PRC's real GDP to expand by 8.7% in 2021 underpinned by fiscal support for infrastructure, health care, and consumption.</p> <p>After loosening in 2020, monetary policy will shift to a neutral stance in 2021, amid concerns of deepening structural imbalances. Weak global demand and strained foreign relations will intensify calls for economic self-sufficiency via a new "dual circulation" model, which will also emphasize the importance of the domestic market.</p> <p>Hezhou's Economic</p> <p>Hezhou is located in the northeast of Guangxi Zhuang Autonomous Region. The city's land area of 11,800 square kilometers, the population of more than 2.1 million. The GDP of Hezhou increased from CNY46.811 billion in 2015 to CNY70.011 billion in 2019, the per capita GDP of permanent residents increased from CNY23,178 in 2015 to CNY33,676 in 2019, and the urbanization rate increased from 39% in 2012 to 46.8% in 2019. overall</p>

	<p>speaking, the social, economy and financial revenue of the Hezhou showed a trend of steady development.</p> <p>Pinggui's Economic</p> <p>The GDP and population of Pinggui grows steadily. In 2019, the gross domestic product of Pinggui District was CNY16.01 billion, an increase of 13.8% over the previous year at comparable prices. In 2020, while strictly carrying out epidemic prevention and control, the Pinggui District Government strengthened the resumption of work and production, and achieved excellent results in economic development.</p> <p>In 2020, the GDP of Pinggui District was CNY18.34 billion, an increase of 13.7%, exceeding the average level of Hezhou by 6.7 percentage points and exceeding the average level of Guangxi by 10 percentage points.</p> <p>Similar like Hezhou, the economics of Pinggui District has improved steadily, the pillar industries have continued to grow, and the three major industries have developed rapidly in coordination.</p> <p>It is expected that during the construction of the project, the local economic development will be developed at a relatively high speed. However, the impact of COVID-19 pandemic is widespread, there were potential risk on the economic development.</p> <ul style="list-style-type: none"> • In terms of prices, the annual consumer consumption and retail price index is 3% in 2019. But the building materials is quite stable, energy prices are relatively cheap. • Regarding the employment, the PRC has about 7 million university graduates every year. The employment pressure is high, however, the skilled labor with practical experience and skills is still lacking. • For labor supply, the price and cost of labor have increased rapidly. Thus, contractors have generally increased the promotion of mechanized construction technology.
<p>Sustainability</p>	<p>The project will bring significant benefits to residents in the project county and districts by significantly contributing to improved soil quality, improved water quality of the He River and its tributaries. These benefits will also reduce the pollution entering the Zhu River. Meanwhile, the project will improve the health-care and medical capacities by providing technical trainings and necessary equipment to hospitals at community level, and encourage the green transformation of Hezhou.</p> <p>The project will be carried out in accordance with ADB's Safeguard Policy Statement and the government's legislation relating to environmental protection.</p> <p>Impact of climate change: climate change mitigation and adaptation measures have been incorporated in the design. All buildings in this project will be design as level II Green Building.</p> <p>Following the ecological priority and people-oriented design principles, the Kedashan design and construction emphasis nature-based approach.</p> <p>The sponge city design has been cooperated into all buildings, and energy saving design has been incorporated into all buildings.</p> <p>Green procurement: energy saving design and green procurement principles will be followed. Under the project, any products listed in the "Elimination Catalog for High Energy Consumption Backward Mechanical</p>

	<p>and Electrical Equipment (product) are strictly prohibited. PMO will make the best effort to adopt green procurement practices during the procurement.</p> <p>The Green Procurement Specialist, which will be recruited during implementation, will guide the application of green procurement practices, i.e., review technical specifications in bidding documents.</p> <p>Environmental and green education: courses on green industry and green concepts will be introduced in the knowledge and skill sharing center.</p> <p>The e-procurement platform in Hezhou and Guangxi is available. The local and national e-procurement platforms will be used partially for e-publication only for all packages under the project.</p>
Technology	<p>The project will rely on the use of standard technologies.</p> <p>For the mine restoration project, a natural based approach will be adapted, which means a minimize technology work will be applied.</p> <p>Some new green and low carbon engineering technology will be applied, which have been tested and used in other project.</p> <p>There are certain challenges for the design and construction of hospital, a qualified design institute shall be hired. Meanwhile, ADB will provide guidance in the while process.</p> <p>The technology pace of change and innovation is quick for goods packages, especially for the medical equipment and smart IT systems, which has potential to gain advantage by sourcing and utilizing credible recent innovations.</p> <p>Overall, the technologies are available and proven in similar projects.</p> <p>As a multidimensional technology, BIM can realize data and information sharing in the whole process of building design, construction, and operation, and provide effective tools for building performance optimization and scientific management. However, the BIM technology used under contraction is not well developed and systemized. Since there is no standardized platform for the whole life cycle of the building, the BIM management and data sharing between designer, contractor, owner, and operator will be limited. Meanwhile, the owner has no experience on BIM technology. The Owners and PMO staffs are encouraged to take BIM courses as part of their capacity improvement activities.</p> <p>It is encouraged that the BIM technology shall be applied at design, construction and operations, and a working mechanism on BIM management and data sharing shall be established before the project start. Since 2018, GZAR had conducted BIM application polit on 26 projects to try to promote the BIM technology application in the construction industry of GZAR. PUCIC could try to apply the Pinggui Workers' Hospital project as a BIM pilot project. Once approved, with the assistance from provincial level, the BIM technology can be more effectively applied.</p>

E. Key Procurement Conclusions

National and provincial governments have enforced procurement laws and regulations.

ADB procurement regulations have been implemented effectively for over 30 years in the PRC, which will be applied for ADB financed subprojects as well in this project.

The PRC has kept appropriate economic growth and stability. Chinese economy is backing into normal gradually since the full control of the COVID-19 outbreak.

The economy of Hezhou and Pinggui is growing steadily, which ranks top level even in the PRC.

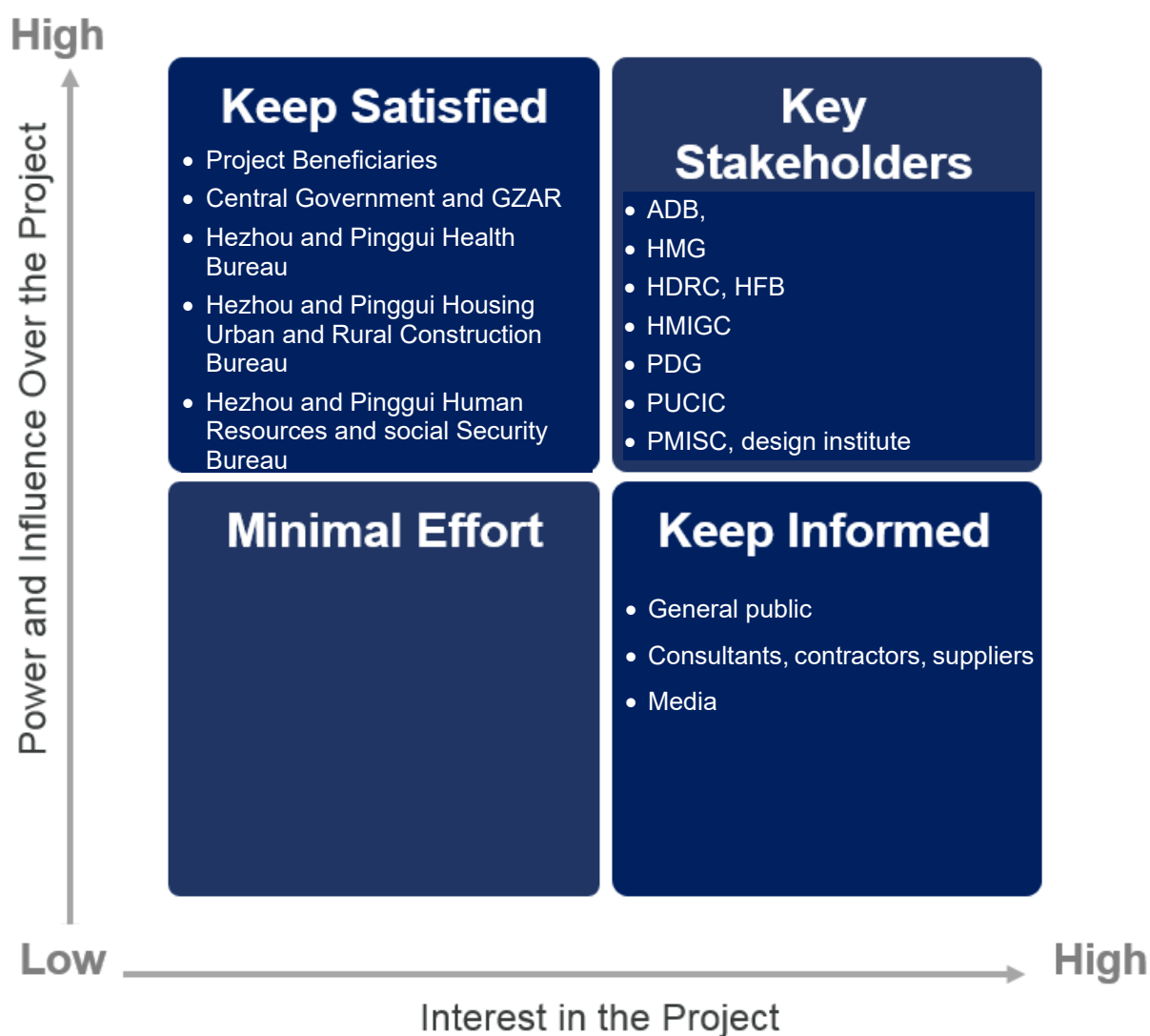
Both environmental and ecological conditions have provided sustainable conditions for the project.

The political, security, economic situation and policies of the government are favorable for the successful implementation of the project.

In terms of technology, there is no substantial risk.

The local and national e-procurement platforms will be used partially for e-publication only for all packages under the project.

F. Stakeholder Analysis and Communication Plan



G. Stakeholder Analysis and Communication Plan

Stakeholder name and role	Keep satisfied group-- Project Beneficiaries
Interest in the project?	Indirect beneficiary
Support and influence level	Support Level: supporter Influence Level: follower
Objections, drivers, needs, and levers	Objectives: general public interest and livelihood improvement Drivers: to ensure the project benefits; possible have increased employment opportunities from contractors Needs: information and feedback Levers: influence
Action	Timely reporting and information sharing to seek their advices/supporting in a positive approach Keep impact of construction works (noise, vibration, light, sound, and pollution) as low as possible. Construction works to be finished as fast as possible.

Responsible, accountable, consulted, or informed?	Consulted and informed
Communicate what, when, and how?	What: the status of projects, the start and completion date, communication method of contractors and PMO officers. When: Must be consulted prior to make any major decisions that will affect their livelihoods. How: HMG and PMO will be responsible for public releasing regularly. Reporting, information discloses through websites and meeting.

Stakeholder name and role	Keep satisfied group-Central Government and GZAR
Interest in the project?	sponsor
Support and influence level	Support Level: supporter Influence level: Influencer
Objections, drivers, needs, and levers	Objectives: general public interest, successful implementation of the project Drivers: project benefits, economic development Needs: information and feedback Levers: influence
Action	Timely reporting and information sharing to seek their advices/supporting in a positive approach.
Responsible, accountable, consulted, or informed?	Consulted and informed
Communicate what, when, and how?	Project progress Communicate and keep informed on project status and major issues.

Stakeholder name and role	Keep satisfied group-Hezhou and Pinggui Health Bureau, Hezhou and Pinggui Housing Urban and Rural Construction Bureau, Hezhou and Pinggui Human Resources and social Security Bureau
Interest in the project?	Direct beneficiary
Support and influence level	Support Level: supporter Influence level: decision maker
Objections, drivers, needs, and levers	Objectives: general public interest and livelihood improvement Drivers: project benefits Needs: information and feedback Levers: influence
Action	Timely reporting and information sharing to seek their advices/supporting in a positive approach
Responsible, accountable, consulted, or informed?	Consulted, responsible and informed
Communicate what, when, and how?	Project progress Reporting and consulting during the progress of project

Stakeholder name and role	Key stakeholders' group - ADB
Interest in the project?	sponsor
Support and influence level	Support Level: supporter Influence level: Influencer
Objections, drivers, needs, and levers	Objectives: check on compliance against loan agreement Drivers: Needs: information, project updates Levers: review all relevant activities
Action	Review progress Carry out support mission

	Monitoring of compliance against loan agreement Provide advices to EA as needed
Responsible, accountable, consulted, or informed?	Consulted
Communicate what, when, and how?	During project progress Most communication will be supported by: <ul style="list-style-type: none"> • Reporting • Online content • Presentations • Paper-based documentation PMO will have responsibility for communicating to ADB.

Stakeholder name and role	Key stakeholders' group–EA, IAs, PIUs
Interest in the project?	Executing agency and project manager
Support and influence level	High Power and Influence as supporter, decision maker and influencer
Objections, drivers, needs, and levers	The objectives of this group are linked into knowledge on: <ul style="list-style-type: none"> • Fulfillment of requirements • Time Schedule • Quality • Compliance The drivers for this group are quite varied, and include: <ul style="list-style-type: none"> • Seeking benefits • Approvals Needs: Information and feedback. Levers: Enforcement, influence.
Action	Responsible for the overall management of the project Prepare progress report Monitoring the progress of the project Promote the smooth implementation of the procurement plan, ensure the compliance of ADB procurement policies and regulations, significantly improve the procurement and project management capabilities of PMO and PIUs
Responsible, accountable, consulted, or informed?	Responsible, Accountable
Communicate what, when, and how?	During progress Data collection and discussion on progress status

Stakeholder name and role	Key stakeholders' group – project management and implementation support consultant (PMISC), design institute
Interest in the project?	bidder
Support and influence level	Support Level: neutral Influence level: follower
Objections, drivers, needs, and levers	The objectives of this group are linked into knowledge on: <ul style="list-style-type: none"> • Fulfillment of requirements • Time Schedule • Quality • Compliance

	The drivers for this group are seeking benefits Needs: Information and feedback. Levers: Enforcement, influence.
Action	
Responsible, accountable, consulted, or informed?	Consulted
Communicate what, when, and how?	Communication in this area will be a mixture of: <ul style="list-style-type: none"> • Media-Based • Online or contact information of PMO and/or PIUs • Marketing and Information dissemination materials as per procurement regulations

Stakeholder name and role	Key informed group
Interest in the project?	Beneficiary and bidder
Support and influence level	Support Level: neutral Influence level: follower
Objections, drivers, needs, and levers	<p>The objectives of this group are linked into knowledge on:</p> <ul style="list-style-type: none"> • Project activities, timings and schedule (especially in relation to implementation periods); • Development works and impacts; • Procurement plan, contract advertisement and contract award information; and • Other project information disclosure. <p>The drivers for this group are quite varied, and include:</p> <ul style="list-style-type: none"> • Public Support • Public participation • Opportunities to develop their business
Action	<p>The needs of the group are linked to:</p> <ul style="list-style-type: none"> • Timely information disclosure in a regular basis • Procurement planning • Actively involved in the public consultation
Responsible, accountable, consulted, or informed?	Informed
Communicate what, when, and how?	<p>Communication in this area will be a mixture of:</p> <ul style="list-style-type: none"> • Media-Based • Online or contact information of PMO and/or PIUs • Marketing and Information dissemination materials as per procurement regulations <p>PMO will have responsibility for communicating to this stakeholder group. Communication will be scheduled and regular for this group, to ensure that the stakeholders are informed.</p>

H. Key Procurement Conclusions

Communication is an essential part of the procurement process during the implementation of procurement plan. PMO will make a mechanism to communicate with all stakeholders, and prepare a procurement manual to coordinate all the stakeholders.

In this project, there are many consulting contracts involves multiple departments and require for the support from upper authorities. Thus, it is very important to keep upper authorities and stakeholders informed and get their feedback and support.

Timely and transparent information on project preparation and implementation will be essential, particularly for procurement and value for money.

The communication of relevant parties in the procurement process mainly focuses on:

- Procurement schedule;
- The quality of technical documents, the construction drawings, bill of quantities and technical specifications;
- The differences between ADB's bid evaluation criteria and domestic practices;
- Handling of reports and complaints in the procurement process;
- A green procurement guideline will be prepared to promote green procurement practices.

PMO plays a key role in the communication of entire procurement process and project implementation. Effective communications will also be based on the quality of communication materials, timing, and approach to conduct communication.

SECTION 3: MARKET ANALYSIS

9. The purpose of the market analysis is to allow the borrower to develop an appropriate understanding of the relevant market sectors, their structures, and how they operate.

10. This Section is developed based on (i) recent similar projects carried out in Hezhou and GZAR; (ii) case studies and findings under ADB/ World Bank financing projects. Please refer to Appendices 1-10 for relevant project experiences and market research data.

11. Market analysis has been conducted intensively, assessments and results are presented in following tables by Works, Goods and Consulting Services. Experiences drawn from the market analysis can be summarized as follows:

- The PRC has a mature, complete market on civil construction project. In 2018, the total output value of the PRC's construction industry exceeded CNY 24 trillion, with a total of more than 90,000 construction enterprises and about 55 million construction employees nationwide, and the new contract value of the construction industry reached CNY27 trillion in 2018. Based on ranking list of 250 largest contractors in the world published by ENR in 2018, there were 54 Chinese companies in the top 250 list. For detail information, see Appendix 2: ENR top 250 Global Contractors in 2018 – Mainland PRC contractors. Domestic competitive bidding is sufficient to attract qualified bidders, based on the understanding of domestic market, and other similar project studies;
- Contract packaging should consider the actual location, logistic, land acquisition implementation plan, detailed design etc., to make the package sufficient to attract qualified bidders;
- From the contract management perspective, the contract value should be sufficient to generate interest from the market. For our project, the contract value is ranging from \$3.10 million to \$70 million for works; \$0.80 million to \$9.31 million for goods.
- Based on the market research results as can be seen in Appendix 14: Potential bidders for smart hospital construction, it is better to group the design, build and equipment provisions for customized IT system in one contract to attract higher qualified bidders and ensure the compatibility of the system. Meanwhile, obligations for supplier to guarantee a certain operation period and provide ongoing staff support for knowledge transfer to client will allow the owner to get sufficient knowledge, which will ensure the sustainable system operation;
- As can be seen from the Appendix 7: Top 10 medical equipment manufacturers worldwide and Appendix 8" Top end medical equipment manufactures in the PRC, in the medical equipment industry market, the high-tech medical equipment market is mainly controlled by foreign brands. Thus, it is recommended to advertised internationally for high-tech medical equipment to attract dealers from international medical equipment market. However, for most commonly-used, low-tech medical equipment, it is encouraged by government to use domestic brands. Thus, for low-tech medical equipment provided for hospitals at township-level, it can be advertised domestically.

A. Lessons Learned from Previous Projects

Lessons learned from previous projects in PRC

12. Since 1986, ADB has been working with the PRC in supporting poverty reduction, economic development, environmental protection, social development, climate change, etc.

Based on the experience of ADB project's procurement, some lessons can be learned from the previously implemented projects.

- Very low bid in procurement – ADB Procurement Policy indicates to accept the lowest bid that meets the bidding qualification requirements. Due to the fierce market competition in the PRC, there are bidders using extremely low bids to bid on ADB or WB projects. These very low bids mean that the bid price is lower than the actual construction cost. If the contract is awarded to such a low bidder, the implementation of the project will run into major difficulties, and the contractor will find reasons to receive additional money for the contract; otherwise, there will not be any construction progress. ADB procurement reforms appropriate to local practices, introduces abnormally low bids and release more flexibility in 2017. The new procurement framework is expected to provide clients with a more flexible, principles-based, and modern approach to procurement while allowing ADB to continue to effectively perform its fiduciary responsibility. But it remains a challenge for implementing them in PRC. In the PMISC team, there will be a procurement/contract management specialist to assist the PMO on handling the very low bid issues following the new framework. Meanwhile, the risk can be mitigated by setting up a good qualification requirement based on the market research results.
- Weak institutional capacity – ADB projects usually involve multiple sectors and agencies during the project implementation phase, which is a different set-up as compared to typical domestic projects. The domestic project is usually in a single sector and involves fewer agencies, and requires much less interagency coordination. In our project, the PMISC team consists of multiple specialists from different sectors to assist the PMO during the implementation. Meanwhile, an interagency coordination system has been established in Hezhou PMO and Pinggui PMO level to encourage the participation of all stakeholders.
- Many ADB projects had significant delays due to the slow or no progress of land acquisition and resettlement (LAR). The difficulty of land acquisition has been fully considered during the preparation of procurement plan. Meanwhile, An ADB's study shows that the average loan implementation project would have an average implementation period of over 6 years.⁵¹ In our project, we proposed a longer implementation period (around 6.5 years) to make sure it can be completed on time.
- Standard bidding documents. a provision on ALBs was introduced in the standard bidding documents (SBDs), which provides guidance for determining and treating ALBs during evaluation, including possible rejection of such bids if the evidence provided by the bidder does not satisfactorily justify the low bid price. The provisions introduced in the bidding documents are already having an effect in ADB financed projects. This validates the need for such provisions to decrease the risk of poor implementation performance and thereby increase value for money in ADB-financed procurement.
- Maximizing value for money in ADB financed procurement. The key principle is for the borrower to obtain optimal benefits through effective, efficient, and economic use of resources by applying, as appropriate, the core procurement principles and related considerations, which may include life cycle costs and socioeconomic and environmental development objectives of the borrower.
- A more rigorous project cost estimates during appraisal is importance for the smooth implementation. The early project activities faced uncertainties in their implementation, the total investment of the project may drop significantly due to the change of content or change

⁵¹ PRC Portfolio Overview by ADB, December 2020

of design. In our project, both the cost estimate and the design details have been reviewed and discussed, and ADB will also participate into the preliminary design stage to ensure the quality of the project will not be compromised due to the cost issue.

Lessons learned from previous projects conducted by PMO:

13. WB Financed Hezhou Urban Water Infrastructure and Environment Improvement Project (see Appendix 1: similar project experience for PMO and IAs)

14. The project is approved in June 13, 2018, and the loan closing date will be June 30, 2024. The development objectives of Hezhou Urban Water Infrastructure and Environment Improvement Project for the PRC are to improve flood risk management and reduce discharge of water pollutants in Hezhou Municipality. The total investment is around \$359.4 million, in which WB financed \$150 million.⁵²

15. This project has three components. (i) The first component, Improving Flood Risk Resilience of the He River, aims to reduce flood risks along the mainstream He River by connecting mainstream to tributaries, improving flood drainage capacity, removing obstructions, and upgrade river infrastructure in the mainstream channel. (ii) The second component, Improving Urban Drainage and Wastewater Management, aims to reduce urban water logging by diverting flood waters, enhancing tributary drainage capacities, and storing/absorbing flood waters in lakes, improved canals, and elements of green infrastructure; and at the same time, reduce water pollution by separating storm and sewage systems, and providing full collection and treatment of wastewater. (iii) The third component, Institutional Strengthening, Capacity Building and Project Management, aims to strengthen the capacity and coordination of local institutions by using the development of an Integrated flood risk and urban drainage master plan as a Coordination platform for coordinated water planning and management (led by Hezhou Municipality), support the development of smart water and flood monitoring systems, and support effective project management.

16. The PIA includes the Project Management Office (PMO), which refers to Hezhou Municipal World Bank Loan Project Management Office (Hezhou PMO), and the Project Implementation Units (PIUs), which refer to Hezhou Municipal Water Resources Bureau (HWRB), Hezhou Municipal Engineering Administration Bureau (HMEAB) and Hezhou Municipal Environmental Protection Bureau (HEPB).

17. Based on the latest procurement plan, the project currently has 45 contract packages (using World Bank loan funds). Includes: 26 civil works construction contract packages, 8 goods procurement contract packages, 4 consultancy service contract packages, and 7 individual consultant contracts. Some similar contracts will be introduced in Appendix 1: similar projects conducted by PMO and IAs. Some lessons were learned during the implementation of WB financed project:

- Until the end of 2020, only three contracts have been awarded under the WB Financed project, including Environment Improvement and Auxiliary Facilities (Elevators) (equipment), Project Supervising (consulting), and Huang'ansi and Shizigang Flood Drainage Rivers Comprehensive Treatment (civil works).
- Due to the geographic location of Hezhou (consultants are requested to working on site) and due to the traffic restriction during COVID-19, the progress of hiring individual consultant is

⁵² Hezhou Urban Water Infrastructure and Environment Improvement Project,
<https://projects.worldbank.org/en/projects-operations/project-detail/P158622?lang=en>

not going well. The procurement of project financial consultant (national), project cost consultant(national), resident engineer (national) and project procurement consultant (national) are not going well since there were no adequate, qualified bidders express their interest. Under the WB financed Hezhou Urban Water Infrastructure and Environment Improvement Project, the request for EOI was published in March 2020, but until now, the contracts were not awarded yet. In our project, many specialists from different sectors shall be hired during the implementation of the project to provide technical assistance and knowledge sharing. Thus, to mitigate the risk of low interest of individual consultants, and to reduce the management and procurement difficulties for PMO, we proposed to hire PMISC instead of individual consultants.

- The procurement on project supervising firm is lagging. The request for EOI was published in march 28, 2019, and the contract was finally awarded in December 16, 2020. In the EOI, it requested that 18 personnel shall be assigned to this project, and all of them shall obtain the certificate of national registered supervision engineer. Indeed, for most domestic project, only the chief supervision engineer and some specialized supervision engineer shall obtain the national certification, other people, such as site inspector, can be assistant engineer or obtain the supervisor qualification. In our project, this issue has been fully considered into the draft TOR for construction supervision.
- The actual signed contract amount for works is around 20% lower than cost estimate. The cost estimate shall be further enhanced to ensure the overall investment plan.
- The actual schedule on procurement is far lagging due to multiple reasons, especially for the COVID-19 pandemic and the land acquisition issue.

Lessons learned from previous domestic projects by PIUs:

18. Both PUCIC and HMIC have rich experiences on construction project. The PUCIC completed many projects regarding urban infrastructure in the Pinggui District. In 2019, there are 100 civil work contracts, 18 goods contracts and 28 consulting service contracts, with a total investment of CNY 700 million. In 2020, affected by the COVID-19, the PUCIC PIU still has a total investment of CNY 390 million, involving 57 civil work contracts, 10 goods contract, and 21 consulting service contracts. In 2020, HMIGC has 8 civil work contracts, 4 goods contracts and 6 consulting service contracts. These projects demonstrate their rich construction and project management experience of the company.

19. For detail domestic project information, please see Appendix 1: similar projects conducted by PMO and IAs. Procurement experience learned from that domestic funded project includes:

- Both PUCIC and HMIGC have conducted similar domestic projects in recent year.
- PUCIC has abundant experience on infrastructure construction and management as the owner, especially for the construction of school. But it has no working experience on the construction and management of hospital project. Thus, Medical and health/elderly-care building engineer and architect will be recruited (in PMISC) to assist on the design, construction and management for the hospital project.
- The PRC has developed a comprehensive system of laws and regulations to govern the public procurement activities that are consistent with the ADB procurement principles. All bidding activity will be carried out at the public resource trading centers at the different levels.
- A good quality technical specification is very important and the key of a successful procurement.

- Technical specifications for goods will also be reviewed by an expert panel before the bidding process commences. Technical specifications of civil works are prepared by the qualified design institute used for the engineering design work. Without proper design, significant cost and time overruns will occur.
- The relatively low thresholds for bidding will result in an unnecessarily large amount of bid invitations having to be issued. Transaction cost for small bids may be increased. Cost effectiveness in the procurement process may be compromised as a result. In our project, the smallest bidding package for goods and civil works is \$0.8 million, which is a relatively high contract value comparing with other domestic projects. Meanwhile, the qualification requirement in bidding documents will be prepared carefully through a market research process, which can reduce the risk of low thresholds of bidding.
- There have been some government sponsored training programs in place. However, they are insufficient in volume.
- The market in PRC for the civil works, goods and services is well developed with numerous competitive players from the private sector.
- Ethical and anticorruption safeguards are required and covered in most of the procurement documents and practices.
- The adequacy and accuracy of cost estimates are required before bidding. It is difficult to manage the variations during implementation.

B. Porter's Five Forces

Civil works		
Competitive Rivalry	High	<p><u>ADB financed civil works:</u></p> <p>Civil works under this project include:</p> <ul style="list-style-type: none"> (i) Mining area site restoration and water treatment infrastructure (ii) Mine tailing collection, treatment, and disposal (iii) Construction of access roads (iv) Construction of PIHECC (v) Construction of Pinggui Workers' Hospital (vi) Construction of knowledge and skill sharing center <p>In 2019, the national construction industry completed a total output value of CNY2,484,459 billion. In 2019, the number of construction enterprises in the country was 103,814, with a yearly increase of 8.8%.</p> <p>According to the U.S. Engineering News Record ("ENR") magazine, the world's 250 largest international contractors in 2018 achieved a total revenue of \$482.4 billion in overseas markets. A total of 69 companies from Mainland PRC were listed in the list of the world's 250 largest international contractors in 2018.</p> <p>In the PRC, there is a mature system for the supervision and monitoring on the construction market in the PRC, most qualified contractor and project experiences are published on the National Public Service Platform for Construction Market Supervision.⁵³ Based on the published information, it can be concluded that:</p> <ul style="list-style-type: none"> (i) For the construction of Hospital, a higher qualification could be

⁵³<http://jzsc.mohurd.gov.cn/home>

		<p>required (such as a Special Grade on General Contracting of Construction Engineering⁵⁴). In GZAR, there have 9 contractors which can satisfy the requirement. All of them have working experience on hospital before and they will be strong competitor for this hospital project,</p> <p>(ii) For the construction of tailing collection, treatment and disposal, a qualification on environmental engineering is required. In GZAR, there are 77 qualified contractors which have the Grade 1 qualification on the environmental engineering. Most of them have working experience on mining tailing collection and landfill project, and they will be strong competitor for the tailing collection, treatment, and disposal project in Kedashan.</p> <p>(iii) For other construction project, such as the construction of Knowledge sharing center and elderly-care center, the scale and complexity are relatively small. There are more potential bidders for those projects.</p> <p>For detail analysis on the potential bidders for hospital, construction of tailing collection, treatment and disposal, and other civil projects, please see appendix.</p>
Bargaining Power of Buyers	High	Due to over supplied market in civil works, the bargaining power of buyer (PIUs) is high. In the bidding stage, PIUs have the initiative in contract estimation and technical standards. The Contract Management and Procurement Specialist, Green Procurement, other technical specialists, and PIUs' staff will ensure the preparation of good quality specifications.
Bargaining Power of Suppliers	Low	<p>At the end of 2018, there were 620 legal entities in the construction industry in Hezhou.</p> <p>Because of the fierce competition in the market, suppliers in the bidding stage often do not have much bargaining power in bidding.</p>
Risk of New Entrants	Low - Medium	<p>In the PRC, there were certain qualification requirement on contractors which can be divided into 12 sub-categories and I, II, III and Special Grade.</p> <p>Although new entrants can join the market competition, contractors who lack strong qualification, or regional and ADB-funded project experience are unlikely to meet the requirements of substantive bidding response. Therefore, the risk of new entrants to this project is limited.</p>
Risk of Substitutes	Low-Medium	This project mainly is a government investment and infrastructure project, generally using mature technology, in which the construction drawing design is generally undertaken by the first-class domestic design institutes, who are familiar with technical standards and substitutes are generally prudent and risk controllable.

Goods except for medical equipment		
Competitive Rivalry	High	<p>ADB financed Goods except for medical equipment:</p> <p>Goods under this project includes:</p> <ul style="list-style-type: none"> (i) Packages for building equipment supply and installation for Pinggui Workers' Hospital (ii) Packages for IT system in Pinggui Workers' Hospital (iii) Packages for elderly-care and rehabilitation equipment for the integrated health and elderly-care center (iv) Packages for vocational training and teaching equipment for the knowledge and skill sharing center <p>The PRC has many goods manufacturers and suppliers with comprehensive specialties and strong competitiveness.</p>
Bargaining Power of Buyers	High	For building associated equipment, training equipment, elderly-care equipment and IT equipment, due to over supplied market, the bargaining power of buyer (PIUs) is high. In the bidding stage, PMO has the initiative in contract estimation and technical standards. The Contract Management and Procurement Specialist, Green Procurement, other technical specialists, and PIUs' staff will ensure the preparation of good quality specifications.
Bargaining Power of Suppliers	Low	In most cases, because of the fierce competition in the market, suppliers in the bidding stage often do not have much bargaining power in bidding. Prices for standard readily available goods often have transparent in the market (prices can be easily accessed through e-commerce companies).
Risk of New Entrants	Low to medium	<p>Standard readily available goods are less technical complicated, it is relatively easy to enter the market.</p> <p>However, the IT systems are often technically complicated, it is relatively more complicated to enter the market.</p>
Risk of Substitutes	Low to High	<p>Not too much new technologies will be adopted on training and elderly-care equipment.</p> <p>The risk of change of requirement on IT system is high due to the rapid change and innovations on IT industry.</p>

Goods- Medical Equipment		
Competitive Rivalry	Medium to High	<p>Medical Goods under this project includes:</p> <ul style="list-style-type: none"> (i) Packages for the procurement of Medical equipment for Pinggui Workers' Hospital (ii) Packages for medical equipment for township/community clinics <p>Based on the PRC's medical device industry market status and competitive landscape analysis in 2020, the medical equipment industry is a multi-disciplinary, knowledge-intensive, and capital-</p>

		<p>intensive high-tech industry. The global medical equipment industry has a high degree of concentration. At present, the sales volume of the top 25 medical equipment companies in the world accounts for 60% of the total sales of the global medical equipment industry. From the perspective of various countries and regions, the United States firmly occupies the leading position in the industry. Please see Appendix 7: Top 10 medical equipment manufacturers worldwide for details.</p> <p>With the deepening of trade globalization, foreign medical device products have fully participated in the competition in the PRC. Based on the medical equipment import and export data, the PRC's reliance on diagnostic and therapeutic equipment is significant. the PRC's imports of medical equipment in the hospital diagnosis and treatment equipment accounted for 69.69% of total market. Please see Appendix 7 to 9 for more details.</p> <p>Based on the "Supervision and Administration of Medical Devices Regulations" Article XI: second-class, third-class medical equipment manufacturers outside the PRC, should establish its representative office in the PRC or designate the enterprise legal person in the PRC as an agent, which is responsible to submit registration application information and supporting document to the State Council Food and Drug Administration. Thus, most international suppliers have branch company or certified representatives in the PRC, as can be seen in Appendix 6.</p> <p>However, for some high-tech medical equipment, if imported with original packaging overseas, it will involve customs clearance and other matters, based on the "Measures for the Implementation of International Bidding for Mechanical and Electrical Products," the international advertisement is recommended considering that:</p> <p>Medical equipment procurement is one of the typical mechanical and electrical equipment advertised internationally, since the implementation of international tenders for mechanical and electrical equipment in 2004, the cumulative amount of international tenders for medical equipment has reached \$2.4 billion.</p> <p>Meanwhile, the advertised internationally can encourage the participation of international manufactures and dealers to enhance the competitiveness. Finally, the advertised internationally for certain medical equipment can enjoy a tax refund, which can lower the bidding prices.</p> <p>The PRC has also made some progress for on the medical equipment industry, especially for low-tech equipment. The size of the PRC's medical equipment market reached CNY530.4 billion in 2018. As of the end of April 2019, there were a total of about 18,800 medical equipment enterprises in the PRC, mainly concentrated in the eastern coastal region. At present, most medical equipment has substitutable domestic products, especially for low-tech equipment.</p>
Bargaining Power of Buyers	Medium to High	<p>For some medical device with lower technology and knowledge contents, there will be adequate competition due to the large volumes of equipment to be purchased.</p> <p>For certain types of medical devices, there are few alternatives of supply. It is importance to conduct fully market research and have adequate qualification criteria during the procurement process.</p>

Bargaining Power of Suppliers	Low to High	For high-tech medical equipment, due to the number of qualified participants is limited, bidder who participate have certain bargaining power over the buyer as supplier market is dominated by a few bidders.
Risk of New Entrants	Low to medium	For medical device industry, it is a multi-disciplinary, knowledge-intensive, and capital-intensive high-tech industry. It is very complicate to enter the market. meanwhile, the capital requirement is a financial barrier to enter the medical device industry. Recently, the Chinese government has introduced several policies to support the development of domestic medical equipment. Since 2016, it is encouraged those public hospitals shall give priority to the allocation of domestic medical equipment.
Risk of Substitutes	Low	For medical equipment, it is encouraged to adopt innovation products if it has better curative effect. The PRC began to launch several batches of excellent domestic medical equipment product selection in 2014. The Government Procurement Law of the People's Republic of China stipulates that government procurement projects, in principle, shall procure domestic medical products if it can meet the requirements.

Consulting Services		
Competitive Rivalry	Medium to High	Consulting services under the project financed by ADB include: (i) project start-up consultants; (ii) construction supervision; (iii) project management consulting service; (iv) researches and studies; (v) external land acquisition, environmental and resettlement monitoring, and evaluation The Consultant has researched potential regional competitors capable of taking on similar projects based on contract awards published by ADB, ⁵⁵ Chinese traditional design, research institutes and universities, as well as international consulting institutions, can easily participate in the competition of consulting services for ADB loan projects. Due to the large number of bidding institutions, the specialties are comprehensive and the competitiveness is fierce. However, due to the less developed economy and transportation, individual consultant may not interest in this opportunity without attractive compensation, especially when they are requested to working on site.
Bargaining Power of Buyers	High	In the bidding stage of these projects, PMO will prepare terms of reference (TOR) and submit to ADB for clearance.
Bargaining Power of Suppliers	Low to medium	Because of the fierce competition in the market, the consultant's bargaining capacity is low. For some contracts requiring for high-level of consultants, the supply of consultant is relatively less.

⁵⁵ https://selfservice.adb.org/OA_HTML/OA.jsp?page=/adb/oracle/apps/xxcrs/loacsc/webui/LoacscHomePG&OAPB=ADBPOS_CMS_ISP_BRAND&_ti=59861948&oapc=24&oas=4FMEOIlee59Um1hbuewmuQ.

Risk of New Entrants	Low	Although new entrants can compete in the market, for the lack of industry and/or ADB-funded project experience, such consulting institution is unlikely to win the bid, so the risk is low.
Risk of Substitutes	Low	The consultancy services in the project are in conventional nature. The possibility of substitute to equivalent staff is low.

C. Key Procurement Conclusions

Works:

The PRC's engineering construction market is a buyer's market and there is fierce competition among contractors. PIUs, as the buyer, have the advantage of negotiating with the bidders. Special attention should be paid to landfill and hospital project, which request a higher construction quality.

Goods:

The size of goods packages is large; thus, a high completeness is expected.

Some high-tech medical equipment can be supplier's market.

Consulting Service:

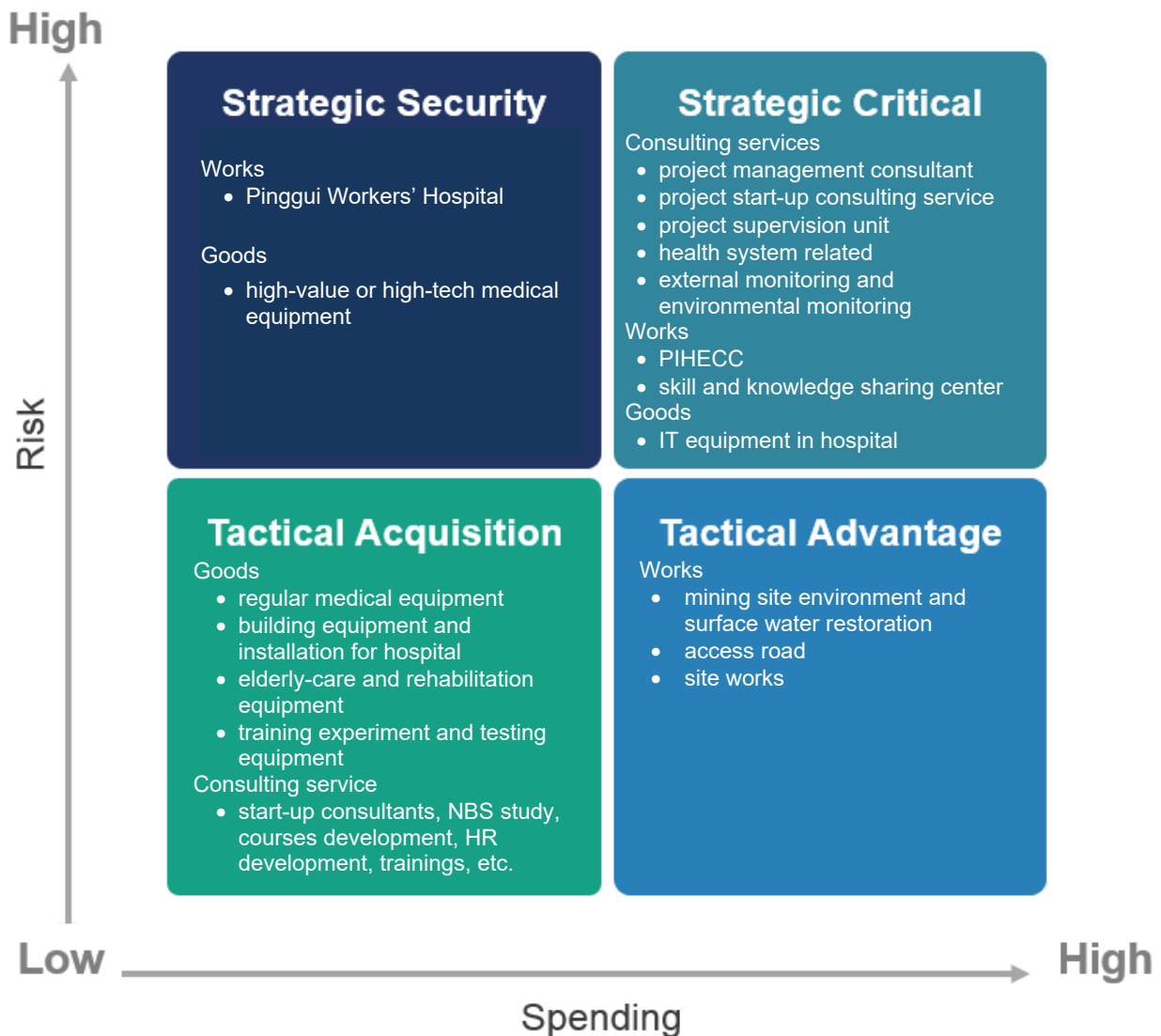
Historically, there should be enough number of participating bidders. However, based on the experience of ongoing WB financed project, the competition rivalry on consulting services packages is medium to high.

The qualification of consultants is critical to ensure the quality of proposed researches and studies.

The main risk for the PMO and PIUs is the preparation of bidding documents and TORs, especially for the technical specifications. PMO or PIUs often falls into a passive situation because of rushing work and neglecting the quality of design documents, resulting in huge design changes in subsequent contract implementation.

Therefore, PMO and PIUs should attach great importance to the quality of preparation of bidding documents, especially the technical section, to control risks during the implementation stage. Project management consultants will be recruited to support the PMO during the project implementation period, in addition to the procurement agency, to make sure ADB's procurement policies and regulations are fulfilled, and project objectives are fully incorporated in to designs, especially the green procurement practices.

D. Supply Positioning



E. Key Procurement Conclusions

The construction of Pinggui Workers' Hospital and procurement of high-tech medical equipment require more professional knowledge and technical complex. And it is critical to achieve the project development objectives. Thus, they are considered as strategy security.

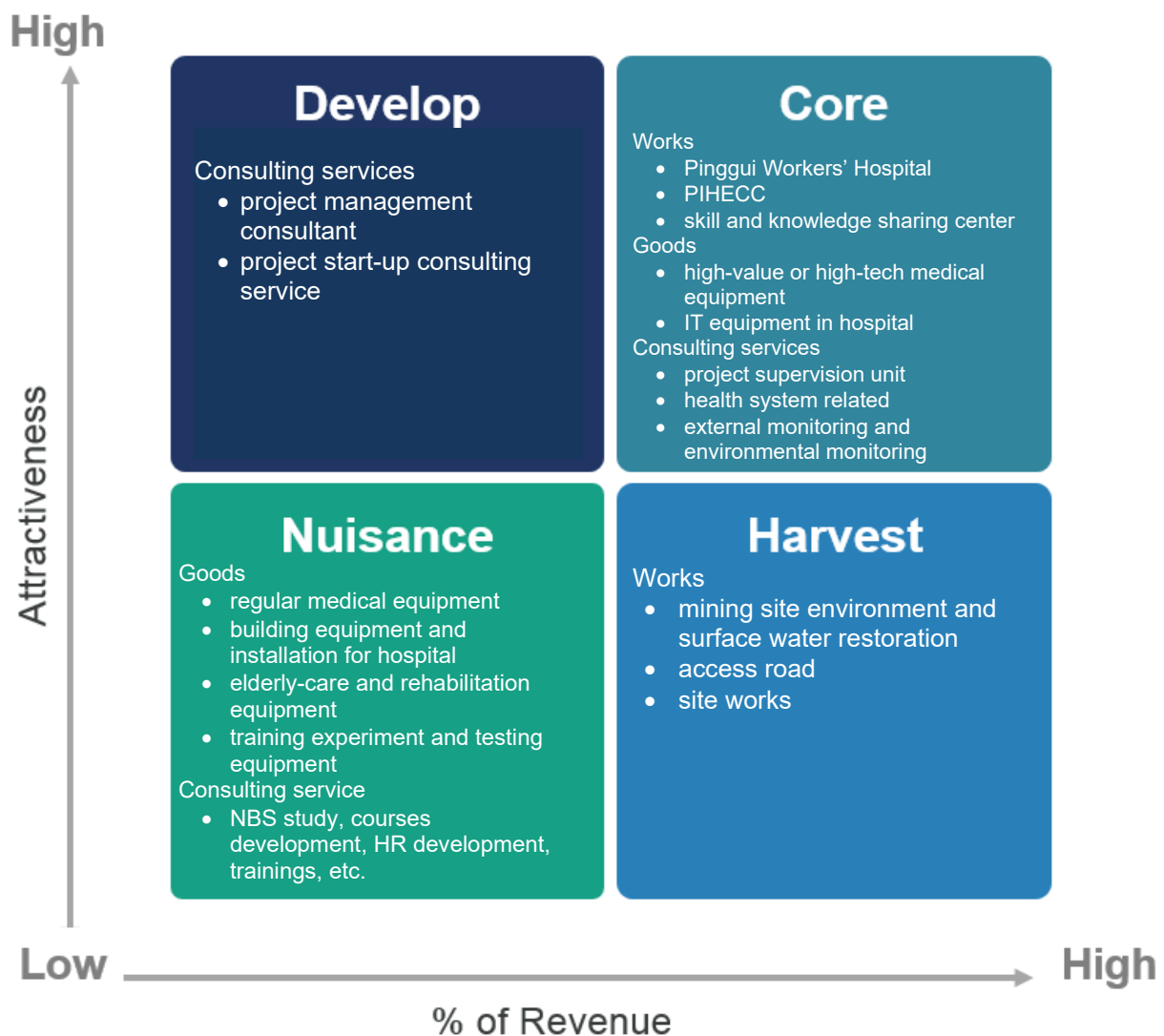
Therefore, bidding documents including design verification clause are highly preferred while the engineering designs shall also be conducted before tendering. This will reduce the risks for contract variations/over budgets to the PMO.

Consulting services related to project start-up, project management and capacity building, green procurement and environmental education, wetland monitoring are critical to the project success, to support PMO for the entire project implementation, therefore, those are categorized as critical category.

Consulting services related to project start-up, project management and capacity building, green procurement, external monitoring, and environmental monitoring are critical to the project success, to support PMO for the entire project implementation, therefore, those are categorized as critical category.

Other contract packages have relatively low contract value or less complex in technical design and low procurement risk, categorized as tactical acquisition.

F. Supplier Preferencing



G. Key Procurement Conclusions

Core contracts are the key for reaching project objectives for improving the environmental restoration and health capacity.

This tool demonstrates the level of willingness or reluctance the contractor will exhibit in willingness to bid for work and the corresponding level of effort the contractor will make in meeting the employer's requirement

Harvest contracts should require high thresholds for bidders' qualifications and experiences to attract competent potential bidders.

Capacity building contracts will be more attractive for NGO and high-profile research institutes and universities, to increase contract attractiveness, the development contracts should clearly define tasks in the terms of reference (TOR).

SECTION 4: RISK MANAGEMENT

20. The purpose of risk management is to identify and mitigate potential risks to the project and its procurement contracts thoroughly and accurately.

A. Project Procurement Risk assessment

21. The risk assessment is discussing separately in another document.

B. Project Procurement Risk Assessment Risk Register

Risk Description	Likelihood L (1-5)	Impact I (1-5)	Risk Score (L x I)	Proposed Mitigation	Risk Owner
The PMO and the PIUs have insufficient qualified staff to efficiently undertake the procurements required to implement the project	3	5	15	<ul style="list-style-type: none"> - The PMO will recruit an initial project management support consultant for procurement and project management consulting firm. - The project procurement consultant will provide training on procurement and consultant recruitment for ADB projects at project start-up. - The project procurement consultants and a procurement agency will help the PMO and PIUs conduct procurements. - ADB will closely monitor procurement and consultant recruitment activities of the PMO and the PIUs to ensure non-discriminatory participation and transparent bidding processes. - Provide trainings on ADB's procurement policy and procedures to relevant staffs. 	EA, IAs, PMO
The PMO and the IAs use practices inconsistent with	3	3	9	<ul style="list-style-type: none"> - ADB will provide relevant procurement staff with guidance and instructions on ADB's procurement 	EA, IAs, PMO

national procurement law or bidding documents unsuitable for the ADB-funded procurement				and consultant recruitment procedures. - The consultants and procurement agency will help the PMO and the PIUs conduct procurements. - ADB will closely monitor procurement and consultant recruitment activities of the PMO and the local PIUs to ensure non-discriminatory participation and transparent bidding processes.	
Cost estimates are inaccurate	4	2	8	- It will be required to check the adequacy and accuracy of cost estimates and proposed variations, but no measure (indicator) or guidance provided -experienced design institutes are used to prepare technical documents, as well as prepare the cost estimate. - A project cost specialist will be included in the project management consulting firm.	EA, IAs, PMO
Member of the bid evaluation committee may not familiar with the ADB's procurement policies	4	2	8	- The PMO, PIUs, as well as project management consultants and / or procurement agent representatives will serve as members of the bid evaluation committee. - Representatives of the PMO will witness the bid evaluation and will be responsible for introducing the ADB's bid evaluation and clarification policy, including the interpretation of the main requirements of the tender invitation documents, before the bid evaluation begins. - If the bid evaluation expert has no knowledge or experience of loan projects from the ADB or other international financial organizations, brief training should be given before the bid evaluation begins.	EA, IAs, PMO
Risk of ALBs from the market entrants	3	4	12	- A provision on ALBs was introduced in the SBDs, which provides guidance for determining and treating ALBs during evaluation including possible rejection of such bids if the evidence provided by the bidder does not satisfactorily justify the low bid price.	EA, IAs, PMO
Record-keeping is inadequate to enable internal or external audit of	2	4	8	- PMO and PIUs will allocate adequate space, equipment, and personnel to administer procurement records and contracts for the project.	EA, IAs, PMO

procurement processes				<ul style="list-style-type: none"> - A referencing system for procurement files will be set-up with the assistance of the initial project management support consultant for procurement and project management. Documents will be retained following the TBL and/or GPL for at least 15 years depending on the document type. Each contract will be retained in a single file with necessary documents. Computer software will be used for record-keeping. - ADB will provide relevant procurement staff with guidance and instructions on ADB's procurement and consultant recruitment procedures. - The consultants and procurement agency will help the PMO and the PIUs conduct procurements, and assist on record-keeping as well. 	
Procurement delays caused by potential complaints	4	3	12	- A complaint mechanism shall be well established to handle complaints effectively.	EA, IAs, PMO
Variation in scope or costing after contract award	3	4	12	<ul style="list-style-type: none"> - Qualified design institute shall be hired on preparing engineering drawings - Design shall be reviewed by ADB and Project Management Consulting engineers. 	EA, IAs, PMO
Construction quality and rate may suffer by occurrence of abnormally low bids	2	3	6	- Provision of abnormally low bid in the open competitive bidding documents and during bid evaluation process will apply	EA, IAs, PMO
Procurement delay due to COVID-19 outbreak which may cause close down or travel restrictions	1	5	5	<ul style="list-style-type: none"> - PMO has built up experiences during the project period by using virtual meetings, which is expected to be applied in the coming future. - online bids opening shall be considered during the pandemic period if shut down is encountered. 	EA, IAs, PMO
Poor performance of procurement agency	3	3	9	- Increase selection thresholds and enhance supervision of the procurement agency's performance.	EA, IAs, PMO
Low quality of bidding documents	3	5	15	- A procurement specialist for start-up period should be recruited to assist the PMO to carry out the selection of project implementation consultants for the proposed projects.	EA, IAs, PMO

				<ul style="list-style-type: none"> - Advance contracting will be applied for the PICs recruitment. - Start the procurement capacity building activities and training for PMO procurement staff as soon as possible. 	
Mis-procurement due to noncompliance to regulations	1	5	5	<ul style="list-style-type: none"> - The first package of each type of procurement category for each subproject will be subject to prior review of ADB, to ensure good procedures, bidding documents and bid evaluation to follow-up by other contracts. 	EA, IAs, PMO
Bidding documents for national OCB are under revision	4	2	8	<ul style="list-style-type: none"> - ADB accepted SBDs should be used for all civil works, Goods and consulting services. 	EA, IAs, PMO
Delay in release of counterpart funds	2	2	4	<ul style="list-style-type: none"> - Counterpart funds will be included in the government annual budget line. 	EA, IAs, PMO
Since there is no national standardized platform, potential bidders may use different platform. The BIM management and data sharing between designer, contractor, owner, and operator will be limited	3	3	8	<p>A unified BIM platform shall be requested in the bidding document. A detailed market analysis shall be conducted to decide which BIM platform shall be applied. A working mechanism between each group on BIM management and data sharing shall be established</p>	EA, IAs, PMO
The owner has no experience on BIM technology. BIM technology	3	2	6	<p>A BIM specialist has been included into PMISC to help the PMO and Owners.</p> <p>It is encouraged that the owner can take BIM course before the project implementation.</p> <p>The owner shall try to apply this hospital project as a BIM pilot project in GAZR to receive more assistance from provincial level.</p>	EA, IAs, PMO

SECTION 5: OPTION ANALYSIS

A. Civil Works Packages

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
(1) Open competitive bidding (OCB) to be used for the ADB financed contract packages for works				
Option 1: OCB advertised internationally Disadvantage: English bidding documents need to be prepared, more working load for PMO. Market research showed that domestic market is mature in providing the works and goods that is needed under the project.	5	5	5	15
Option 2: OCB advertised nationally (OCB-AN) Advantage: Easy to operate, less time consuming on procurement.	9	9	7	25
Market research showed that domestic market is mature in providing works that is needed under the project. There are many qualified bidders with experience on hospital construction, elderly-care center construction and school construction. Thus, for time saving and higher efficiency, advertised nationally for all civil works project is recommended.				
(2) Green Procurement to be used for the ADB financed contract packages for works				
Option 1: green procurement will be taken into consideration during the entire procurement process Advantage: align with project strategic objective, energy saving and environmentally friendly, less operation cost, less carbon emission Disadvantage: a green procurement guideline shall be prepared and international green procurement specialist shall be hired. More time is needed on preparing bidding document and conducting market researches. May reduce a higher contract value due to the additional requirements.	6	9	7	22
Option 2: without green procurement Advantage: less time consuming, cost saving during construction Disadvantage: energy consuming cost during operation may be higher, higher carbon emission during construction and operation	7	5	7	19
The PRC has proposed an ambitious carbon neutral plan recently, and the importance of energy saving and emission reduction is further enhanced. The green procurement can significantly reduce the pollution and the impact on environment by promoting the usage of energy saving materials and products. It is not only agreeing with the ADB's concept, but also matching with the trend of domestic government procurement. Thus, the green procurement is recommended in this project.				
(3) Packaging mode for works				
Option 1: tradition construction packaging mode (DBB) Advantage: both owners and contractors are very family with this mode. easy for the cost control. owner has more control on project. balance between each stockholder. Disadvantage: longer design and construction period, higher risk on design variation during	6	6	6	18

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
construction, higher working load for owners on management and coordination				
Option 2: EPC Advantage: better connection and consistence between design, procurement, and construction. less time consuming. Disadvantage: time intensive on bidding process; big challenge on cost control; big challenge for selecting qualified contractor; owner has no experience on EPC contract; owner has less control on the whole project; higher risk on the performance of contractor	5	5	5	15
Option 3: Design and Building Advantage: easy on cost control and quality control; less time consuming. Disadvantage: time intensive on bidding process; owner has no experience on DB management; owner has less control on the whole project	6	6	5	17
<p>Comparing with the traditional DBB mode, both EPC and DB mode have some benefits considering about the schedule, quality control etc. However, the owner may have less control on the total investment of the project. Meanwhile, the risk on procurement is higher due to the high value contract amount, and the risk on project management is higher due to the owner has no experience on those mode.</p> <p>After consulting with owner, it is recommended to use the traditional mode to ensure the smooth procurement and implementation of the project.</p> <p>Meanwhile, to reduce owner's working load on management and coordination, there will be only four packages under this hospital project: one general work contract will be responsible for the building civil works, one work contractor for the site work and wastewater plate, one goods contractor responsible for all building equipment procurement and installation, and one goods contractor responsible for information infrastructure and system development.</p>				
(4) work contracts				
Option 1: one large work package, including structure, finishing, MEP, Elevators, HAVC etc. Advantage: one contractor can oversee the works, better coordination on site, less time intensive Disadvantage: the cost will be higher, higher subcontract proportion	6	6	8	20
Option 2: separate works packages Advantage: professional specialized company focuses on the major thing, more bidders, less cost Disadvantage: more time intensive on procurement and construction, more coordination work on site, working procedures shall be carefully considered	7	5	7	19
<p>The construction of a hospital is a very complex project comparing with other civil engineering projects. The coordination between each system is critical under this project. Meanwhile, the PMO and IA have no experience in hospital construction. Thus one work package, including structure, finishing, MEP, elevators, HAVC etc., is recommended.</p> <p>For other work components, such as the PIHECC, and the skill and knowledge sharing center, the construction scope is relatively small and the is less specialized. Thus, one general contract for all will be applied, including building structures, finishing, MEP, elevators, HAVC, etc.</p>				
(5) merit point evaluation				

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
Option 1: merit point evaluation applied Advantage: to mitigate the risk of poor quality of bid winners, better for the quality and green performance of the building Disadvantage: it is difficult to develop the criteria, longer procurement procedure, more subjective instead of objectivity, higher risk of corruption, higher cost	5	6	5	16
Option 2: merit point evaluation not applied Advantage: more objective, less time consuming on bidding document preparation and procurement, PMO are more familiar Disadvantage: less VfM, higher risk of poor quality bid winners	7	6	7	20
It is quite risky to apply the merit point system in our project, since some quality criteria specified cannot be measured objectively, may be prone to abuse of discretion and it is difficulty in measuring if contract meets criteria. Meanwhile, those merit point evaluation system has not included into PRC's SBDs for works and goods. Thus, it is recommended that this merit point evaluation system will not be applied into our project at current stage. After PRC updated the SBDs, it can be applied in the future.				
(6) Prequalification				
Option 1: Prequalification Advantage: reduce the number of bidders, reduce the difficulty of bid evaluation, reduce the risk of disqualified bidders been awarded. Disadvantage: Increase bidding costs and prolong bidding cycle. the information is easily leaked, the risk of fraud is higher	8	5	5	18
Option 2: No prequalification Advantage: Lower cost and shorter cycle time; Good for information confidentiality Disadvantage: too much potential bidders, which makes the bid evaluation workload higher;	9	9	7	25
To reduce the risk of fraud during procurement, it is recommended that no prequalification will be applied to work contracts. The risk of disqualified bidders and abnormal low price can be mitigated through detailed market researches and the preparation of a high-quality bidding document.				
(7) BIM applied during the design, construction, and operation				
Option 1: BIM will be applied Advantage: provide visual building model, improve the design and construction quality, less design and construction variation, align with government's strategic on promoting BIM Disadvantage: Increase bidding costs and prolong bidding cycle, different BIM models may be used, owner has no experience on BIM management, data sharing	7	7	7	21
Option 2: BIM will not be applied Advantage: owners are familiar with the traditional approach Disadvantage: more design variation, longer construction period, repetition works between different contractors	6	7	8	21

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
<p>Many governments have begun to demand that large public facility agencies adopt and implement building information modeling (BIM) in their business processes. GZAR have published BIM guideline and start BIM pilot in couple projects. Most of these are technical specifications that are useful at the project level, but no support for the organization-level adoption effort.</p> <p>BIM has significant benefits for large project. Thus, BIM is encouraged to be applied for the Pinggui Workers' Hospital project. For other work components, such as health/elderly-care center, the skill and knowledge sharing center, since the construction scope is relatively small and the contract value is lower as well, BIM will not be applied to increase the competences by allowing the participation of small contractors, which may have no capacity of BIM.</p>				

B. Goods and Supply Packages

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
(1) Open competitive bidding (OCB) to be used for the ADB financed contract packages for high-tech medical equipment				
<p>Option 1: OCB advertised internationally Advantage: more competitiveness for high-tech medical equipment, ensure the quality of medical equipment</p> <p>Disadvantage: English bidding documents need to be prepared, more working load for PMO. Market research showed that domestic market is mature in providing the works and goods that is needed under the project.</p>	6	6	7	19
<p>Option 2: OCB advertised nationally (OCB-AN) Advantage: Easy to operate, less time consuming on procurement. Disadvantage: due to the restriction of customs' import and export regulations, some high-tech medical equipment are request for advertised internationally</p>	5	4	7	16
<p>For most good procurement packages, OCB advertised nationally will be recommended due to the domestic market is mature.</p> <p>However, for some high-tech medical equipment, there may have no substitutable products in the PRC. For these products, if imported with original packaging, it will involve customs clearance and other matters, based on the "Measures for the Implementation of International Bidding for Mechanical and Electrical Products," the international advertisement is recommended considering about the following benefits:</p> <p>The advertised internationally can encourage the participation of international manufactures and dealers as well to enhance the competitiveness.</p> <p>Part of the mechanical and electrical equipment procured through international procurement; the contractor can apply for tax rebates. Thus, it can reduce the bid price of equipment.</p> <p>The Ministry of Commerce promulgated the relevant regulations for the international procurement. In practice, the government procurement supervision and management department and the Ministry of Commerce will perform certain supervisory functions on the use of international mechanical and electrical products bidding projects to strengthen the quality of bidding documents and ensure project compliance.</p>				
(2) Contract Packaging for goods				

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
Option 1: package all medical equipment into a single goods package Advantage: one dealer will handle everything; time saving, and easy for contract management Disadvantage: medical equipment industry is highly specialized. The manufacturer may only produce for certain equipment, thus a single goods package can restrict the participation of most manufactures.	6	5	5	16
Option 2: one package with different lots Advantage: both small and large contractors or suppliers can bid for individual contracts or for a group of similar goods or works. manufactures can participate directly Disadvantage: time consulting on procurement and goods supply, hard for contract management	7	7	8	22
Overall speaking, packaging different types of medical equipment into one package can increase the procurement scale and contract amount, thus facilitating the market competition. At the same time, it can reduce the duplication process in the procurement. Finally, with only one supplier awarded, it is easier for PMO and owners to manage the contract. However, placing all medical equipment under one contract package also has higher risks, including: (i) with low correlation between different equipment, the manufacturer has less possibility to win the bid by himself. (ii) the bid preparation and bidding process is time consuming. (iii) If procurement items vary a lot, the manufacturer cannot directly participate in the bidding, and only dealers can win the bid, which may reduce a higher cost. Therefore, it is necessary to ensure sufficient competition and efficiency through flexible packaging or introducing different lots under one package. The package (lots) combination must be scientific and reasonable, to fully understand the relevance of each medical equipment, to understand the product composition of the manufacturers, as well as the quality of equipment, through investigation and research. For the medical equipment of hospitals at township-level, since it is all widely-used and low-tech equipment, to ensure the efficiency and reduce the working load of people, one single package for all medical equipment for hospital at township-level is recommended. During the preliminary design, a medical specialist and the owner of hospital shall participate into the design and preparation of bidding document. The final packaging of medical equipment may vary.				
(3) Contract packaging for IT systems				
Option 1: purchasing equipment separate from IT services Advantage: can recruit more specialized group on equipment, and system development separately, more competitiveness Disadvantage: may have incompatibility problem.	9	6	3	18
Option 2: purchasing as an integrated contract. Advantage: good compatibility, higher quality, and overall performance, higher customizable Disadvantage: time consuming on procurement, higher risk on procurement and contract management, higher cost	9	9	9	27
The information system for hospital is relatively complex, including both software and hardware, including follow-up maintenance. The software package contains system software, tool software, application software, etc., while the hardware includes PC, storage equipment, network equipment, etc.				

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
<p>Considering the professional knowledge and equipment supply with technical complex are required, and the importance to achieve the entire project objectives, therefore, smart hospital (hardware) and medical community information system (software) should be integrated into one contract to attract reputable suppliers, integrated database, compatible design, and consistent culture of the system as well as competitive prices.</p> <p>Based on the market research (as can be seen from the appendix), there are enough potential bidders can provide both equipment and development on the smart hospital.</p>				

C. Consultancy Services

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
(1) Consulting services – PMISC or individual consultant				
Option 1: PMISC Advantage: easy to manage, the quality can be ensured, can provide systematic service as needed Disadvantage: relatively higher cost	9	9	8	26
Option 2: Individual consultant Advantage: relatively lower cost, shorter time on procurement Disadvantage: more working load for PMO, hard to provide systematic consulting service and knowledge sharing to PMO and IAs, poor communication between individual consultants.	7	7	8	22
Based on the previous experience, qualified individual consultant is hard to recruited. And it will also add more pressure on PMO. And this project is quite complicated comparing with other domestic project, many consultants with different background is needed, such as medical, hospital construction, IT, etc. Thus option 1 is recommended				
(2) Consulting services – PMISC, Pinggui Comprehensive Public health-care system study and design, and Construction Supervision				
Option 1: QCBS (90:10). Advantage: ensure the quality of consultants Disadvantage: higher cost anticipated	9	9	9	27
Option 2: QCBS (80:20, 70:30, 50:50). Advantage: relatively lower cost Disadvantage: higher risk on the quality of consultants	8	8	8	24
QCBS method will be adopted for selection of PMISC, Pinggui Comprehensive Public health-care system study and design, and construction supervision unit. Also, the performance-based specifications (TOR – Terms of Reference) should be adopted. Quality and cost weightings are chosen based on complexity and impact of the assignment and typically range from 90% to 70% for quality. Since the quality of the consulting services is very important to ensure the proper service delivery with qualified consultants, and the task is quite complex, thus option 1 (90:10) is considered as more appropriate method.				
(3) Consulting services – environmental monitoring agency, external resettlement and social monitoring and evaluation				
Option 1: QCBS method. Advantage: ensure the quality of consultants Disadvantage: Full technical proposal shall be prepared, time consuming	7	5	5	20
Option 2: CQS method	10	10	8	28

Strategic Options Description	Feasibility (1–10)	Suitability (1–10)	Acceptability (1–10)	Overall (3–30)
Advantage: less time consuming, more interested firms Disadvantage: only suitable for packages with small value				
CQS will be adopted for selection of environmental monitoring firm and external land acquisition and resettlement monitoring services, EMDP and SGAP monitoring and most study projects due to rather small value. Consultants' qualification is important than cost. Option 2 is considered as more appropriate method and easier for contract management.				

SECTION 6: PROCUREMENT STRATEGY SUMMARY

A. Advance Contracting and retroactive financing

22. All advance contracting and retroactive financing will be undertaken in conformity with ADB Procurement Policy and Regulations (2017, as amended from time to time). The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower has been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

23. Advance contracting. Advance contracting will apply to the specific work packages as indicated in the initial procurement plan (W-KDS01 Mining site environment and surface water restoration, W-KDS02 Mining tailings collection, treatment, and disposal in landfill) and some consulting packages (CS1 Project Management and Implementation Support, CS5 Start-up Consultants, and CS6 Construction supervision for all works). Advance contracting will include all procurement steps up till prior to contract award.

24. Retroactive financing. The maximum number of eligible expenditures for retroactive financing is up to the equivalent of 20% of the total ADB loan, incurred before loan effectiveness, but not more than 12 months before the signing of the loan agreement. Retroactive financing will apply to the advance contracting packages as indicated above and in the initial procurement plan.

B. Procurement Packaging and Scheduling

25. The indicative procurement plan has been prepared with the following assumptions:

- the packages distributions provided is tentative and may vary as per the requirement of carrying out the program.
- The estimated contract value in the plan is based on the FSR which is tentative and may vary.
- The advertisement date mentioned for the packages are tentative and may be conducted earlier, or later, as per the requirement of the program.
- Consultancy service contracts will be prioritized to be procured as soon as possible.
- The Estimated Value indicated for each contract package will also be impacted with the variation in the Exchange Rate.
- Non-ADB financed contracts will be listed in the procurement plan under a separate list from the ADB financed contracts.

ADB financed packages:**Goods, Works, and Nonconsenting Services**

Package No	General Description	Estimated Value (\$ million)	Procurement Method	Review (Prior / Post)	Bidding Procedure	Advertisement (Quarter/Year)	Comments
	<u>Civil Work</u>						
W-KDS01	Mineral mining site environment and surface water restoration	\$9.59	OCB (AN)	Prior	1S1E	Q4/2021	AC
W-KDS02	Mineral mining tailings collection, treatment, and disposal in landfill	\$8.08	OCB (AN)	Prior	1S1E	Q4/2021	AC
W-WH01	Pinggui Workers' Hospital Construction and installation works	\$71.00	OCB (AN)	Prior	1S1E	Q2/2022	
C-HE01	Pinggui Integrated Health and elderly care center building work and installation engineering	\$5.17	OCB (AN)	Prior	1S1E	Q1/2022	
	<u>Goods</u>						
E-WH01	Smart hospital information system and medical community platform	\$7.69	OCB (AN)	Prior	1S1E	Q3/2023	
E-WH02	Pinggui Workers' Hospital medical equipment (Lot 1)	\$8.17	OCB (AI)	Prior	1S1E	Q2/2024	
	Pinggui Workers' Hospital medical equipment (Lot 2)	\$8.17	OCB (AI)	Prior	1S1E	Q3/2024	
	Pinggui Workers' Hospital medical equipment (Lot 3)	\$8.17	OCB (AI)	Prior	1S1E	Q4/2024	
	Pinggui Workers' Hospital medical equipment (Lot 4)	\$8.17	OCB (AI)	Prior	1S1E	Q4/2024	
E-HE01	Elderly care and rehabilitation equipment	\$0.80	OCB (AN)	Post	1S1E	Q4/2022	
E-KS01	Vocational training experiment and testing equipment	\$2.40	OCB (AN)	Post	1S1E	Q4/2023	
E-RH01	Township/community clinic medical equipment	\$8.99	OCB (AN)	Prior	1S1E	Q1/2022	
Consulting Services							
CS1	Project management and Implementation Support	\$2,300,000	QCBS	Prior	Q1/2022	FTP	90:10/AC
CS2	External Environmental Monitoring	\$350,000	CQS	Prior	Q2/2022	STP	
CS3	External resettlement monitoring	\$200,000	CQS	Prior	Q2/2022	STP	
CS4	External EMDP and SGAP monitoring	\$200,000	CQS	Prior	Q2/2022	STP	

CS5	Start-up Consultants including procurement/contract management, environment, resettlement	\$150,000	CQS	Prior	Q3/2021	STP	AC
CS6	Construction supervision for all works	\$2,400,000	QCBS	Prior	Q4/2021	FTP	80:20/A C
CS7	NBS approach development and application for environmental restoration and policy framework	\$250,000	CQS	Prior	Q1/2021	STP	
CS8	Pinggui comprehensive public health-care system (medical community) study and design	\$450,000	CQS	Prior	Q2/2022	STP	
CS9	Pinggui Integrated Health and Elderly Care Center operation study and capacity development	\$350,000	CQS	Prior	Q2/2022	STP	
CS10	Knowledge and Skills Sharing Center operation, curriculum setting, and certification study	\$300,000	CQS	Prior	Q1/2023	STP	
CS11	Human resources development and training for vocational training teacher	\$150,000	CQS	Prior	Q2/2023	STP	
CS12	International Green Procurement specialist	\$100,000	ICS	Prior	-	Q4/2021	AC Advertising international

Non-ADB financed project

General Description	Estimated Value (cumulative \$ mil)	Estimated Number of Contracts	Procurement Method
Goods, Works, and Nonconsenting Services			
Access roads (works)	\$3.10	1	PRC domestic procedure
Knowledge and skill sharing center (works)	\$19.31	1	PRC domestic procedure
Pinggui Integrated Health and elderly care supporting building –decoration (works)	\$0.46	1	PRC domestic procedure
Consulting services			
Kedashan Environmental monitoring (consulting service)	\$0.39	1	PRC domestic procedure (TOR to be approved by ADB before the advertisement advertising)
Survey, design, costing, social stability risk assessment and other consulting services	\$8.52	Multiple contracts	PRC domestic procedure

Works:

26. Contract packaging for the main works, including the mining site environment and surface water restoration, Mining tailings collection, treatment and disposal in landfill, Access roads, Pinggui Workers' Hospital building civil engineering and installation engineering (including main structure, finishing, outdoor engineering, MEP, HVAC, elevators, and etc.), Health and elderly-care building, Knowledge and skill sharing center, were done to reflect the most appropriate contract sizes, procurement method and bidding procedure, which are in line with strategic priorities of the PMO to meet the different demands, locations, and construction time schedule.

27. The market assessment confirms that these works are common in the PRC and the market is highly competitive with enough contractors with general contractor licenses. All contracts' packages are subject to post review (sampling) except that the first package of each type of procurement category for each subproject. Considering about the risk and complexity, the contract package Pinggui Workers' Hospital will be subject to prior review of ADB, to ensure correct procurement procedures and the quality of bidding documents.

28. It is recommended that:

- National advertisement be adopted to all work contracts.
- Traditional DBB mode will be applied for all works, including the Pinggui Workers' Hospital.
- There will be one integrated work package under the Pinggui Workers' Hospital to ensure the coordination between each systems and to reduce the risk of management.
- The mining site environment and surface water restoration, mining tailings collection and health/elderly-care building can be design-ready and procurement-ready.
- The Project Management and Implementation Support, the Construction supervision for all works, and start-up consultants can be advanced contracting.
- BIM technology is encouraged to be applied during the design, construction, and operation for the Pinggui Workers' Hospital project. But a working mechanism on BIM management and data sharing shall be established. Meanwhile, a unified BIM platform shall be applied for all stakeholders. The owners should try to apply the Pinggui Workers' Hospital as a BIM pilot project in GZAR to receive the assistance from provincial level.

Goods and Supply:

29. The packaging for goods, including IT equipment for Pinggui Workers' Hospital, medical equipment for Pinggui Workers' Hospital, medical equipment for hospital at township-level, elderly-care and rehabilitation equipment, Vocational training experiment and testing equipment for the knowledge sharing center.

30. Based on market assessment, the Pinggui Workers' Hospital IT equipment, elderly-care and rehabilitation equipment, training experiment and testing equipment, medical equipment for hospital at township-level to be procured are common in PRC and the market is competitive with enough suppliers. Therefore, OCB-AN will be applied for those contract packages.

31. For medical equipment for Pinggui Workers' Hospital, since some high-tech, international original packaging equipment will be procured, thus OCB-AI will be applied. During the procurement of medical equipment, due to the special nature of medical equipment, the design institute, Pinggui Health Bureau, the owner of hospital shall assist bidding agencies to improve

the bidding documents to make them more applicable to the bidding and procurement of specific medical equipment.

Consulting Services:

32. Consulting services packages to be procured under this project include project management and implementation support, construction supervision, external monitoring on EIA/EMP, LAR, EMDP/SGAP, green procurement specialist, and some researching or study contract packages. In which, the project management and implementation support, the construction supervision and the Pinggui Comprehensive Public health-care system study and design will be selected through QCBS with a quality–cost ratio of 90:10. Other firms will be selected using CQS.

33. Advanced contracting for construction supervision, the PMISC and green procurement specialist has been proposed under the project as advance procurement action. The start-up consultants shall be advance contract to provide service as soon as possible.

34. The PMISC consists of Project Management Specialist, Construction Management Specialist, Civil and Low Impact Development Specialist, Health-care and Medical Service Specialist, Elderly care and Health/Elderly-Care Specialist, Medical and Health/Elderly-Care Facility Architect, Medical and Health/Elderly-Care Building Engineer, Health-care Facility Construction Management Specialist, Medical and health-care Equipment Specialist, TVET Curriculum Development Specialist, Medical and Health-care Information System Specialist, Procurement and Contract Management Specialist, Financial and Economic Specialist, Environmental Specialist, Social, Gender, Indigenous People Specialist, Resettlement Specialist, PPMS Specialist, Human Resource Development & Training Specialist and BIM engineer. The PMISC will provide overall construction management, contract management, design reviewing, bidding document reviewing, financial support and etc., to both PMO and IAs.

35. The start-up consultant team consists of one procurement and contract management specialist, one environmental specialist, and one resettlement specialist. Those three specialists will provide assistance to PMO on ADB's policy related to procurement, EIA, resettlement at early stage.

Capacity Development Activities Using Statement of Expenditure Procedure

36. For any ADB financed capacity development activities reimbursed with SOE procedure, such as trainings, study visits, workshops, seminars, and social and gender development activities, an annual training plan or human resource development plan will be prepared by PMO, submitted to ADB for prior review. The eligible expenditures will be reimbursed with SOE procedure in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) and domestic financial and accounting regulations. Those activities are not included in the procurement plan.

C. Procurement Method

37. OCB is identified as the most suitable method for the project to ensure best value for money for all contracts. According to the market risk analysis, the works and goods procurement of this project are fully supplied in the domestic market of the PRC, so domestic advertising is adopted, except for some high-tech medical equipment for Pinggui Workers' Hospital.

38. The procurement of consulting services in accordance with ADB's Procurement Policy 2017, the Procurement Regulations for ADB Borrowers 2017, the QCBS, CQS and ICS will be used.

D. Prequalification

39. Prequalification will not be used for any of the packages of works and goods for this project. However, consultant shortlist procedure will be used for QCBS contract of consulting service.

E. Bidding Procedures

40. The bidding procedures for works and goods will follow a one-stage, one envelope process (1S1E).

41. The local and national e-procurement platforms will be used partially for e-publication only for all packages under the project, such as the China Tendering & Bidding Public Service Platform.

F. Specifications

42. Conformance technical specifications shall be prepared for works and goods. Items listed in the Bill of Quantities shall be cross referenced with the relevant clauses of the technical specifications. Technical specifications: clear standards for civil engineering, and specific inspection methods for the consistency of standards. For goods contracts, technical specifications should clearly describe their features. Technical specifications should also include requirements for environment, safety, and technical management information.

43. A unified BIM platform shall be used from the design stage to operation stage for the Pinggui Workers' Hospital. The potential bidder shall have working experience on BIM and their key staffs shall have capacities or certificates on BIM.

44. Equipment performance requirements can be determined by the results of consulting activities. Requirements for installation, operation manual, maintenance and training needs should also be taken into consideration.

45. For consulting services packages, Terms of Reference will be prepared by owner with the assistance of project management consulting firm.

46. Green procurement may introduce specifications relating to sustainability. The green procurement requirements shall be considered during the procurement process, which can potentially reduce environmental pollution, promote the launches of eco-friendly products, etc. As of June 2021, there is no clear definition of green procurement in the PRC. In the PRC, green procurement is a concept that is encouraged during government procurement. In the Government Procurement Law, it says, "the government procurement should contribute to the objective of national economic and social development, including environmental protection." Meanwhile, the PRC government has published some relevant regulations to encourage the usage of energy saving equipment and green materials, including: "Opinions on the implementation of Government Procurement of Environmental label products," "Basic requirements for government procurement of green buildings and green building materials (for trial implementation)." Those regulations give priority to products with environmental-friendly labels or energy saving labels during procurement. Internationally, many governments and organizations have published some regulations and laws about green procurement. A green procurement guideline will be prepared by the international procurement specialist to guide the green procurement practices under this ADB project by fully considering the existing domestic regulations and some international best practices and will be further submitted to HMG for its consideration in Hezhou.

G. Review Requirements

47. Following the ADB Procurement Review: Guidance Note on Procurement Review (June 2018, as amended from time to time) for (i) all ADB financed contracts with advance contracting, and (ii) the first ADB financed contract of each type (OCB advertised internationally or nationally) for works and goods, ADB's prior review and approval will be required.

48. To avoid procurement risks, the packages identified as high risk, including the Pinggui Workers' Hospital building and installation engineering and the Pinggui Workers' Hospital medical equipment, will be prior review, to ensure the quality of bidding documents and all consulting service contracts should be applicable with prior review.

49. Other works and goods supply contracts will be subject to post review (sampling) and post procurement audits. Post review (sampling) will be conducted at annual project review missions by ADB or its consultants or on an ad hoc basis when necessary.

H. Standstill Period

50. In the PRC's domestic bidding practice, as the provision of TBL, the publicity period should not less than three (3) days. And according to the Regulation on Implementation of the TBL, the bidder could make a complaint to the relevant supervision department within 10 days from the date it knows or should have known about the bidding activities do not conform to the provisions of laws and relevant regulations.

51. The PRC-specific SBD (updated 2020) allows for standstill period for EA to choose as an option (e.g., national provision, ADB recommended provision, or none). Suitable provision shall be indicated in the Bid Data Sheet if such a provision is applicable.

I. Standard Bidding Documents and Contract Forms

52. Since this project is a loan project of ADB, according to the common practice in the PRC, all goods and works contracts for payment of ADB loans (see the procurement plan) are prepared in accordance with the PRC specific SBD (updated 2020) stipulated by ADB and the PRC Ministry of Finance (MOF). In terms of decentralized rural sewage treatment facilities and domestic garbage disposal facilities of this project, which are not construct-only contracts, which have been included some auxiliary equipment and materials, such as pumps, valves, pipes and communication cables, etc. are combined with the civil engineering to generate an integrated contract for bidding. In this case, the item listed in the BOQ shall be taken as the unit of measurement and payment, and equipment supplied by the bidder shall be evaluated according to the requirements of the technical specifications. In addition, the bidding documents for consulting contracts are compiled according to ADB standard templates. All above-mentioned SBDs or templates can be used are as follows:

- PRC specific SBD for Works (updated in 2020);
- PRC specific SBD for Goods (updated in 2020);
- ADB Template for IT services SBD;
- ADB Template for RFQ Works;
- ADB Template for RFQ Goods;
- RFP Template for Time-based Consulting Services (QCBS 90:10 weights); and
- RFP Template for Lump Sum Consulting Services (CQS).

53. A green procurement specification will be developed during the project implementation, which shall be incorporated into the SBDs and contract.

J. Pricing and Costing Methods

54. Mainly unit price/measurement costing is expected for BOQ-based contacts. Generally, the unit price contract based on BOQ is adopted in civil engineering. If the bill includes equipment, all the items in the bill of equipment are merged into the bill of quantities of civil engineering and paid by measurement.

55. Abnormally low bid provisions will apply for all OCB packages to mitigate quality risk from potential substandard subcontracting.

56. The goods packages will follow ADB standard template for lump sum and unit price contract.

57. Time-based contract is generally applied for consulting services. The pricing and costing method will be defined in the TOR.

K. Key Performance Indicators

58. As part of the contract management strategy, the PMO will identify key performance indicators (KPIs) for the whole project. Some of the KPIs for the projects are suggested below:

- The design readiness and procurement readiness percentage
- Mobilization of a procurement agent
- Mobilization of start-up consultants, construction supervision, PMISC, and external monitoring agencies
- Mobilize personnel on procurement and contract management
- The progress deviation between the actual bidding schedule and the procurement plan
- The cost deviation between contract amount awarded and estimate
- Green procurement specification established and applied
- The on time project completion within the contract period
-

L. Evaluation Method

59. Qualification criteria only ensure bidder with the appropriate professional, financial, and technical capacity to successfully perform the contract will be awarded the contract. Qualification requirements have been limited to those necessary to establish that a bidder has such capacity. Market knowledge allows preparing the qualification criteria based not only on the needs of the project but also on the possibilities of the targeted market.

60. The bid evaluation method will be the lowest evaluated price with responsive bids for most ADB financed OCB goods and works packages as it well reflects the fairness and meeting the minimum criteria for the competence.

61. For ADB financed consulting services on construction supervision, PMISC, design and study on the health-care system in Pinggui, the weight of 90:10 for technical and financial proposals is adopted for QCBS method for consultancy services to reflect the importance of the technical competence, qualifications, and experiences in delivering the services.

62. Works and goods bids evaluation are to organize professional evaluation teams to assess all bids fairly and professionally, to choose and confirm the bidding documents that fulfill the requirements, and to complete all the works required by the contract in a timely and high-quality manner, more importantly, the green procurement requirements should be considered during the evaluation of bids. Appropriate evaluation criteria considering life cycle cost shall be established in the evaluation of bids, particularly critical mechanical items, such as HVAC.

63. Merit points will not be applied to our project at this moment. Once the MOF updates the SBDs and incorporates the merit point into the SBD, the merit point system will be included in the evaluation.

M. Contract Management Approach

64. With the assistance from start-up consultants, a detailed contract management plan (CMP) for all contracts shall be in place prior to the implementation, which may include graphs or flowcharts (with the time frame) that will illustrate these procedures in a visual form (certain standard forms of contract provide such graphs).

65. The PMO and PIUs are complementing its contract management capabilities by hiring start-up consultants and the PMISC firm.

N. Value for Money

66. Strategic procurement planning was carried out to identify procurement risks, develop mitigating measures, review procurement options, and agree on fit-for-purpose procurement arrangements.

67. The project will achieve value for money through its procurement processes. From the market and options assessment, it will aim to attract qualified bidders through the development and adoptions of (i) appropriate evaluation criteria considering about life cycle cost shall be established in the evaluation of bids, particularly critical mechanical items, such as HVAC.; (ii) ensure abnormally low bid provisions are included to mitigate quality risk; (iii) use OCB-internationally advertised method for medical equipment to drive open competition from qualified contractors; (iv) separate medical equipment into different packages to encourage the participation of manufactures, instead of dealers only; (v) use the traditional DBB mode to ensure the management efficiency; (vi) the application of green procurement can reduce the energy consumption and cost for the building in the life cycle.

Appendix:

Appendix 1 Similar Project Experience for PMO and IAs

Appendix 2 The ENR top 250 Global contractors in 2018 – from Mainland PRC (ENR)

Appendix 3 Potential Contractors for Hospital project based on the qualification

Appendix 4 Similar hospital projects conducted in Hezhou or GZAR

Appendix 5 Potential Contractors for mining tailing treatment and landfill

Appendix 6 Similar mining tailing treatment and landfill project in GZAR

Appendix 7 Top 10 medical equipment manufacturers worldwide

Appendix 8 Top 10 medical equipment manufacturers in the PRC

Appendix 9 Top medical equipment dealers (for import and export) in the PRC

Appendix 10 Potential consultants for TVET project (Training, HR development, and research)

Appendix 11 Potential consultants (experts) for Health-care system design and study

Appendix 12 Potential consultants (firms) for Health-care system design and study

Appendix 13 Potential bidders for construction supervision

Appendix 14 Potential bidders for Smart Hospital IT System

Appendix 1 Similar Project Experience for HPMO, Implementing Agencies, and PIUs

Donor	Project Name	Bid Evaluation Year	General Description	Contract Price (10K CNY)	Procurement Method	No. of Bidders	No. of Qualified Bidders
PMO							
WB financed water resource project							
WB	Construction supervision	2019.12	The supervision company will be introduced to set-up project supervision department on the site for the project and act as the extension of management team of Hezhou Environment Improvement Project.	2,201.35	QCBS- Quality And Cost-Based Selection	-	2
WB	Elevator	2018.11	Elevator	29.80	RFQ- Request for Quotations	-	3
WB	Huang'ansi and Shizigang Flood Drainage Rivers Comprehensive Treatment	2018.11	Water treatment plant	14,249.94	RFB- Request for Bids	-	3
PUCIC							
	Pinggui District Gold and Jewelry Industrial Park Product Processing Area Phase III Plot Earthwork Project	2020-6-02	Earthwork, covering an area of about 210,741.9 m ² , of which the excavation volume is about 1,392,008.8 m ³ and the filling volume is about 195,508.8m ³ .	2,416.31	Public open bidding	-	3
	Pinggui management area disease prevention and control center construction project	2017-2-16	The total construction area is 2,743.38 m ² . The building land use area is 669.05 m ² , with 4 floors above ground; the building height is 14.9 m (the height from outdoor ground to the main roof surface), with frame structure.	483.86	Public open bidding	-	3
	Pinggui District 2019 urban shanty town village transformation project Wenhua resettlement area	2020-09-09	The total area of this project is about 19,358.56 m ² , and the total construction area is about 74,467.56 m ² .	14,518.03	Public open bidding	-	3

Donor	Project Name	Bid Evaluation Year	General Description	Contract Price (10K CNY)	Procurement Method	No. of Bidders	No. of Qualified Bidders
	Pinggui District Poverty Alleviation Migrant Cultural and Sports Park	2020-7-24	The total land area of the project is 25,476.51 m ² (about 38.21 mu), the total construction area is about 13,209.56 m ² , the underground parking garage area is about 11,832.6 m ² ; the park green area is about 19,084.5 m ² .	4,228.58	Public open bidding	-	3
	Pinggui Senior High School relocation project	Phase I: 2013.9.27 Phase II: 2014.12.18 Phase III: 2015.6.11	Phase I: 20,571.439m ² , consisting of three units of teaching building 1#, 2# building, experimental building Phase II: comprehensive building, student canteen and student dormitory: total construction area of 37,118 square meters, Phase III: library, physical arts building, gymnasium (the construction area of the three buildings is about 16,000 square meters.	Phase I: 4,501.841 Phase II: 7,085.85 Phase III: 5,852.47	Public open bidding	-	3
	Pinggui First Kindergarten Project	2013-1-23	Project planning land area of 10,437.8 m ² (about 15.7 acres), construction of a teaching complex building and toilets, outdoor activity venues, campus green beauty brightening and other related facilities supporting engineering.	1,203.42	Public open bidding	-	3
	Hezhou Pinggui District Wenhua Experimental School (Phase I) Project	2017-2-10	Newly built school.	9,644.05	Public open bidding	-	3
	Pinggui Culture and Sports Center Project (Phase I) Construction Project	2017-7-9	Construction of the first phase of the project (badminton court, library, swimming pool) and other works	10,087.79	Public open bidding	-	3
HMIGC							
	Guangxi Hezhou Mining Investment Group Co., Ltd Wanggao Town Zengya Area Rural Infrastructure Construction Project - Road Network Project (Heping Street)	2017-03-24	Road network project (Heping Street)	1,518.62	Public open bidding	-	3

Donor	Project Name	Bid Evaluation Year	General Description	Contract Price (10K CNY)	Procurement Method	No. of Bidders	No. of Qualified Bidders
	Hezhou New Powder Processing Park Project (Phase II) Site Leveling Project	2020-06-17	Earthworks, demolition works, construction of retaining wall works, etc.	1,555.19	Public open bidding	-	3
	Pinggui District Huangtian Ying Shi Shunfa Stone Quarry and surrounding ecological restoration project	2020-03-30	Total land treatment area of 19.3128 hectares	4,078.02	Public open bidding	-	3
	Site leveling project of Hezhou new powder processing park project (Phase I)	2020-06-11	Earthworks, demolition works, construction of retaining wall works, etc.	5,525.86	Public open bidding	-	3
	Guangxi Hezhou Eco-Industrial Park New Materials Sub-Park Construction Project Site Leveling Project (Phase I)	2020-09-10	Earthworks, demolition works, construction of retaining wall works, etc.	5,830.65	Public open bidding	-	3
	Hezhou Fuchuan Yao Autonomous County Baisha Town Baisha Community, Chaqing Village and other 2 villages land remediation project (project area II)	2021-01-14	The scale is about 1,128 mu, and about 1,039 mu of new arable land is planned, including about 1,000 mu of paddy fields. It includes land leveling project, irrigation and drainage project, field road project, farmland protection and ecological environment maintenance project and other projects.	6,922.13	Public open bidding	-	3
	3 villages (communities) including Baisha Community of Baisha Town and Dawei Village of Fuyang Town in Fuchuan Yao Autonomous County, Urban-Rural Construction Land Increases and Decreases Project	2019-03-27	Contains land leveling project, field road project, irrigation and drainage project, farmland protection and ecological environment maintenance project, and other projects.	9,660.76	Public open bidding	-	3

Appendix 2: The ENR top 250 Global contractors in 2018 – from Mainland PRC (ENR)

Company name	Rank in 2018	Rank in 2017	Rank changes	Revenues (\$100 million)		New contract value signed in 2017
				total	International revenues	
China State Construction Engineering Corporation	1	1	0	1,450.47	139.72	3,292.59
China Railway Corporation	2	2	0	1,315.56	60.98	2,395.17
China Railway Construction Co.	3	3	0	1,022.37	70.03	2,234.64
China Communications Construction Group Co.	4	4	0	753.83	231.02	1,630.85
China Power Construction Group Co.	6	5	-1	456.63	122.43	847.75
Shanghai Construction Industry Group Co.	9	9	0	305.31	6.81	382.31
China Metallurgical Corporation	10	8	-2	300.99	28.62	814.13
China Energy Construction Yin Co.	12	11	-1	265.99	54.59	697.27
Jiangsu Nantong Sanjian Group Co.	25	35	10	132.55	4.72	**
Hunan Changsha Construction Group Co.	27	**	**	125.07	1.49	162.03
Shaanxi Construction Group	28	26	-2	124.17	0	217.92
Zhejiang Construction Investment Group Co.	30	28	-2	116.44	9.21	152.44
Beijing Urban Construction Group Co.	31	29	-2	106.83	3.92	223.05
Anhui Construction Industry Group Co.	38	40	2	94.18	2	138.77
China Chemical Engineering Corporation	39	38	-1	91.49	27.29	152.17
Qingjian Group Co.	40	41	1	88.98	18.05	86.1
China Petroleum Engineering Construction Corporation	42	101	59	83.14	37	155.37
Jiangsu Zhongnan Construction Group Co.	44	47	3	75.01	1.21	106.26
Beijing Construction Group Co.	46	43	-3	74.05	5.49	137.61

Company name	Rank in 2018	Rank in 2017	Rank changes	Revenues (\$100 million)		New contract value signed in 2017
				total	International revenues	
Shanxi Construction Investment Group Co.	47	**	**	72.18	0.69	127.98
China Machinery Industry Group Co.	57	56	-1	60.06	45.09	136.62
Shanghai Urban Construction (Group) Co.	61	59	-2	57.61	3.25	97.25
China Eastern Electric Group Co.	65	61	-4	55.09	3.41	58.25
Sinopec Refining and Chemical Engineering (Group) Co.	68	53	-15	53.63	21.12	
Jiangsu Nantong Lijian Construction Group Co.	69	70	1	52.52	1.74	59.79
TBEA Corporation	71	71	0	48.65	9.83	58.19
Xinjiang Corps Construction Engineering (Group) Co.	84	74	-10	41.2	6.8	6.8
Jiangsu Construction Group Co.	85	**	**	40.12	5.2	59.38
Chalco International Engineering Co.	87	121	34	39.15	2.24	80.26
China General Technology (Group) Holdings Limited	103	107	4	31.05	7.61	
Hebei Construction Group Co.	113	**	**	27.53	0.56	55.15
Zhejiang Transportation Engineering Construction Group Co.	117	123	6	25.78	1.38	63.27
China Wuyi Industrial Co.	123	132	9	23.01	4.9	48.33
CITIC Construction Co.	127	127	0	21.39	20.86	16.25
Beijing Sumitomo Group	128	42	-86	21.17	0.81	32.67
Yan Jian Group Co.	130	135	5	20.11	4.52	22.89
Hunan Road and Bridge Construction Group Co.	135	**	**	19.8	0.89	26.19
Nantong Construction Group Co.	136	116	-20	19.4	2.34	24.1

Company name	Rank in 2018	Rank in 2017	Rank changes	Revenues (\$100 million)		New contract value signed in 2017
				total	International revenues	
China Jiangsu International Technical and Economic Cooperation Group	140	131	-9	18.49	5.03	
Harbin Electric International Engineering Co.	148	149	1	16.28	16.28	1.88
Shanghai Electric Group Co.	154	185	31	15.57	7.63	19.86
Northern International Cooperation Co.	158	**	**	14.65	8.25	10.17
Anhui Jian'an Group Co.	177	**	**	12.43	1.51	38.9
Sinopec Zhongyuan Petroleum Engineering Co.	188	210	22	11.52	5.36	11.52
China Electric Power Technology & Equipment Co.	203	202	-1	10.73	10.73	23.07
Shandong Dejian Group Co.	205	**	**	10.61	2.6	20.71
China Jiangxi International Economic and Technical Cooperation Corporation	209	211	2	10.29	8.79	9.1
China Great Wall International Engineering Co.	212	**	**	10.13	4.6	15.99
China Nonferrous Metals Industry Co.	219	**	**	9.77	9.67	9.77
Weihai International Co.	225	**	**	9.2	9.2	11.31
China National Nuclear Corporation China Zhongyuan Foreign Engineering has	228	241	13	9.15	9.15	
China Water Conservancy and Electric Power Foreign Corporation	229	212	-17	9.02	9.02	9.75
Shenyang Yuanda Aluminum Engineering Co.	243	193	-50	8.43	3.58	6.53
Sinosteel Equipment Co.	247	206	-41	8.3	3.34	13.3

Appendix 3: Potential Contractors for Hospital project based on the qualification

No.	Integrity Number	Name	Responsible person	registration area	business scope	similar experience
Based on the scope of hospital project, contractor with Grade 1 and Special Grade can be qualified for the hospital project. In the PRC, based on the data provided by Ministry of Housing and Urban-Rural Development, there are 6,782 enterprise with Grade 1 and Special Grade. For our project, to ensure the quality of contraction, a special grade qualification of general construction contracting can be required.						
1	91450000198229934T	Guangxi Jiangong First Construction Engineering Group Co.	Yang	Guangxi Zhuang Autonomous Region		<p>Longhua New Area People's Hospital New Surgical Building Project This project has a land area of 10,007.5 m² and a total construction area of 102,808.1 m². CNY54,867,900</p> <p>Bazhong Children's Hospital Construction Project Total construction area of 19,987.31 m². Business complex building: 10F above ground (partial 5F), 42 m high, area: 16,453.32 m²; 1F underground, 42 m high, area: 3,533.99 m². CNY65,204,000</p>
2	914500007451487049	Guangxi Construction Industry Group Holding Co.	Lu	Guangxi Zhuang Autonomous Region		<p>Nanning Fourth People's Hospital dilapidated housing conversion housing renovation project (Phase II) CNY1.7057877302 million</p> <p>Hainan Provincial People's Hospital South Hospital (Mission Hills) Project Engineering General Contractor (EPC) CNY1.0258733 billion</p> <p>Yulin Third People's Hospital Medical and Health Comprehensive Ward Building Auxiliary Project CNY1,949.188868 million</p>
3	91450000198221473M	Guangxi Construction Industry Group Second Construction Engineering Co.	Huang	Guangxi Zhuang Autonomous Region		Yulin Red Cross Hospital Infectious Ward (Phase II) Project Design and Construction General Contracting CNY6,941.0 million

No.	Integrity Number	Name	Responsible person	registration area	business scope	similar experience
4	91450200198614605J	Guangxi Construction Industry Group Fifth Construction Engineering Co.	Ou	Guangxi Zhuang Autonomous Region		General contracting for construction of the Airport Beidu People's Hospital Project CNY2.11703906 million Construction bids for the construction of the internal medicine complex construction project of the People's Hospital of Longchang City and the hospital complex building in the west of the People's Hospital of Longchang City CNY6.9339811977 billion
5	91450200753718690Q	Eleventh Metallurgical Construction Group Limited Liability Company	Li	Guangxi Zhuang Autonomous Region		Huzhou City Hospital of Traditional Chinese Medicine outpatient and inpatient building new construction project decoration project CNY 64.13 million
6	914506007420950619	Guangxi Huaye Construction Engineering Co.	Liao	Guangxi Zhuang Autonomous Region		Qinzhou Second People's Hospital Health Examination Center Design-Purchase-Construction (EPC) General Contracting CNY19.149413 million Yangshuo County People's Hospital Branch (Phase I) Construction Project (5# Surgical Building, 6# Inpatient Building and Basement) CNY5,014.284472 million
7	91450300198854457U	Guangxi Construction Industry Group Fourth Construction Engineering Co.	Qiu	Guangxi Zhuang Autonomous Region		Internal medicine inpatient complex project of Rongan County People's Hospital
8	91450000569070898M	Guangxi Construction Engineering Group General Contractor of Construction Engineering Co.	Chen	Guangxi Zhuang Autonomous Region		Southern Medical University Shunde Hospital north parking building construction project CNY1.024060865 billion
9	9145020027298084XF	Guangxi Construction Industry Group Third Construction Engineering Co.	Zhang Kai	Guangxi Zhuang Autonomous Region		Infectious disease ward building project of Lingshan County Hospital of Traditional Chinese Medicine CNY1,482.638628 million

No.	Integrity Number	Name	Responsible person	registration area	business scope	similar experience
						Chongzuo Second People's Hospital Renovation and Expansion Project (Phase I) Engineering Construction Project Design-Purchase-Construction (EPC) General Contracting CNY8,938.467932 million

Appendix 4: Similar hospital projects conducted in Hezhou or GZAR

Project name	Owner	Contractor	Contract Amount (CNY '000)	Bid opening	Contract content
Hezhou					
Zhongshan County People's Hospital East Hospital Infectious Disease Building Construction Project	Zhongshan Shengze Development Group Co.	Guangxi Zhongqi Construction Engineering Co.	6,893.68	2020-12-30	The total construction area is 20,148.3 m ² , of which 16,784.8 m ² is the total construction area, not including the underground parking area, the underground parking area (including the area of human defense) is 3,363.5 m ² , the main body is the frame structure.
Hezhou Babu District People's Hospital Construction Project	Guangxi Hezhou Babu District Urban Investment Co.	Guangxi Ruihong Construction Group Co., Ltd. and Guangzhou Hongji Municipal Building Design Institute Co.	11,976.00		comprehensive building, with an area of 15,m ² , 200 planned beds, 9 floors above ground and 1 floor underground, with a total planned land area of 20,000 m ² .
Fuchuan Yao Autonomous County People's Hospital overall relocation project	Fuchuan Yao Autonomous County People's Hospital	Guangxi Fulin Landscape Construction Co.	23,416.19	2020-09-27	The planning design has a total of 499 beds and a total construction area of 89,775 m ² .
Zhongshan County People's Hospital East Hospital Project	Zhongshan Shengze Development Group Co.	Guangxi Construction Group General Contractor of Construction Engineering Co.	9,070.20	2019-10-18	The construction project of the infectious disease building of the East Hospital of Zhongshan County People's Hospital, with a total construction area of 16,292.13 m ² . Frame structure
GZAR					
Liuzhou Construction Engineering Group Co.	Fusui County People's Hospital	Guangxi Construction Group Metallurgical Construction Co.	9,268.6312	2021-02-18	A new building for recreation and medical education is being built. The total construction area is 20,353.75 m ² , with 12 floors and frame structure. The construction content includes

Project name	Owner	Contractor	Contract Amount (CNY '000)	Bid opening	Contract content
					civil engineering, decoration engineering, water supply and drainage engineering, electrical engineering, fire engineering, intelligent engineering, etc.
Guangxi Jiangyong First Construction Engineering Group Co.	Liuzhou Xintai Real Estate Management and Development Company	Guangxi Construction Group Third Construction Engineering Co.	5,145.465435	2021-01-05	Renovation of Building 14 of Liutie Central Hospital, with a total construction area of 11,854.52 m ² .
Guangxi Construction Industry Group Second Installation Construction Co.	Yangshuo County People's Hospital	Guangxi Xipeng Construction Engineering Co.	5,014.284472	2021-01-04	Total construction area of 2,679.04 m ² , 3 floors on the ground, frame structure. Project content includes: construction drawings range of building decoration and renovation works; electricity, HVAC, water installation works.
Newly built outpatient complex, inpatient building, sewage treatment station, power substation and distribution room, refuse collection point, corridor access and duty room of Gaode Hospital in Haicheng District, Beihai City	Haicheng District Gaode Central Health Center, Beihai City	Guangxi Shengtai Construction Engineering Co.	13,438.4715	2020-12-04	Newly constructed 1 outpatient complex, 1 inpatient building, 1 fever clinic, 1 sewage treatment station, 1 power substation, 1 refuse collection point, 1 corridor access, 1 duty room (two rooms). The total building area is 36,194.01 m ² .
Construction of chongzuo Second People's hospital	Chongzuo Second People's Hospital	Guangxi Construction Industry Group Fourth Construction Engineering Co.	8,938.467932	2020-6-2	The land area is 57,330.68 m ² , the net planning land area is 49,402.02 m ² , the total construction area of the first phase is 102,011.38 m ² , of which: above ground construction area is 44,046.98 m ² , underground construction area is 11,028.91 m ² .

Project name	Owner	Contractor	Contract Amount (CNY '000)	Bid opening	Contract content
Guiping People's Hospital Jiangbei Hospital Logistics Building Engineering General Contracting (EPC) Project	Guiping City People's Hospital	Guangxi Huadong Construction Group Co.	6,509.4600	2021-01-27	This project constructs a logistics building with a total construction area of 16,000 m ² , of which the above-ground construction area is 14,800.00 m ² and the underground construction area is 1,200.00 m ² .
Yulin Bobai County Second People's Hospital Inpatient Business Complex (Phase II) Project and Infection Building Project	Bobai County Second People's Hospital	Guangxi Jiangyong Group First Construction Engineering Co.	16,988.6000	2020-09-15	Expansion of inpatient operation building and new infection building with 310 beds
Rongan County People's Hospital Internal Medicine Inpatient Complex Project	Rong'an County Asset Management Co.	Guangxi Construction Industry Group Fifth Construction Engineering Co.	8,194.015436	2020-12-14	Project site area 1,586.80 m ² , total construction area 23,757.63 m ² .

Appendix 5: Potential Contractors for mining tailing treatment and landfill

No.	Integrity Number	Name	Responsible person	registration area	Registration capital (CNY '000)	Similar project experience
It is recommended that potential contractors have the first grade of professional contracting qualification in environmental protection engineering (can engage in mine rehabilitation works, landfill works, etc.). there are 77 enterprise can satisfy this requirement in GZAR.						
1	91450200198601011P	Liuzhou Construction Engineering Group Co.	Zhong Liqing	Guangxi Zhuang Autonomous Region- Liuzhou	23,990	Liuzhou Lichonggou life waste harmless treatment of the second phase of the project subproject leachate adjustment tank project CNY5.90 million
2	91450000198229934T	Guangxi Jiangyong First Construction Engineering Group Co.	Yang Jun	Nanning, Guangxi Zhuang Autonomous Region	122,453	Geotechnical and Site Leveling Works for Lot C3 of Haixi-Ruyi City CNY6.81 million
3	91450200198601361X	Guangxi Construction Industry Group Second Installation Construction Co.	Pan Haihong	Guangxi Zhuang Autonomous Region- Liuzhou	44,114	Qiu County domestic waste landfill project CNY21.52 million
4	914509812005355282	Guangxi Daye Construction Group Co.	Li Shoukun	Guangxi Zhuang Autonomous Region- Yulin	40,066	
5	91450900200444546H	Guangxi Zhengdi Construction Development Co.	Li Jimeng	Guangxi Zhuang Autonomous Region- Yulin	20,000	
6	91450981711477964C	Guangxi Chengjian Construction Group Co.	Li Yi	Guangxi Zhuang Autonomous Region- Yulin	15,010	
7	91450200198637276B	China Railway Twenty-fifth Bureau Group Fourth Engineering Co.	Zhang Enqiao	Guangxi Zhuang Autonomous Region- Liuzhou City	1,357,954	Dali Haidong He Yuezhou rain garden - landscape civil engineering, total investment CNY14.53 million
8	91450000198220040B	China Energy Construction Group	Rao Zhenfu	Guangxi Zhuang Autonomous Region-	25,800	Guangxi Guigang City Guiping Mugwe Manganese

No.	Integrity Number	Name	Responsible person	registration area	Registration capital (CNY '000)	Similar project experience
		Guangxi Hydropower Engineering Bureau Co.		Nanning		Mining Area Ecological Restoration Project Engineering General Contract (EPC). Total investment of about CNY 640 million
9	91450000198225570Y	Guangxi Municipal Engineering Group Co.	Xu Junchang	Guangxi Zhuang Autonomous Region-Nanning	13,850	
10	91450100581963744B	Anyu Construction Group Co.	Wei Haiguang	Guangxi Zhuang Autonomous Region-Nanning	20,500	Ningming County domestic waste landfill project. New construction of a 550t/d domestic waste landfill. Total investment CNY 23,193,700

Appendix 6: Similar mining tailing treatment and landfill project in GZAR

Project name	Owner	Contractor	Contract amount (10K CNY)	Bid opening	Contract content
GZAR					
Wuxuan County Manganese and Zinc Mine Huayuling Processing Plant Tailings Storage Closure Project	Wuxuan County Emergency	Zhejiang Zhongcai Construction Co.	227.435232	2021-03-31	Tailing's storage closure project
The former Guangxi Xincheng Xinfeng Mining Co.	Laibin Xincheng Ecological and Environmental Bureau	Guangxi Laihe Environmental Protection Technology Co.	2,057.60	2021-3-15	Demolish 20,901.33 m ² of buildings and structures in the site; construction waste and slag safety backfill to the tailing pond for risk control; in situ horizontal barrier risk control pollution
Environmental risk control project of the old site of Julong beneficiation plant in Nandan County	Nandan County Environmental Emergency and Solid Waste Management Center	Mining and Metallurgy Technology Group Co.	388.94	2021-01-15	The main enterprise heavy metal pollution site remediation treatment project (EPC); Longnan Zijin Mining Company Limited Dujiagou gold mine tailing pond environmental upgrading project design - procurement - construction total
Environmental remediation project of tailings dump of former Guiping Jiabao beneficiation plant	Guiping City Environmental Supervision Brigade	Dahua Construction Project Management Co.	450.32		The original Guiping City Jiabao beneficiation plant tailings dumps environmental remediation project drawings contain all the content
Heavy metal pollution control project of tailing site left over from Jiangkou Village, Luoyang Town, Huanjiang County	Huanjiang Ecological and Environmental Bureau, Hechi City	Guangxi Ningchuang Construction Engineering Co.	681.041	2020-8-24	Including plant construction waste treatment, tailing sand treatment, contaminated soil treatment, sewage treatment works and other works, etc. The qualified design and construction drawings and bill of quantities contained in the drawings shall prevail

Appendix 7: Top 10 Medical Equipment Manufacturers Worldwide

No.	company	Revenue (\$, M)	Major business	Branch company or representative in the PRC
1	Medtronic	30,557	38% of Cardiovascular, 28% of Minimally Invasive Therapies, 27% of Restorative Therapies, 8% of Diabetes	Medtronic (Shanghai) Co. Medtronic Medical Devices (Chengdu) Co.
2	Johnson Johnson	25,963	37% of surgical business, 34% of orthopedic business, 18% of ophthalmology business, 12% of interventional solutions business	Johnson & Johnson (China) Investment Co.
3	Abbott laboratories	19,952	Diagnostic business accounted for 39%, the medical device business accounted for 61% of the business	Abbott Trading (Shanghai) Co.
4	GE Healthcare	19,942	Imaging, ultrasound, life care solutions, and enterprise digital solutions	General Electric Healthcare (China) Co.
5	Becton Dickinson	17,290	Medical segment accounted for 52%, Life Sciences accounted for 25%, Interventional segment accounted for 23%	Biddy Medical Devices (Shanghai)
6	Siemens healthineers	16,115	Imaging segment accounted for 61%, Diagnostics segment accounted for 28%, Clinical Therapeutics segment accounted for 11%	Siemens (China) Co.
7	Stryker	14,884	Medical Surgical segment accounted for 44%, Orthopedic business accounted for 35%, Neurospine business accounted for 21%	Stryker (Beijing) Medical Devices Co.
8	Philips	14,606	Diagnostic and Therapeutic Business Connected Care and Medical Information Technology Business	Philips (China) Investment Co.
9	Roche Diagnostics	13,209	Central Laboratory and POC Diagnostics Business Unit 60%, Molecular Diagnostics Business 16%, Tissue Diagnostics Business 9%, Diabetes Management Business 15%	-
10	Boston scientific	10,735	Cardiovascular Business 39%, Rhythm Management & Neurology 29%, Medical & Surgical 31	Poco International Medical Trading (Shanghai) Co.

Appendix 8: Top 10 Medical Equipment Manufactures in the PRC

No.	Company	Province	Revenue (CNY100 million) 2019	Major business
1	Jiangsu Yuyue Medical Equipment Co.	Jiangsu	25.02	Production and sales of medical devices and health-care products.
2	Tianjin Jiu'an Medical Electronics Co.	Tianjin	3.22	R&D, production, and sales of home medical devices
3	Shenzhen Sunwing Medical Co.	Guangdong	7.96	Provide overall solutions for modern hospital construction, specifically including four business segments: overall hospital construction and logistics hosting services, production and sales of medical equipment, production and sales of medical consumables, and investment and management of hospitals.
4	Lepu (Beijing) Medical Equipment Co.	Beijing	39.21	Technology development, production and sales of medical devices and their accessories.
5	Guangzhou Yangpu Medical Technology Co.	Guangdong	2.59	Providing professional solutions for clinical testing laboratories and clinical care.
6	Shanghai Dongfulong Technology Co.	Shanghai	9.26	R&D, design production, sales and service of medical lyophilizers and lyophilization systems
7	Shenzhen Ribbon Precision Instruments Co.	Guangdong	5.43	R&D, production, and sales of five series of products, including maternal and child health-care products and systems, multi-parameter monitoring products and systems, digital ultrasound diagnostic systems, electrocardiographic products and systems, and blood cell analyzers.
8	Hunan Qianshan Pharmaceutical Machine Co.	Hunan	1.04	Production and sales of pharmaceutical equipment, medical equipment, and medical devices.
9	Guanwu Biotechnology Co.	Guangdong	2.08	Regenerative medical materials and regenerative medical implant devices research and development, production and sales of medical monitors and supporting software and hardware technology development.
10	Guangdong Baolite Medical Technology Co.	Guangdong	3.84	Research, production and sales of minimally invasive tumor treatment equipment, medical oxygen production equipment and engineering, conventional diagnosis and treatment equipment, medical imaging equipment, medical information system, blood purification equipment and other

				medical equipment agent distribution business; the company is also engaged in the overall construction of hospitals and financing leasing business.
11	Zhuhai Hejia Medical Equipment Co.	Guangdong	6.00	Mainly engaged in the production and sales of blood glucose monitoring system
12	Sanno Biosensing Co.	Hunan	8.15	Engaged in the research and development, production, and sales of medical equipment products
13	Ningbo David Medical Devices Co.	Zhejiang	1.38	Mainly produce medical equipment such as infant incubators, incubators for transportation, infant radiation warming tables, and neonatal jaundice treatment series equipment.
14	Beijing Bohui Innovation Biotechnology Co.	Beijing	2.94	Mainly provide molecular diagnosis, immunodiagnosis, atomic absorption, atomic fluorescence, and mass spectrometry technology test work and related equipment
15	Shanghai Kalitai Medical Technology Co.	Shanghai	5.68	Main products are KMC vertebral body expansion balloon catheter series and other products.

Appendix 9: Top Medical Equipment Dealers in the PRC

Company Name	Representative	Registered Capital	Date established	Phone number	Website	Business scope
Osstem China Co., Ltd.	JUNG DUKE YOUNG	\$20 million	2006-05-26	010-51265509	http://cn.osstem.com	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Shanghai Ketai Medical Device Co., Ltd.	HA SHAN	\$22.325 million	2013-07-03	021-54320390		Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Medtronic Weigao Orthopaedic Device Co., Ltd.	SANDRIN ANDREJAN POLLUTMORRIS	CNY1,475.8 million	2008-07-22	0631-5788994	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Chindex Shanghai International Trading Co., Ltd.	Wang Yao	\$16 million	1998-06-22	021-33987813	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Nison Instrument (SHANGHAI) Limited	Shen Qinhua	\$17.5 million	2004-02-17	021-62728646	www.healoo.com	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Anrei Medical Device (Tianjin) Co., Ltd.	Pan Yougan	CNY15.6 million	2016-12-16	022-59890595	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Cardinal Health (Liaoning) Pharmaceutical Co., Ltd.	Zhao Hongwei	CNY20 million	1997-12-03	024-22836566	http://www.shaphar.com	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export

Company Name	Representative	Registered Capital	Date established	Phone number	Website	Business scope
Xinjiang Jointown Pharmaceutical Co., Ltd.	Liu Yichang	CNY62,000,000	2004-05-26	0991-3607889	http://www.jztey.com	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Shanghai Suzuken Huzhong Pharmaceutical Co., Ltd.	Tang Pengcheng	CNY8462.9259 million	1999-11-10	021-52588888	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Shenzhen KINGWORLD MEDICINE Co., Ltd.	Li-Sheng Zhao	CNY180.9 million	1996-04-19	0755-82292888	http://www.kingworld.com.cn	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Tdmall (China) Limited	Yang Yuhua	CNY10 million	2017-12-27	0755-82283533	http://www.tdmall.com	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Provision China Co., Ltd.	Liu Zhanjun	\$12 million	2016-09-08	0755-26968876	http://www.provisionhealthcare.cn	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Chongqing Evaheart Medical Device Co., Ltd.	Zhang Benyan	\$11.25 million	2014-06-03	023-88027598	www.evaheart.com.cn	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Hangzhou Besson Medical Devices Co., Ltd.	Luo Wenmin	CNY50 million	2016-03-08	0571-88519305	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Rongxinsheng (Xiamen) Commerce	Lin Lizhu	\$18 million	2006-06-02	13328328056	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business

Company Name	Representative	Registered Capital	Date established	Phone number	Website	Business scope
and Trade Co., Ltd.						enterprise license) and import and export
Shanghai Tong Meng Medical Equipment Co., Ltd.	Song Zhihao	CNY50 million	2016-05-03	13913140765	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Guoyao Shengkang (Shanghai) Pharmaceutical Marketing Co., Ltd.	Kuang Yong	CNY136 million	2016-02-25	021-63339599	-	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Cantel Medical Devices (China) Co., Ltd.	LIU,MAN KIT	CNY50 million	2014-12-23	021-60161380	http://www.minntech.com.cn	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Nobel Biocare Commercial (SHANGHAI) Co., Ltd.	THOMAS FABIAN	\$19.7 million	2008-04-18	021-60158342	http://intranet.nobelbiocare.net	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export
Cordis (SHANGHAI) Medical Devices Co., Ltd.	LIAN JIA	\$59,723,280,000	2015-06-05	021-32797285	www.cardinalhealth-cn.com	Wholesale and retail of Class I, II and III medical devices (subject to medical device business enterprise license) and import and export

Appendix 10: Potential Consultants for TVET Project (Training, HR Development, and Research)

Company Name	Legal Representative	Registered Capital	established date	province	phone number	Business Scope
Study on consulting firms for TVET research, operation study and HR development, etc.						
Chongqing Zhixiu Yi Education Technology Co.	Li Mustache	CNY 10 million	2018-01-15	Chongqing	18623385966	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Shenzhen Udon Culture Co.	Song Jie	CNY 10 million	2017-09-28	Guangdong	18118739566	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Angel International Education (Shenzhen) Co.	Zhang Xiaodan	CNY 10 million	2017-04-14	Guangdong	18038176951	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Shenzhen Zhixing Education Consulting Co.	Liu Ying	CNY 50 million	2017-08-21	Guangdong	18553719797	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Shenzhen Gaozhi Education Management Consulting Co.	Chen Feixing	CNY 10 million	2017-09-18	Guangdong	13825770737	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Shenzhen Centennial Education & Training Co.	Chen Baosong	CNY 10 million	2016-01-25	Guangdong	19866159413	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Jiangxi Meio Education Consulting Co.	Wang Peng	CNY 10 million	2018-01-19	Jiangxi	18296138513	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Yichun Yilian Education Technology Co.	Huangpu Jun	CNY 50 million	2018-02-05	Jiangxi	0795-7205621	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.

Company Name	Legal Representative	Registered Capital	established date	province	phone number	Business Scope
Jiujiang One Hundred Education Development Co.	Li Qin	CNY 1,001,000	2018-01-24	Jiangxi	13479887644	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Yogan County Huashang Education Consulting Co.	Zhu Tianzhong	CNY 10 million	2018-01-24	Jiangxi	15270086392	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Shenyang Sino-German Institute of Applied Technology Co.	Zheng Zhibing	CNY 10 million	2017-12-21	Liaoning	024-81358760	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Qingdao Hanmeng Culture Education Development Co.	Leng Degang	CNY 10 million	2018-01-16	Shandong	0532-83978081	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Shangrao Shangtou Education Development Group Co.	Dai Min	CNY 70 million	2018-01-26	Jiangxi	0793-8230533	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Qingdao Bodyside International Education Co.	Xie Zongliang	CNY 10 million	2018-02-01	Shandong	0532-66005025	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Chongqing Tikanzi Tong Education Technology Co.	Luo Decai	CNY 10 million	2017-12-29	Chongqing	18680750907	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.
Qingdao Viridian Education Co.	Sun Xiaofei	CNY 20 million	2018-02-05	Shandong	0532-82612638	Cultural activities planning, educational technology development, technical consultation, technical services, technical promotion; teaching facilities research and development; educational software development, etc.

Appendix 11: Potential Consultants (experts) for Health-care System Design and Study

No.	Personnel	Institution	Number of papers in core journals	Representative research topics
Market research on potential experts who are specialized on the medical community study and health-care system				
1	Hao Mo	Fudan University	67	Research on the definition of the scope and strategy of industrialization of health care, policy research on health-care management.
2	Li Chengyue	Fudan University	56	The extent to which the legal status of women's health care in Beijing and Shanghai is guaranteed. The extent to which Beijing and Shanghai take the initiative to improve the legal system of women's health care.
3	Jin Chunlin	Shanghai Medical Science and Technology Information	54	The current situation, problems, and optimization strategies of financing incentive mechanism of integrated medical and health service system. Discussion on the implementation path of integrated medical and health services in large cities - Shanghai as an example.
4	Wang Xiaoyan	Capital Medical University	49	Exploring the functional positioning of rural primary health-care institutions in the context of new medical reform.
5	Xu Lingzhong	Shandong University	48	Analysis of the current situation of economic operation and development countermeasures of primary health-care institutions in Shandong Province, the extent to which the legal system protects women's health care in Beijing and Shanghai.
6	Pu Chuan	Chongqing Medical University	47	A study on job responsibilities of primary health-care institutions in Chongqing, the current situation of training and countermeasures of basic public health service norms in Chongqing.
7	Zhao Yun	Yuijiang Ethnic Medical College	47	Transformation of medical insurance and primary health-care resource allocation mechanism, Comparative study on performance management system of primary health-care institutions.
8	Fang Pengqian	Huazhong University of Science and Technology	43	Analysis of the service capacity enhancement paths of rural primary health-care institutions under the graded diagnosis and treatment system, Study on the current situation of medical service capacity development and improvement strategies of county-level public hospitals in poor areas: taking the development of county-level public hospitals in the Three Gorges urban cluster as an example.
9	Wu Anhua	Central South University Xiangya Hospital	42	The establishment and role of basic data set for hospital infection surveillance.
10	Meng Qingyue	Peking University	41	Study on the reform of primary health service capacity enhancement and its effectiveness in Feixi County, Anhui Province, China, Study on national health and medical and health education and regulatory system.
11	Zhang Liang	Huazhong University of	40	Analysis of the Development Status and Problems of County Medical Community, Research on Health-Care Strategies for Patients with High Medical Needs.

No.	Personnel	Institution	Number of papers in core journals	Representative research topics
		Science and Technology		
12	Li Liuyi	Peking University First Hospital	39	Analysis of the effectiveness and benefits of hospital infection management in a tertiary care general hospital
13	Dai Tao	Medical Information Research Institute of the Chinese Academy of M...	37	Effectiveness of the implementation of basic drug system in primary medical and health institutions in Anhui Province, study on the construction of county medical association in Tianchang City, Anhui Province and Youxi County, Fujian Province
14	Peng Yingchun	Capital Medical University	36	Exploration of Rural Medical and Health Service Approach: A Case Study Based on Field Observation in Suburban Beijing H. Exploring the Accessibility of Rural Health Center Services in the Context of New Medical Reform
15	Chen Ren	Anhui Medical University	36	Analysis of hotspots and changing trends of county medical community research in China, Study on the power of cooperation in the medium and long-term goals of women's health care in Beijing and Shanghai
16	Li Ling	Beijing University	34	A study of urban and rural health-care services in five northwestern provinces (autonomous regions), Taking medical reform as a starting point to promote the construction of basic systems in the field of social construction
17	Hu Zhi	Anhui Medical University	33	Analysis of the situation and main problems facing hospital reform in China
18	Lv Zhaofeng	Capital Medical University	33	Exploration of Rural Health-Care Services - A Case Study Based on Field Observation in Suburban Beijing H. Analysis of Factors Affecting Doctor-Patient Trust and Countermeasures in Medical Institutions at Rural Level
19	Fen Li	Shanghai Medical Science and Technology Information Research	33	Exploration of the implementation path of integrated medical and health services in large cities: A case study of Shanghai, Analysis of the progress and impact of the reform of medical insurance system in China's medical community
20	Chen Zhi	Fudan University	29	A study on the definition of the scope and strategy of industrialization of health care

Appendix 12: Potential Consultants (firms) for Health-care System Design and Study

Company Name	Legal Representative	Registered Capital	Province	Business Scope
Market research on institutions which are consulting firms focusing on providing medical and health-care consulting services				
National Health and Health Commission Health Development Research Center	Fu Wei	CNY 2.25 million	Beijing	To carry out public policy research on health and promote the reform and development of medical and health care. National health-related public policy research health reform and development strategy research health economic and health management basic theory research health policy and economic and technical assessment research related consulting services
Heilongjiang Provincial Health and Health Development Research Center	Wang Yidong	CNY 12,100,000	Heilongjiang	Undertake research on health-care development Undertake research on public health policies related to national health Provide scientific basis for the formulation of national and provincial health policies and regulations Undertake research on health-care management theory and methodology Undertake editing, publishing and distribution of journals and magazines assigned by national and provincial health authorities
Sichuan Institute of Health and Health Policy and Medical Intelligence	Zhao Xiaoheng	CNY 50,000,000	Sichuan	Mainly undertake health and family planning policy research, medical intelligence analysis, research, and other work
Institute of Medical Information, Chinese Academy of Medical Sciences	Ji Hui	CNY 319.21 million	Beijing	Carry out medical information research and promote health career development
National Health and Health Commission Medical and Health Science and Technology Development Research Center	Zheng Zhongwei	CNY 4.83 million	Beijing	Carry out research on medical and health science and technology development, and promote medical science and technology development
Jiangsu Provincial Health and Health Development Research Center	Sun Zhiming	CNY 11,952,000	Jiangsu	Provide scientific research services for health development.
Tianjin Institute of Medical Science and Technology Information (Tianjin Health and Health Development Research Center)	Chen Dongxu	CNY 42,880,000	Tianjin	Undertake information services related to medical science and technology and health career development; provide policy research, practical research and decision-making consulting services for health and health career reform and development; undertake medical books and electronic materials preservation and lending, publication of medical articles services; undertake other matters assigned by the competent departments.
Shanghai Chuangqi Institute of Health Development	Zhao Yongqing	CNY 1 million	Shanghai	Carry out research and communication on industrial development strategies and health policies in the field of medical and health care, and provide consultation services for decision-making in the field of medical and health care.

Company Name	Legal Representative	Registered Capital	Province	Business Scope
Hainan Nanhai Health Industry Research Institute	Jiang Huicheng	CNY 2,000,000	Hainan	Medical health and health management academic research; related policy research and management consulting; industrial development planning and industry standards; project design and technical consulting; third-party assessment and evaluation; professional personnel training services; domestic and international exchanges and cooperation; exhibition and forum activities.
Tianjin Institute of Medical Science and Technology Information (Tianjin Health and Health Development Research Center)	Chen Dongxu	CNY 42,880,000	Tianjin	Undertake information services related to medical science and technology and health career development; provide policy research, practical research and decision-making consulting services on health and health career reform and development; undertake medical books and electronic materials preservation and lending, publication of medical articles services; undertake other matters assigned by the competent departments.
Shanghai Health and Health Development Research Center (Shanghai Institute of Medical Science and Technology Information)	Jin Chunlin	CNY 2,730,000	Shanghai	Undertake management services and coordination related to science and technology innovation in the field of health and health in the city, policy research and decision-making consultation on the reform and development of health and health care, and training related to health and health-care policy and management.

Appendix 13: Potential Bidders for Construction Supervision

No.	Integrity Number	Name	Responsible person	Location
Since 2015, the number of construction supervision enterprises in the PRC has been increasing year by year. 2019, a total of 8,469 construction supervision enterprises nationwide participated in the statistics				
1	9111010872146477XF	Beijing Huaqing Technology Technology Engineering Management Co.	Lan Zhenfa	Beijing
2	91210103242650807A	Shenyang Huasheng Engineering and Construction Supervision Co.	Chen Jigang	Liaoning Province - Shenyang
3	912306047253128000	Daqing Daguan Engineering and Construction Supervision Co.	Liu Haifu	Heilongjiang-Daqing
4	912114007164286000	Huludao City Haiwei Engineering Construction Supervision Co.	Li Huaibin	Liaoning-Huludao
5	913101181345318000	Shanghai Shenyi Engineering Consulting Co.	Lu Minjie	Shanghai
6	9113010060118700X3	Shijiazhuang Zhongtian Engineering Construction Supervision Co.	Gao Shuangxuan	Hebei-Shijiazhuang
7	912310007026319000	Mudanjiang Longhua Engineering Construction Supervision Co.	Fan Guangyi	Heilongjiang-Mudanjiang
8	913200001347697000	Jiangsu Traffic Engineering Consulting and Supervision Co.	Wang Guohua	Jiangsu Province-Nanjing
9	913502112601177000	Xiamen Xinghai Bay Engineering Management Co.	Miao Cunxu	Fujian-Xiamen
10	91330802330012039P	Zhejiang Chau Dao Engineering Management Co.	Chen Youliang	Zhejiang-Quzhou