STRATEGIC PROCUREMENT PLANNING

Section 1: Project Concept

Project Title	Xiangtan Low-Carbon Transformation Sector Development Program
Country	PRC
Executing agency	Xiangtan Municipal Government
Implementing agency	Xiangtan Municipal Government
Program development objectives	The program development objective is to support the Xiangtan municipal government's (XMG) efforts to transform Xiangtan from a carbon-intensive, heavily polluting city to a low-carbon, climate resilient, and livable one.
Project description	The Xiangtan Low-Carbon Transformation (LCT) Sector Development Program (SDP, the program) comprises (i) a policy-based loan supporting reforms that will update existing policies and introduce innovative measures to unlock potentials for carbon reduction; and (ii) a project loan that demonstrate how low-carbon and resilient infrastructure transformation, coupled with information and knowledge systems using information and communications technology (ICT) could foster continuous LCT. **Program Scope.** The expected impact of the program will be carbon emissions peak achieved in Xiangtan by 2028. The expected outcome will be the use of low-carbon enabling systems in Xiangtan increased. The program will have four outputs of which outputs 1, 2, and 4 will be under the project loan while output 3 will be supported by the policy-based loan. **Output 1: Low-Carbon and Resilient Infrastructure Transformation Demonstrated**. Physical infrastructure transformation with integrated design of cross-sectoral interventions will be demonstrated. Road infrastructure will be transformed to ensure seamless access to public mobility systems that are safe and inclusive to all, including children, elderly people, and persons with disability. Incorporating safety would support the shift to low-carbon modes of transport. Mobility system transformation includes: (i) installation of comprehensive bus priority lanes (63 kilometers), integrated with improved bicycle network and pedestrian facilities; (ii) school zone transformation for children's road safety at five primary schools; and (iii) street transformation for climate resilient and multi-purposed street for people. Deployment of 100 electric buses and the installation of 790 e-charging units at 31 locations will also lessen GHG emissions and contribute to air quality improvement. The construction of the first "EDGE-certified" hospital building in the PRC will demonstrate the integration of passive building design, clean energy technologies, and ecosystem-based adaptation (EbA) measures. Other infrastructure transformation includes: (i) retrofit of a run-down public building to be equipped with high energy and water saving features and appliances; and (ii) improvement of public facilities and other urban infrastructure at 20 urban communities showing practical ways to build a low-carbon, resilient, and livable Xiangtan. **Output 2: Information and Knowledge Platforms Established for Informed Decision Making and Behavior Changes**. Physical transformation complemented by ICT and knowledge platforms will complete and sustain LCT. Under this output, a number of sectoral ICT platforms will be installed or

	upgraded, and then, consolidated into a city-wide ICT platform. These are the: (i) intelligent transport system (ITS) that will be reprogrammed to prioritize people and public mobility systems; (ii) building energy management system to monitor and improve energy efficiency of 200 public buildings; (iii) community-scale energy and utility management system to optimize operational efficiency of over 1,300 companies; (iv) early flood warning system to monitor and analyze potential risks caused by fluvial and pluvial floods; and (v) environmental monitoring and assessment system. These platforms will enable better decision making and foster behavior changes towards LCT. **Output 3: Capacity Building and Program Management Enhanced**. To ensure successful program implementation, a consulting firm will be engaged to assist XMG's project management office comprising of multi-agency representatives. The consultant will also provide trainings and workshops in operating the systems as well as identifying comprehensive plans and programs for sustaining low-carbon transformation. **Output 4: Low-carbon transformation policy reforms adopted.** The abovementioned infrastructures and system transformations will be sustained and scaled up by policy, institutional, and operational reforms, and outreach activities. Reform areas include: (i) introduction of parking policy and institution setup; (ii) market and demand-driven operation of public buses; (iii) people-oriented ITS operation; (iv) school-zone reform for road safety; (v) clean district energy system and waste heat recovery; (vi) industrial energy and utility management and operation; (vi) low-carbon building sector reforms through green building certification, energy performance contract, and green financing, building energy management system, and energy statistics; (vii) capacity building on EbA and climate adaptation planning tool; and (viii) data security and standardization. Reform measures will be carried out in two equal tranches of $25 million each. Pursuing the XMG's clear and long-term commitment to carbon peaking target, the LCT policy reforms will create norms of a low-carbon, resilient, and livable city by regulating, incentivizing, guiding, and supporting all relevant actors of the society.
Description of indicative contract packages	The indicative packages under output 1 includes: (1) Works (bill of quantities based, for road retrofit or upgrade, safety features, ecological based adaptation features, etc.; for building structure, building internal decoration; and for community upgrade). (2) Consulting Service (for engineering design, and guideline development); (3) Non-Consulting Service (EDGE) (4) Goods (for e-buses) (5) Goods (for charging piles) (6) Goods (for tri-gen equipment, and PV panels) (7) Goods (for building and utility energy management system [BEMS]) The indicative packages under output 2 includes: (1) IT product and service (for ICT platform, ITS, energy saving, etc software development and maintenance service) (2) Open competitive bidding (OCB) for Goods (for sensors and field equipment) The indicative packages under output 3 includes: (1) Consulting service (for project management, loan implementation support, and capacity building)

<table>
<tr><td></td><td>There are 31 packages in total. Within these packages 25 will be financed or partially financed by ADB, including 6 consulting service packages, 7 works packages, and 12 goods packages (including 6 general goods packages and 6 information technology product and service packages). The other 6 packages will be financed by counterpart funding.
<table>
<tr><th>Type of contract</th><th>No. of contract</th><th>Procurement method</th><th>Estimated value (mil $)</th></tr>
<tr><td>Civil works</td><td>7</td><td>OCB</td><td>184.22</td></tr>
<tr><td>Goods (General)</td><td>6</td><td>OCB</td><td>48.16</td></tr>
<tr><td>Consulting services</td><td>6</td><td>QCBS (90:10)</td><td>32.04</td></tr>
<tr><td>Goods (Information Technology Product and Service)</td><td>6</td><td>OCB</td><td>29.37</td></tr>
<tr><td>Others</td><td>6</td><td>GP</td><td>9.39</td></tr>
<tr><td>Total</td><td>31</td><td></td><td>303.19</td></tr>
</table>
GP = government procurement, OCB = open competitive bidding, QCBS = quality- and cost-based selection.</td></tr>
<tr><td>Summary of the financing agreement</td><td>Total cost for the Program will be $395.88 million. The Government of PRC has requested a regular loan of $200.0 million from ADB’s ordinary capital resources comprising of $50.0 million policy-based loan and $150.0 million project loan. The balance of $195.88 million will be PRC’s counterpart financing.</td></tr>
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Section 2: Operating Environment

A. Capacity and Capability Assessment of the Borrower

Strength	Weaknesses
• The leading agency during implementation has retained an experience external agency, a consulting institute with focus on low carbon development, to provide assistance in project implementation. • The leading agency during implementation has a strong position in the domestic chain of responsibility. • The program has strong support from relevant bureaus with agreed professional staff secondment during implementation • The program has strong support from local residents due to increased safety, resilience and livability. • The leading agency has a procurement unit with extensive experience in domestic procurement of government funded project. • The strengthened project management office (PMO) has good English language capacity. • The Project is supported by ADB. • The project is in line with Xiangtan Municipality’s low carbon development and transformation scheme. • The project can contribute to carbon footprint reduction	• The PMO during project preparation is established under the Municipal Development and Reform Commission (DRC), however the office is severely understaffed and has to outsource some key positions to external sources. • There is a lack/shortage of ADB project implementation experience across the bureaus involved. • There is shortage of knowledge and experience of ADB procurement policy and procedure in the leading agency. • There is a large amount of stakeholders involved. • Some projects (Outputs 1 and 2) are delivered in congested area of the city downtown. • Limited awareness among stakeholders. • Trivial administrative requirements. • Some sub-projects have low return. • Some agencies do not have full understanding of low carbon solutions.

Opportunity	Threat
• Increased road safety. • Increased climate resilience. • Increased energy efficiency. • Increased cross-sectoral data integration and sharing. • Improved public transportation service. • An opportunity to apply and promote green procurement. • Developed national level low carbon practical training and demonstration base. • To attract low carbon practitioner and promote business opportunity in the region. • To create Asian-Pacific Region knowledge sharing platform by integrating with ADB knowledge sharing mechanism. • Personnel in relevant agencies in Xiangtan Municipality receiving training and capacity development.	• Existing high levels of government debt and debt ceilings may limit ability to raise domestic counterpart funds. • Potential delays in project implementation due to slow disbursement from counterpart funding. • Competition between procurement agencies has led to low fees and scope focused on processing rather than quality consulting. • Disturbance from policy departments and personnel in the government during project life cycle. • Robust operations and maintenance (O&M) might not be sustainable during operation stage. • Inundation of project sites, i.e. Yangmeizhou.

B. Support Requirements

Procurement capability and capacity	The capacity is assessed to be medium to low. Xiangtan DRC (XDRC) will lead the day-to-day project implementation of the project management office. Some staff from XDRC has capability of working with English. However, the instability in staffing can affect the continuity of project management. This organization lack relevant experience and capacity in procurement. During project implementation the Xiangtan municipal Financial Bureau (XFB) might join the DRC and become member organization. XFB's procurement experience is mainly focused on procurement of domestic funded projects and the agency lacks understanding on ADB policy and requirement on procurement. In addition, there is a lack of comprehensive training on procurement. Currently, the PMO retained the Hunan Province Lianchuang Low-Carbon Economy Development Center as its consultant and seconded some of its staff to the PMO. This action to some extent alleviated the pressure from under-staffing, and also brought in some procurement experience this institute had from previous World Bank/ADB projects. The staff seconded from this institute can use English proficiently. However, this institute has little knowledge about the new procurement framework. Other government agencies in the government departments and public institutes will support the procurement activities led by the XFB during project implementation. These organizations all have shortage in English capacities and lack previous experience with ADB financed projects. Therefore, their support to XFB will focus on technical issues.
Experience in implementing similar projects	XFB is the leading agency for government procurement activity for Xiangtan Municipal Government (XMG). Therefore, it has some similar project experience. Hunan Province Lianchuang Low-Carbon Economy Development Center, the external consultant retained by the PMO, has participated

	in other ADB financed projects in the past. Therefore, this institute has some basic understanding and experience on ADB procurement policy. The other government agencies and public institutes have little ADB project experience. Some agencies such as the Bid Data Center (BDC) has also retained external profession project company as partner. However, such parties have no ADB loan project experience either.
Contract management capability and experience	The PMO has some management experience on consulting service providers, including the Hunan Province Lianchuang Low-Carbon Economy Development Center which is currently providing service. Other project related agencies also have certain contract management experience. However, their experience is limited to management of contracts financed by domestic funding with domestic suppliers or service provider. The partner of BDC has some knowledge regarding contracts related to information technology and service. However, it has no experience with ADB financed contract management.
Level of reliance on external consultants	Both PMO and project related government agencies and public institutes has strong reliance on external consultants, especially on procurement and contract management. In addition, the PMO will need technical support from external source especially on matters related to specific low-carbon concepts or related to big data system.
Existence and description of complaints management system	Currently, the government has its internal complaint management system. In addition, the public resource trading center has its online complaint redress mechanism. There is no project-level complaint management system established yet. During program implementation, such mechanism will be established too.

C. Key Procurement Conclusions

The PMO, including the XDRC now and the XFB to join during implementation, is currently understaffed and lack staff stability.

The PMO has strong reliance on external sources for procurement, contract management and on specific technical areas.

The project related government agencies and public institutes have limited English language capacity.

During implementation:
(1) It is needed to provide professional consulting service and technical support to quickly fill the gap in PMO's project management capacity and project experience in the form of external consultants.
(2) Due to the lack of low-carbon concept, it is needed to have professional consulting service involved the project designs to ensure the realization of project objectives.
(3) Due to the lack of understanding on ADB policy and relevant project experience, it is recommended to conduct prior review for key transactions.

D. External Influences Analysis

Governance	There is a stable government environment for program implementation. The administrative functions of the government are also supportive of the project. Currently, two laws govern public procurement: The Law of Tendering and Bidding (2000) and the Government Procurement Law (2012). **Issues:** (i) Consulting services are not clearly addressed in the two national procurement laws; and (ii) national procurement laws are not clear on participation of state-owned enterprises.
Economic	The economic environment presents as predictably and relatively stable for the life of the Program. Central government efforts to control local government debt risk suspension of projects, or hinder efforts to raise counterpart funds; and Labor supply: the market has sufficient supply of medium to low skilled labors. There might be shortage of highly skilled technicians, especially for the maintenance and regular upgrade of information technology product.
Sustainability	Climate change and adaptation. The impact of climate change on the project is limited. The project design has embedded climate resilience element to improve the climate change adaptation capability. Waste treatment and disposal. Xiangtan Municipality has the wastewater, garbage management system in place. Environmental impact and mitigation measures: most of the civil works will be conducted in the built area with limited environmental impacts. Due to the improved public transportation service, the pollution from other transportation mode might be reduced, leading to some positive environmental benefits. Strict standards and monitoring system are in place however will need to make program-based plans to be implemented.
Technology	Some program components are highly specialized, such as the ICT platform and related information technology activities, and the green products, etc. Xiangtan Municipality has a Public Resource Trading Center (PRTC) established. The center hosts an e-procurement platform which can be used to process transactions online. The e-procurement platform has brought tremendous convenience to the procurement activities. The evaluation panel is usually randomly selected from the expert bank.

E. Key Procurement Conclusions

There are certain differences between the procurement procedure required by domestic procurement laws and ADB. In this Project, the activities financed by ADB loan will adopt the ADB procurement procedure. Due to the lack of ADB procurement experience in the executing/implementing agency, it is recommended that for all transactions in the first year of project implementation, prior review will apply. In the second year, the ADB review mission will re-assess the capacity developed and experience gained

in the executing/implementing agency and make due adjustment in the arrangement based on the outcome of the assessment.

The e-procurement platform has a good system in place to ensure fairness, transparency and confidentiality of the procurement transaction received by the PRTC. However, the process and module upon which the workflow of the electronic public procurement platform was designed is mainly catered for the domestic procurement practice and targets audience who has a legal entity that is registered in PRC. The platform can be considered as one of the advertising channels of the package procurement of this project, however at this stage its suitability and feasibility to handle bid submission, evaluation and award cannot be confirmed.

F. Stakeholder Analysis and Communication Plan

The following stakeholders have been identified:

Stakeholder Type	Stakeholder	Power	Interest	Strategy Quadrant
Public Sector				
	Ministry of Finance	High	High	Key Stakeholder
	Hunan Provincial Government	High	High	Key Stakeholder
	Xiangtan Municipal Government	High	High	Key Stakeholder
	Xiangtan Ecology and Environment Bureau	High	High	Key Stakeholder
	Xiangtan Resettlement Office	High	High	Key Stakeholder
	Xiangtan Development and Reform Commission	High	High	Key Stakeholder
	Xiangtan Financial Bureau	High	High	Key Stakeholder
	Xiangtan Housing and Urban Rural Development Bureau	High	High	Key Stakeholder
	State Grid	High	Medium	Keep Satisfied
	Xiangtan Urban Administration Bureau	High	Medium	Keep Satisfied
	Xiangtan Water Resource Bureau	High	Medium	Keep Satisfied

	Xiangtan Natural Resource Planning Bureau	High	Medium	Keep Satisfied
	Xiangtan Transportation Bureau	High	Medium	Keep Satisfied
	Xiangtan Fire Fighting Department	High	Medium	Keep Satisfied
	Xiangtan Quality and Technical Supervision Bureau	High	Medium	Keep Satisfied
	Xiangtan Meteorology Bureau	High	High	Key Stakeholder
	Traffic Police Department	High	High	Key Stakeholder
	Xiangtan Big Data Center	High	High	Key Stakeholder
	Women's Association	High	Medium	Keep Satisfied
	Xiangtan Ethnic Affairs Bureau	High	Medium	Keep Satisfied
	Public Utilities	High	Medium	Keep Satisfied
	Jiaofa Group Company	High	High	Key Stakeholder
	Chengfa Group Company	High	High	Key Stakeholder
	Chinese Medicine Hospital	High	High	Key Stakeholder
Community Groups				
	Affected Community	Low	High	Keep Informed
	Affected primary schools	Low	High	Keep Informed
	Affected hospitals	Low	High	Keep Informed
	Resettled people	Low	High	Keep Informed
	Bus commuters	Low	High	Keep Informed
Suppliers				
	Supply market	Medium	High	Keep Informed
	Bidder	Medium	High	Keep Informed
	Supply chain	Medium-High	High	Keep Informed
	Consultant Groups	High	V. High	Key Stakeholder
Internal				
	Internal Executive	High	V. High	Key Stakeholder
	Internal Management	High	High	Key Stakeholder
	Internal Staff	Low	High	Keep Informed
Other				
	Asian Development Bank	High	V. High	Key Stakeholder

Keep Satisfied	**Key Stakeholders**
Affected public utilities	Ministry of Finance
Women's Association	Hunan Provincial Government
Xiangtan Ethnic Affairs Bureau	Xiangtan Municipal Government
State Grid	Asian Development Bank
Xiangtan Water Resource Bureau	Xiangtan Ecology and Environment Bureau
Xiangtan Natural Resource Planning Bureau	Xiangtan Resettlement Office
Traffic Police Department	Xiangtan Development and Reform Commission
Xiangtan Transportation Bureau	Xiangtan Financial Bureau
Xiangtan Quality and Technical Supervision Bureau	Jiaofa Group
	Chengfa Group

Xiangtan Meteorology Bureau	Chinese Medicine Hospital Consultants Managers Management
Minimal Effort	**Keep Informed**
	Affected communities Affected schools Affected hospitals Bus commuters Resettled people Supply market Bidders Supply chain Internal staff Other road users Hospital users

G. Stakeholder Communication Plan

Stakeholder name and role	Key Stakeholder Group ➢ Ministry of Finance ➢ Hunan Provincial Government ➢ Xiangtan Municipal Government ➢ Asian Development Bank ➢ Xiangtan Ecology and Environment Bureau ➢ Xiangtan Resettlement Office ➢ Xiangtan Development and Reform Commission ➢ Xiangtan Financial Bureau ➢ Jiaofa Group ➢ Chengfa Group ➢ Chinese Medicine Hospital ➢ Consultants ➢ Managers ➢ Management
Interest in the project?	High Interest
Support and influence level	High Power and Influence
Objections, drivers, needs, and levers	The objectives of this group are linked into knowledge on: ➢ Fulfilment of requirements ➢ Time Schedule ➢ Quality ➢ Compliance The drivers for this group are quite varied, and include: ➢ Seeking benefits ➢ Approvals and Land Usage
Action	Generally, the stakeholders in this group have a positive approach and outlook in the project. Actions required will support the continuation of this positive outlook

Responsible, accountable, consulted, or informed?	This stakeholders in this group are seen as being Responsible, Accountable or Consulted – dependent on their drivers and involvement in the management of the project.
Communicate what, when, and how?	Most communication will be led by face-to-face communications for this stakeholder group, however face to face opportunities will also be supported by: ➢ Reporting ➢ Online content ➢ Presentations ➢ Meetings ➢ Paper-based documentation (as required) PMO will have responsibility for communicating to this stakeholder group. Communication will be scheduled and regular, as well as ad-hoc as required.

Stakeholder name and role	Keep Satisfied Stakeholder Group ➢ Affected public utilities ➢ Women's Association ➢ Xiangtan Ethnic Affairs Bureau ➢ State Grid ➢ Xiangtan Water Resource Bureau ➢ Xiangtan Natural Resource Planning Bureau ➢ Traffic Police Department ➢ Xiangtan Transportation Bureau ➢ Xiangtan Quality and Technical Supervision Bureau ➢ Xiangtan Meteorology Bureau
Interest in the project?	Low interest
Support and influence level	High power and influence
Objections, drivers, needs, and levers	The objectives of this group are linked into knowledge on: ➢ General Updates ➢ Scheduling, and specific impacts The drivers for this group are quite varied, and include: ➢ Approved schemes/drawings ➢ Joint inspections with contractors ➢ Least shutdown times ➢ Coordination of activities ➢ Minimization of disruptions
Action	Generally, the stakeholders in this group have a positive approach and outlook in the project. Administrative approvals and coordination of efforts to minimize disruption are an important part of the requirements of this group. Therefore, important actions include: ➢ Timely consultation/information on any disruptions ➢ Advance information on coordination requirements.
Responsible, accountable, consulted, or informed?	Stakeholders in this group are seen as Informed and Consulted.
Communicate what, when, and how?	Most communication will be electronic communication (email, website, online data) or face to face.

	PMO and the Contractor/s will have shared responsibility for communicating to this stakeholder group. Communication will tend to be on as “as needs” basis, rather than scheduled and will be supported by: ➢ Notifications ➢ Joint reviews ➢ Applications / Administrative communication - Paper-based (as required)
Stakeholder name and role	Key Informed Stakeholder Group ➢ Affected communities ➢ Affected schools ➢ Affected hospitals ➢ Bus commuters ➢ Resettled people ➢ Supply market ➢ Bidders ➢ Supply chain ➢ Internal staff ➢ Other road users ➢ Hospital users
Interest in the project?	High interest
Support and influence level	Low to medium power and influence
Objections, drivers, needs, and levers	The objectives of this group are linked into knowledge on: ➢ Project timings and schedule (especially in relation to implementation periods) ➢ Development works and impacts ➢ Good news stories The drivers for this group are quite varied, and include: ➢ Area Development, ➢ Possible Revenue ➢ Public Support ➢ Pride ➢ Increased land value ➢ Business development
Action	Generally, the stakeholders in this group have a positive approach and outlook in the project. Development of. The needs of the group are linked to: ➢ Timely information (especially for approval items which could delay the progress of the project) ➢ Compliance to regulations
Responsible, accountable, consulted, or informed?	Stakeholders in this group are Informed.
Communicate what, when, and how?	Communication in this area will be a mixture of: ➢ Media-based ➢ Online ➢ Marketing and Information dissemination materials (brochures, newsletters, flyers) 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

H. Key Procurement Conclusions

There are a number of local government agencies that has high power and interest in the project. Among them the Xiangtan Development and Reform Commission and Xiangtan Financial Bureau are the gatekeeper agencies as they will have the leading roles in project preparation and project implementation, respectively. Open dialogue regarding debt carrying capacity, availability of counterpart funds, and procurement plan is required, for which this participatory workshop for Strategic Procurement Planning is also an effective method.

The program will have a lot of affected people during implementation and a lot of end users during operation that, not only have a lot of interest in the project, but their behavior would play an important role in the long term successful and sustainable low-carbon transformation. Prompt information dissemination and public consultation or campaigns can be used to keep them informed or have them involved in a participatory way.
Most of proposed packages involves goods or works with steady supply of potential bidders, i.e. the roads, buildings, landscaping, e-bus and charging piles, green products, etc. Special attention should be given to those contacts for which the domestic market hasn't been fully developed and the availability of potential bidders are in question. This include the ICT platform, the energy-saving monitoring system, the low-carbon and climate resilience designer, etc. These should be the focus of the market research to identify the market conditions and potential bidders, and corresponding strategy to address the conditions.

Section 3: Market Analysis

A. Porter's Five Forces

Porters 5 Forces Assessment by Packages of Works

This project will have several categories of contracts as mentioned in Section 1, including :
(1) OCB for works (BOQ-based, including road upgrade, building structure, building internal, green building upgrade, ecology-based landscaping). These contracts are involved in Output 1.
(2) OCB for general goods (e-bus, charging piles, digitized bus information board, green building equipment/products, PV, Tri-gen, BEMS sensors etc.)
(3) OCB for high technology goods - Information Technology and Service (Smart city dispatch center, flood warning, environmental monitoring sub-system, building energy efficiency sub-system, community energy efficiency sub-system, environmental monitoring equipment etc.). These contracts are involved in Output 2.
(4) Consulting service (engineering designs of roads and buildings with ecology-based and low-carbon elements). These contracts are involved in Output1.
(5) Consulting service (integrated urban catchment management plan and development design; and project management and capacity building;). These contracts are involved in Output 2 and 3.
(6) Non-consulting service (EDGE certification fees). These contracts are involved in Output 1.

BEMS = building and utility energy management system, BOQ = bill of quantities, OCB = open competitive bidding, O&M = operations and maintenance, PV = photovoltaic.

Works
（BOQ based）

Competitive Rivalry	High	The nature of the works are very common in China. The market is well developed with sufficient qualified domestic suppliers (thousands)[1] for works in different sectors. The competition is fierce.
Risk of Substitution	Low	Not much new technology. Some minor improvement might exists here and there but not much change available.
Bargaining Power of Supplier	Low	Due to the fierce competition, the supplier always use lower price to gain advantage in competition.
Bargaining Power of Buyer	High	The buyers can always raise their requirements for higher standards.
Risk of New Entrants	Low	Risk of new entrant would be unlikely to impact the market significantly (but it is relatively easy to enter the market)

BOQ = bill of quantities.

OCB Goods
(E-bus, charging piles, digitized bus information board, green building equipment/products, PV, Tri-gen, BEMS sensors, environmental monitoring equipment, etc.)

Competitive Rivalry	Medium to low	Most of the goods are specialized in nature (e-bus, charging piles, energy sensors, transmitter, processor, low-carbon equipment and green products etc.), However there is not much need of customization. Most of them are standard products available in stock. (Medium) The tri-generation equipment for HVAC in the hospital building will need some customization to fit in the hospital building. (Low) The BEMS sensors are also very specialized (Low) Some specific environmental equipment is unique with only few supplier in the market. (Low)
Risk of Substitution	Medium to Low	Substitution of the Service/Technology is not difficult. (Medium) Some equipment, such as sensors, in order to catch up with the pace of advancing of software technology, has also been advancing very fast. (Low)
Bargaining Power of Supplier	Medium	Equipment is very specialized. However most of the equipment are standard with not much need of customization.
Bargaining Power of Buyer	Low to Medium	Energy saving equipment (sensors) buyer has not much knowledge of the product. (Low) User (EEB) have strong knowledge of product of environment monitoring equipment, though the equipment is very specialized. (Medium). Other products are mostly standard products.
Risk of New Entrants	Low-Medium	Specialized field, the entry cost can be high.

BEMS = building and utility energy management system, e-bus = electric bus, OCB = open competitive bidding, O&M = operations and maintenance, PV = photovoltaic.

[1] According to the Ministry of Housing and Urban Rural Development, by end of 2018, there were 627 domestic mega-enterprises owning 788 Special licenses (higher than the Category A), including 450 in building, 110 in highway, and 108 in municipal engineering. There were even more Category A, B and C licenses for domestic enterprises in these sectors, and thousands of general contractor licenses for domestic enterprises.

OCB
(Dispatching Center, etc.)

Competitive Rivalry	Medium to low	The market has been developed with certain degree of competition as a few major domestic supplier[2].
Risk of Substitution	Medium	The equipment are mostly standard product. The integration is customized.
Bargaining Power of Supplier	Medium	The equipment are mostly standard product with some customization in integration.
Bargaining Power of Buyer	Medium	With support from its partnership with developers, the buyer have good knowledge of product.
Risk of New Entrants	High	IT technology advances very fast and new technology comes out every several years.

OCB = open competitive bidding.

IT Product and Service
(City-wide ICT Platform)

Competitive Rivalry	Medium	There are around a few major domestic supplier (software developer and service provider) and many smaller suppliers too. International wide there some more well-developed major suppliers available too[3]. High degree of customization.
Risk of Substitution	High	IT technology advances very fast and new technology comes out every several years.
Bargaining Power of Supplier	Medium	There has been some mature technology available in the market for ICT. However, when some new technology comes out and during the transition it can be high.
Bargaining Power of Buyer	Medium	With support from its partnership with developers, the buyer have strong knowledge of product.
Risk of New Entrants	Medium to low	Risk of new entrant would not be likely as it is not very easy to enter the market due to technical complex.

ICT = information and communications technology, IT = information technology.

OCB-IT Product and Service
(SUB-systems for early flood warning, CMEUMS, BEMS, ITS, EMAS)

Competitive Rivalry	Medium to low	For environmental monitoring, flood early warning, intelligent transportation system, the domestic market has been developed with certain degree of competition as a few major domestic supplier (software developer and service provider) available[4]. For energy saving the domestic market hasn't been well developed and most well-known suppliers are from the international market. The domestic market is not very competitive. Especially for energy saving subsystem, the competition is relying on international suppliers.

[2] The well-known suppliers include Zhongxing Dianzi, Beijing Haotai, Zhongguo Dianzi, Yihualu and Zhongtongfu, etc, according to information provided by experts from Xiangtan Big Data Center.

[3] The well-known domestic and international suppliers include ABB, Alibaba, Ernst&Young, Huawei, Johnson Control, and IBM, according to the TRTA consultants.

[4] For Environmental monitoring system, well known suppliers include Shenzhen Zhongxing, Wuxi Zhongke, Hebei Xianhe, Zhongke Sanqing, Zhongke Yutu, Juguang Keji according to information provided by expert from the Ecology and Environment Bureau; for energy efficiency monitoring system, the well-know suppliers are mostly from the international market including Johnson Control, Siemens, Honeywell, and Schneider, according to the TRTA consultants.

		High degree of customization.
Risk of Substitution	High	IT technology advances very fast and new technology comes out every several years.
Bargaining Power of Supplier	Medium to high	There has been some mature technology available in the market for ITS, Flood early warning, and Environmental monitoring. However when some new technology comes out and during the transition it can be high.
Bargaining Power of Buyer	Low	The product is customized and specialized. The buyers do not have strong knowledge of product.
Risk of New Entrants	Medium to low	Risk of new entrant would not be likely as it is not very easy to enter the market due to technical complex.

BEMS=building energy management system, CMEUMS=community-scale multi-energy and utility management system, ITS = intelligent transport system, EMAS = environmental monitoring and assessment system, OCB = open competitive bidding.

Consulting Service
Project management; Engineering design; Integrated urban catchment management plan and development design

Competitive Rivalry	Medium to low	Domestic consulting market for project management has been developing very fast with thousands consulting firms available. However not many of them (less than twenty[5]) have extensive ADB project experience. (Medium) The general design market is well developed with fierce competition[6]. However, for the specific feature of low-carbon and climate resilience concept in this project, not many design firms have proven experience in this specific area. (Low)
Risk of Substitution	Medium to Low	Substitution of the Service/Technology is not difficult. (low) For low-carbon and climate resilience design, the market is still under-developed. The risk of substitution is medium.
Bargaining Power of Supplier	Medium	The service provided is usually technical capability that the buyer do not possess, which put the supplier in advantage. However, the market size has grown to a certain stage with a certain amount of suppliers available. Thus, the supplier's overall bargaining power is medium.
Bargaining Power of Buyer	Low	In this project the buyer is heavily relying on external consultant which put them in advantage in price negotiation. The bargaining power is low.
Risk of New Entrants	Low-Medium	Specialized field, the entry cost can be high.

O&M = operations and management.

[5] Currently domestic firms actively involved in ADB financed projects include (i) China branch of several major international consulting firms; (ii) consulting divisions of several major design firms; and (iii) several small firms established by individual consultants.

[6] According to the Ministry of Housing, Urban and Rural Development, currently there are more than 20,000 design firms (including design institutes) with various licenses in different sectors of engineering, i.e. building, municipal, roads/transportation, hydraulic, etc. Among them the top 5 municipal engineering design institute, North-China, Northwest, Northeast, South-west, Central-South design institutes, also the Shanghai Municipal Engineering Design Institutes, almost have all the licenses needed for this project. There are many more smaller but also very experienced design firms that also have necessary licenses.

Non-Consulting Service
- EDGE certification

Competitive Rivalry	Low	Current there is very limited suppliers to provide such certification service. The competition is very limited.
Risk of Substitution	High	Substitution of the Service/Technology is difficult.
Bargaining Power of Supplier	High	The service provided is very specialized.
Bargaining Power of Buyer	Low	The buyer is heavily relying on external consultant which put them in advantage in price negotiation. The bargaining power is low.
Risk of New Entrants	Low-Medium	Specialized field, the entry cost can be high.

B. Key Procurement Conclusions

Civil works (roads, buildings, landscaping)
The market for civil works (BOQ based) have been well developed with fierce competition and sufficient suppliers. This puts the buyer in advantage in bargaining and provide an opportunity for cost saving. Therefore, the strategy is to increase the size of contracts to attract better quality suppliers and save cost.

Goods (e-bus, charging piles, digitized bus information board, flood warning equipment, green products etc)
The market is fairly competitive. Most of the goods in the field are specialized technology product. However, they are mostly standard products with little or no customization needs (except for some highly specialized instruments for environmental monitoring). This provides an opportunity of saving cost by making the contracts attractive through larger contract size and better commercial terms, i.e. payment terms and schedules.

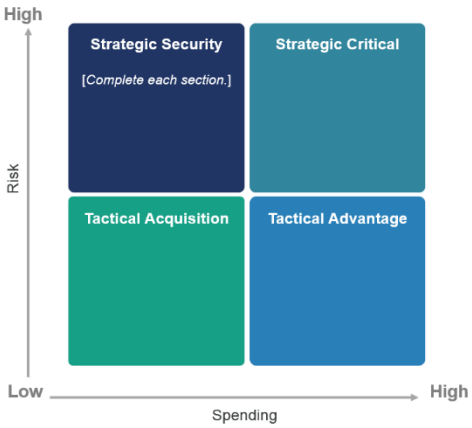
Goods (environmental monitoring equipment)
The market conditions for environmental monitoring equipment varies. For some regular equipment the market is well developed and competitive. For some very specialized equipment, the market competition is less competitive with only few suppliers available. For the general equipment the buyer can attract suppliers with larger size and better commercial terms. While for the very specialized equipment the buyer can reduce the contract size and prepare better technical specifications to reduce procurement risk.

Goods (ICT dispatch center)
The market is fairly competitive. There have been a number of experienced integrator of the provision and installation equipment and associate works in the market. The uniqueness of such integration also provides an opportunity to combine conformity and performance in contract management.

Information Technology and Service (ICT, environmental monitoring sub-system, building energy efficiency sub-system, community energy efficiency sub-system, etc.)
The domestic ICT and software subsystem market has been developed with several major suppliers already available. However, the nature of high specialization gives the buyer disadvantage in price negotiation. In order to offset this disadvantage, the buyer should gain strong knowledge about the product/system by developing good quality specifications.
The domestic market for energy efficiency subsystem is underdeveloped without many qualified suppliers available. The buyer needs to bring international supplier in the competition to reduce procurement risk.
In addition, the fast pace of advancing technology induced risk of substitution for these information technology and services. This risk needs to be mitigated by certain contractual clauses to ensure promptly upgrade and service.

Consulting service (Project management and capacity building, design, integrated urban catchment management and development design) The market if fairly competitive. The buyer is usually weak in the specific area of knowledge and is heavily relying on the external consultant which put them in disadvantage in bargaining. Therefore, the buyer need to carefully assess its needs and prepare good quality terms of references to strengthen its stance in bargaining. In addition, bringing in international competition can also increase buyer's bargaining power. Due to the lack of specific knowledge and experience, the buyer can also consider unit-price (i.e. time-based contract) contract for better budget control or cost saving. The design market is generally very competitive. However not many designers have proven track records in embedding both low-carbon concept and climate resilience concept in the design. Therefore, the buyer can bring in international competition to enhance design quality. Considering the local qualification requirements, it is possible to have consortiums to join local qualification and international experience. In addition, though the contract sizes are generally small, the quality of the deliverable can have significant impacts on the project performance. Therefore, this also provides an opportunity to apply performance measurement in contract management. Similar to the specialized design, the market for consulting service provider for the integrated urban catchment management and development design is generally competitive but the available suppliers with proven track record of applying international best practices in domestic market is limited. International competition is crucial to enhance to quality of deliverable. Non-consulting service (EDGE certification fees). The market for EDGE certification is a monopoly market with fixed pricing. The buyer should adopt the simplest procurement procedure to save resources for other activities.

C. Supply Positioning



Strategic Security	**Strategic Critical**
Consulting Service (Project Management) Consulting Service (Design) Goods-Information Technology and Service (Energy saving systems, environmental monitoring subsystems, ITS subsystem, Flood Early Warning subsystem) Goods (Sensors, small monitoring equipment)	Goods (Dispatching Center) Works (Government building upgrade）
Tactical Acquisition	**Tactical Advantage**
Works (Landscaping) Works (Train Station road upgrade)	Works (Roads) Works (Hospital building)

Goods (Bus information board) Goods (Green products) NCS (EDGE certification)	Works (Community upgrade) Goods (E-bus) Goods (Charging pile)

D. Key Procurement Conclusions

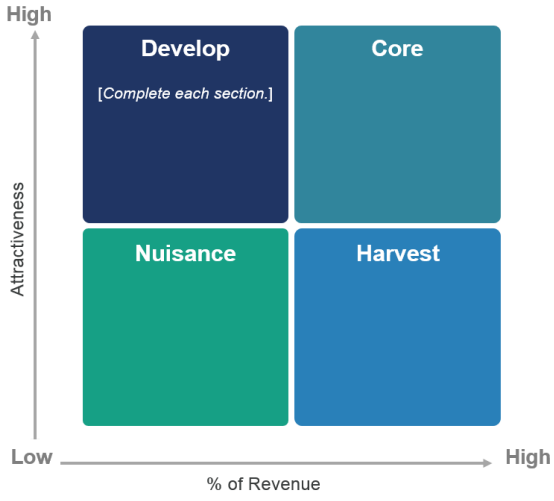
The Works for roads, hospital building, and Goods for e-bus and charging piles have large contract size and low risk and are in the Tactical Advantage category. For these contracts, the target is to encourage competition to save cost.

The Works for landscaping, train station road upgrade, community upgrade, Goods for bus information board and non-consulting service for EDGE certifications has low contract size and low risk. They are in the Tactical Acquisition category. For these contracts, the buyer should use simpler method to complete procurement to save resource, and shift resource (manpower and management efforts) to other important packages.

The consulting services for project management, capacity development and designs, Goods for sensors and other equipment, and Information Technology and Service for various monitoring subsystems under the smart-city program has small size but high risk due to high specialization. They are in the Strategic Security category. For these contracts, buyers should spend efforts in contract management to make sure these packages are delivered with desired quality. Performance measurement might be considered.

The Goods for dispatch center and the Works for Government Building upgrade have high contract size and high risk due to complexity. They are in the Strategic Critical category. The Buyers should spend the most efforts in these contracts in both procurement and management and develop efficient cooperation relationship or partnership with the bidders (contractors).

E. Supplier Preferencing



Develop	Core
Consulting services (project management, design, integrated urban catchment management and development design)	Works (Roads, Hospital building, Government building, Community upgrade) Goods (Dispatch center)

	Information Technology and Service (various subsystems) Goods (e-bus, charging piles)
Nuisance	**Harvest**
NCS	Goods (Green products) Goods (Sensors and other equipment) Goods (Bus information board) Works (Landscaping)

F. Key Procurement Conclusions

The works for roads, hospital building, government building, and community upgrade, Goods for e-bus and charging piles, and dispatch center, and Information Technology and Service for various systems all have considerable size and will be attractive to bidders. However, for the works, and goods contracts, they might not be very attractive to international bidders as the competition is the domestic market is already fierce. The IT service packages might attract some international bidders because these packages are very specialized, and the international bidders might have some technology advantage over domestic suppliers. For the key suppliers, the buyers can attract the bidders to develop long-term relationship to ensure satisfactory delivery.

The goods for green products, bus information board and sensors are mostly standardized product. The works for landscaping has smaller size and might not be as attractive as the large sized works. Bidders/suppliers will tend to harvest and take profit from these packages. The buyers need to make the commercial terms more attractive to have more potential bidders.

Consulting service packages (project management, design, integrated urban catchment management and development design) are highly attractive though their size might not be large, due to potential of downstream work. Suppliers for these services tend to develop relationship and partnership with buyers. The buyers can consider use performance measurement to delivery evaluation.

The Non consulting service (EDGE certification) are nuisance to bidders. The buyer should consider reduce their level of efforts in these contracts, and use simpler and faster procurement methods, i.e. use domestic funding to direct contract such service suppliers.

Section 4: Risk Management

A. Project Procurement Risk Assessment Risk Register

No.	Risk Description	Likelihood ("L") (1–5)	Impact ("I") 1–5)	Risk Score (L x I)	Proposed Mitigation	Risk Owner
1	EA/IA does not have sufficient resource to manage this project	5	5	25	Mitigate	EA/IA
2	EA/IA has no prior ADB project experience	5	3	15	Mitigate	EA/IA
3	EA/IA's procurement officers are not proficient with English which limits their communication	4	3	12	Mitigate	EA/IA

	capacity with ADB and leads to project delay					
4	Procurement officers from EA/IA do not have access to systematic procurement training	4	3	12	Mitigate	EA/IA
5	The experts selected for Bid Evaluation Committee do not have much experience	3	3	9	Mitigate	EA/IA
6	Bidding might be manipulated.	3	3	9	Mitigate	EA/IA
7	Lack of anti-corruption mechanism in EA/IA.	2	3	6	Mitigate	EA/IA
8	Lack of technical capacity	5	3	15	Mitigate	EA/IA
9	Lack of O&M capacity for ICTs	5	3	15	Mitigate	EA/IA
10	Lack of O&M capacity for other facilities	4	3	12	Mitigate	EA/IA

EA = executing agency IA = implementing agency, ICT = information and communication technology, O&M = operations and maintenance.

B. Risk Management Plan

No.	Risk Description	Consequence	Risk Owner	Proposed Mitigation
1	EA/IA does not have sufficient resource to manage this project	Project delay	EA/IA	EA/IA to provide sufficient human resource (qualified personnel) to PMO; EA/IA to provide secondment of qualified technical personnel to PMO. EA/IA to hire consultants including management consultant and procurement agency to assist in procurement-related activities.
2	EA/IA has no prior ADB project experience	Project delay	EA/IA	ADB to provide training; PMC to provide training during implementation; PMC to assist in procurement-related activities; ADB to provide regular review (prior or post)
3	EA/IA's procurement officers are not proficient with English which	Project delay	EA/IA	PMO to recruit qualified personnel; EA/IA to recruit qualified personnel; PMC to provide assistance.

	limits their communication capacity with ADB and leads to project delay			
4	Procurement officers from EA/IA do not have access to systematic procurement training	Project delay	EA/IA	ADB to provide training; PMC to provide training;
5	The experts selected for Bid Evaluation Committee do not have much experience	Non-compliance in procurement	EA/IA	PMC and procurement agency to provide guidance.
6	Bidding might be manipulated.	Non-compliance in procurement	EA/IA	PMC to provide supervision; ADB to provide regular review and monitoring; PMO to establish a complaint address system.
7	Lack of anti-corruption mechanism in EA/IA.	Non-compliance in procurement	EA/IA	PMO to adopt ADB anti-corruption policies in all procurement-related activities
8	Lack of technical capacity	Project delay and budget overrun	EA/IA	PMO to hire specialized consulting service; ADB to provide guidance.
9	Lack of O&M capacity for ICTs	ICT not sustainable	EA/IA	PMO to hire specialized consulting service; ADB to provide guidance.
10	Lack of O&M capacity for other facilities	Facilities not sustainable	EA/IA	PMO to hire specialized consulting service; ADB to provide guidance.

ADB = Asian Development Bank, EA = executing agency IA = implementing agency, ICT = information and communication technology, O&M = operations and maintenance, PMC = program management consultant, PMO = program management office.

Section 5: Options Analysis

Strategic Options Description	**Feasibility** (1–10)	**Suitability** (1–10)	**Acceptability** (1–10)	**Overall** (3–30)
1.1 a) Works for road retrofit as one contract	10	8	8	26
1.1 b) Works for road retrofit as separate contract	10	6	8	24
1.2 a) Bus information board as separate goods package	10	6	8	24
1.2 b) Bus information board integrated in Works package.	10	8	8	26
1.3 a) E-bus as one contract	10	8	8	26
1.3 b) E-bus as several separate contract	10	6	6	22
1.3 a) Charging piles as one contract	10	8	8	26

1.3 b) Charging piles as several separate contract	10	6	6	22
1.4 a) Bus information boards as separate contract	10	6	6	22
1.4 b) Bus information boards integrated in works for bus stations.	10	8	8	26
1.5 a) Community upgrade as a single contract	8	8	8	24
1.5 b) Community upgrade as separate contracts by districts;	10	9	9	28
1.5 c) Community upgrade as separate contracts by districts with various lots based on proximity of communities.	10	10	10	30
1.6 a) Works for hospital building as one contract	10	6	6	22
1.6 b) Works for hospital building as several separate contracts	10	8	8	26
1.7 a) rain garden design and works in one contract	10	8	8	26
1.7 a) rain garden design and works in separate contracts	10	8	8	26
1.8 a) Government building works and equipment in one contract	10	8	8	26
1.8 a) Government building works and equipment in separate contracts	10	8	8	26
1.9 a) Integrate all design works in one consulting service contract	6	6	6	18
1.9 b) Separate design works into various contracts based on sub-project	10	9	6	25
1.9 c) Integrate design works in several consulting service contracts while integrate assignments in similar nature.	10	10	8	28
2.1 a) Early warning sensors as separate contracts	10	6	8	24
2.1 b) Early warning sensors integrated in early warning platform.	10	8	8	26
2.2 a) Dispatch center works and equipment in one contract	10	10	8	28
2.2 b) Dispatch center works and equipment in separate contracts	6	6	6	18
2.3 a) CMEUMS, BEMS in one contract	8	6	6	20
2.3 b) CMEUMS, BEMS in separate contracts	8	8	8	24
3.1 a) project management and integrated urban catchment management and development design in one contract	8	8	8	24
3.2 b) project management and integrated urban catchment management and development design in separate contracts	8	8	8	24

BEMS = building and utility energy management system, CMEUMS = community-scale multi-energy and utility management system.

Section 6: Procurement Strategy Summary

1. The indicative procurement plan has been prepared with the following assumptions：
   - The packages distribution provided is tentative and may vary as per the

requirement of carrying out the program.

- The Estimated value mentioned in the plan are tentative and may vary.
- The Estimated values mentioned in the plan are confidential and are for internal consumption only as values to be put in the tenders is not yet finalized and hence the same should not be uploaded on the website for any reference by the prospective bidders.
- The Estimated values will also be impacted with the variation in the Exchange rate. For the subject estimation we have considered the exchange rate as $1.00 = CNY6.977.
- The Advertisement Date mentioned for the packages are tentative and may be preponed or postponed as per the requirement of carrying out the program.
- The loan effectiveness is presumed to be 1 January 2021.

2. 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's duration.

Goods, Works, and Non-consulting Services							
Package No.	**General Description**	**Estimated value (mil $)**	**Procurement method**	**Review**	**Bidding procedure**	**Advertisement Date** (quarter, year)	**Comments**
CW101	Civil works (median and peak-hour curbside bus priority lanes, bus stops, cycling lanes, walkways, safe islands, and safety features at two elementary school zones) in Yuhu District	16.75	OCB	Prior	1S1E	Q1/2022	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
CW102	Civil works (median and peak-hour curbside bus priority lanes, bus stops, cycling lanes, walkways, safe islands, and safety features at three elementary school zones) in Yuetang District	36.82	OCB	Prior	1S1E	Q3/2022	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
CW103	Civil works for building (Xiangtan First Traditional Chinese Medicine Hospital building structure)	47.63	OCB	Prior	1S1E	Q3/2021	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
CW104	Civil works for hospital building internal structure and for resilient rain garden/EbA facilities	32.53	OCB	Prior	1S1E	Q2/2022	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No

Goods, Works, and Non-consulting Services							
Package No.	**General Description**	**Estimated value (mil $)**	**Procurement method**	**Review**	**Bidding procedure**	**Advertisement Date** (quarter, year)	**Comments**
							Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
CW105	Civil works for government building retrofit ('Asia Pacific Low-Carbon Development Training Center')	8.98	OCB	Prior	1S1E	Q2/2023	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
CW106	Civil works for the Yuhu District low-carbon communities	21.33	OCB	Prior	1S1E	Q3/2021	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
CW107	Civil works for the Yuetang District low-carbon communities	20.19	OCB	Prior	1S1E	Q3/2021	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Works (PRC specific SBD updated 2020) Advance contracting: No
G101	Provision of e-Buses (urban city buses:100 e-bus)	11.18	OCB	Prior	1S1E	Q3/2021	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G102	Provision and installation of e-charging stations (778 charging piles at 30 locations)	10.86	OCB	Prior	1S1E	Q4/2021	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G103	Provision and installation of pedestrian crossing sound/countdown, digitalized bus information	5.74	OCB	Prior	1S1E	Q1/2022	Advertisement: National Prequalification of Bidders: No

Goods, Works, and Non-consulting Services							
Package No.	**General Description**	**Estimated value (mil $)**	**Procurement method**	**Review**	**Bidding procedure**	**Advertisement Date** (quarter, year)	**Comments**
	system; and monitors and computers for smart bus control room.						Domestic Preference Applicable: No Bidding Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G104	Provision and installation of low-carbon equipment (Tri-gen, PV) for Xiangtan First Traditional Chinese Medicine Hospital	3.19	OCB	Prior	1S1E	Q3/2023	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G105-ICT	Provision and installation of building energy management system (BEMS) at Xiangtan First Traditional Chinese Medicine Hospital	0.72	OCB	Prior	1S1E	Q3/2023	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G201-ICT	Development, provision installation and commissioning of the smart city-wide ICT platform operation system	10.22	OCB	Prior	1S1E	Q2/2021	Advertisement: International Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: ADB (IT Product and Service) SBD Advance contracting: No
G202	Provision and installation of monitors and computers for city dispatch room	5.73	OCB	Prior	1S1E	Q1/2022	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G203-ICT	Provision and installation of BEMS for 200 public buildings and sensors	5.73	OCB	Prior	1S1E	Q2/2022	Advertisement: International Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: ADB (IT Product and Service) SBD Advance contracting: No
G204-ICT	Development, provision installation and	4.55	OCB	Prior	1S1E	Q3/2022	Advertisement: International

Goods, Works, and Non-consulting Services							
Package No.	**General Description**	**Estimated value (mil $)**	**Procurement method**	**Review**	**Bidding procedure**	**Advertisement Date** (quarter, year)	**Comments**
	commissioning of early flood warning system (including Model-building, flood assessment) and relevant sensors						Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: ADB (IT Product and Service) SBD Advance contracting: No
G205	Provision and installation of power transmission system expansion at Jiuhua industrial zone	11.47	OCB	Prior	1S1E	Q2/2023	Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Documents: Goods (PRC specific SBD updated 2020) Advance contracting: No
G206-ICT	Provision and installation community-scale multi-energy and utility management system+sensors at Jiuhua industrial zone	4.54	OCB	Prior	1S1E	Q3/2022	Advertisement: International Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: ADB (IT Product and Service) SBD Advance contracting: No
G207-ICT	Development, provision installation and commissioning of environmental monitoring and assessment system	3.61	OCB	Prior	1S1E	Q4/2022	Advertisement: International Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Documents: ADB (IT Product and Service) SBD Advance contracting: No
Consulting Services							
Package No.	**General Description**	**Estimated value ($)**	**Selection method**	**Review**	**Type of Proposal**	**Advertisement Date** (quarter, year)	**Comments**
CS101	Engineering design (bus priority, bus stops, cycling and walkways; road safety; multi-modal station; and Fuxing Middle Road)	6.74	QCBS	Prior	FTP	Q4/2020	Advertisement: International Prequalification of Bidders: EOI Domestic Preference Applicable: No Bidding Documents: SBD (ADB) Advance contracting: Yes
CS102	Engineering design for Xiangtan First Traditional Chinese Medicine Hospital	14.12	QCBS	Prior	FTP	Q3/2020	Advertisement: International Prequalification of Bidders: EOI Domestic Preference Applicable: No

Goods, Works, and Non-consulting Services							
Package No.	**General Description**	**Estimated value (mil $)**	**Procurement method**	**Review**	**Bidding procedure**	**Advertisement Date** (quarter, year)	**Comments**
							Bidding Documents: SBD (ADB) Advance contracting: Yes
CS103	Engineering design for government building retrofit ('Asia Pacific Low-Carbon Development Training Center')	1.35	QCBS	Prior	FTP	Q3/2020	Advertisement: International Prequalification of Bidders: EOI Domestic Preference Applicable: No Bidding Documents: SBD (ADB) Advance contracting: Yes
CS104	Engineering design for Yuhu and Yuetang low-carbon communities	6.23	QCBS	Prior	FTP	Q3/2020	Advertisement: International Prequalification of Bidders: EOI Domestic Preference Applicable: No Bidding Documents: SBD (ADB) Advance contracting: Yes
CS201	Integrated Urban Catchment Management Plan and Design Development for Railway block, Yangmaizhou island and Yaowang - shazilin parks (flood hazards assessment and modelling, conception design, development guideline, and Capacity building)	2.10	QCBS	Prior	FTP	Q3/2023	Advertisement: International Prequalification of Bidders: EOI Domestic Preference Applicable: No Bidding Documents: SBD (ADB) Advance contracting: No
CS401	Program Management Consulting for capacity building and loan implementation	1.50	QCBS	Prior	FTP	Q2/2020	Advertisement: International Prequalification of Bidders: EOI Domestic Preference Applicable: No Bidding Documents: SBD (ADB) Advance contracting: Yes

CS = consulting service, CQS = Consultant Qualification Selection, CW = civil works, EbA = ecosystem-based adaptation, EOI = expression of interest, FTP = full technical proposal, OCB = open competitive bidding, Q = quarter, QCBS = quality- and cost-based selection, SBD = standard bidding document.

A. Procurement Packaging and Scheduling

3. There are 31 packages in total. Within these packages 25 will be financed or partially financed by ADB, including 6 consulting service packages, 7 works packages, and 12 goods packages (including 6 general goods packages and 6 information technology product and service packages). The other 6 packages will be financed by counterpart funding.

Type of contracts	No. of contract	Procurement method	Estimated value ($ million)
Civil works	7	OCB	**184.22**

Goods (General)	6	OCB	**48.14**
Consulting services	6	QCBS (90:10)	**32.04**
Goods (Information Technology Product and Service)	6	OCB	**29.37**
Others	6	GP	**9.39**
Total	**31**		**303.19**

CQS = Consultant Qualification Selection, GP = government procurement, QCBS = quality- and cost-based selection,

4. The consulting service for capacity building and program management is crucial for the smooth implementation. This package will be advertised in 2020 through advance contracting, and possibly retroactive financing. All the engineering design consulting service packages will be advertised in 2020 through advance contracting, and possibly retroactive financing.

B. Procurement Method

5. OCB will be used for ADB financed contracts for works and goods, and IT products and services. Advertising will be national advertising for all contracts with the exception of five specialized IT products and services for the city-wide ICT platform system, the community-scale multi-energy and utility management system (CMEUMS), and building energy and utility system (BEMS) covering 200 public buildings, the early flood warning system, and environmental monitoring and assessment platform, which will be advertised internationally. Bid preparation time for OCB national advertising and international advertising will be a minimum of 28 and 42 days respectively. Offline bid submission shall be applied, and the government's e-procurement system will not be used except for being used as an advertisement and information disclosure purpose, as its procedures and its scoring systems in bid evaluation are incompatible with ADB guidelines.

6. All the consulting services for engineering designs, project management and capacity building, and integrated urban catchment management plan and design development will be engaged using the quality- and cost-based selection (QCBS) method with a quality–cost ratio of 90:10 method.

C. Pre-qualification

7. The arrangement is set as follows:
   (i) Consulting Services: Express of Interest (EOI) submission and shortlisting steps are required for all consulting service packages.
   (ii) Works: No pre-qualifying is required.
   (iii) Goods: No pre-qualifying is required.
   (iv) IT product and service: No pre-qualifying is needed.

D. Bidding Procedures

8. Unless otherwise agreed between XMG and ADB and set forth in the procurement plan, procurement under OCB will use the single-stage one-envelope procedure.

9. However, for consulting services contracts, EOI and shortlisting will be applied.

E. Specifications

10. Specifications arrangement are as follows:
   (i) Consulting services: TORs developed by PMO with ADB's assistance, and reviewed

and approved by ADB. Performance-based TORs will be applied.

(ii) Works: Conformance type specifications will be used for all works including for buildings, roads, and landscaping.

(iii) Goods: Conformance type specification will be used for goods relating to E-buses, charging piles, sensors, green products. Combined conformance and performance-based specification will be used for goods relating to dispatch center, and low-carbon equipment.

(iv) IT product and service: Combined conformance and performance-based specification will be used for IT product and service.

F. Review Requirements

11. ADB will provide prior review for all packages advertised in the first year of implementation. The review requirement may be adjusted based on the outcome of the re-assessment on IA's capacity which will be conducted during the ADB review mission in the second year of implementation.

G. Standstill Period

12. The standstill period will follow requirements of the China's country system, which is normally 3 days.

H. Standard Bidding Documents and Contract Forms

13. Standard bidding documents and contract forms that will be applied are listed as follows:

- Works packages with OCB advertised nationally: Standard Bidding Documents for Procurement of Civil Works Financed by International Financial Institutions (the SBDs) by the PRC government updated in 2020.
- Goods packages with OCB advertised nationally: Standard Bidding Documents for Procurement of Goods Financed by International Financial Institutions (the SBDs), issued by the PRC government updated in 2020.
- Information Technology Product and Service: ADB's standard bidding document template for information technology product and service.
- Consulting and non-consulting services packages: ADB's Standard Request for Proposal Template.

I. Pricing and Costing Method

14. Contracts will be unit price or lump sum for all contracts. Costing will be based on cost norms.

J. Key Performance Indicators

15. Key performance indicators in the Design and Monitoring Framework (DMF) as per output will be used.

K. Evaluation Method

16. The evaluation method includes:

- Lowest evaluated substantially responsive bid price for all works, goods and information technology product and service contracts.

- Rated criteria would be used for consulting services contracts.

L. Contract Management Approach

17. Collaborative approach is used for the management of key packages of complexity, including the government building upgrade and the dispatch center, and also with all the key packages of Information technology product and service and consulting services. For other works contracts, transactional approach will be used. Minimal efforts will be used for the non-consulting service packages.

18. Payment procedure is a key to be focused on during contract management as late payment is a frequent cause of disputes and of other issues induced, especially given the current debt situation of the EA/IA. A detailed contract management plan with appropriate funding arrangement should be in place prior to the project implementation to ensure the EA/IA's obligations can be fulfilled properly in contract execution and management.

M. Value for Money

19. A variety of different factors relating to procurement have been considered in the SPP to achieve value for money. They include market conditions, operational context, client capability, contract duration and timing, previous experience, risks present, and all appropriate procurement modalities and bidding arrangements.

20. The works involved under the program include roads (retrofit or expansion), building (new hospital building and government building upgrade), community upgrade (buildings and landscaping) and landscaping (rain garden). These works are common in PRC and the market is highly competitive with sufficient providers. In order to achieve value for money for these activities, the works of similar natures are combined to form large sized works to attract better qualified contractors and to encourage competition to reduce overall cost. In addition, national advertisement will be used to save resource and cost on procurement management. One stage and one envelope procurement method will be adopted. All procurement packages for works will be evaluated based on the lowest evaluated price, where cost is the main contributor to value for money, and contracts will be awarded to the lowest evaluated substantially responsive bidder.

21. The Goods-general involved under the program include bus information boards, sensors for various smart subsystems (ITS, flood early warning, heat sensors), various environmental equipment, green product, low carbon equipment (tri-generation and PV panels), e-bus and charging piles. Strategy used for these goods vary. For e-bus and charging piles, because the market is already very competitive with sufficient suppliers, larger sized packages are used to attract better qualified contractors and to encourage competition to reduce overall cost, and national advertisement is used to save resource on procurement management. For the bus information board, sensors, and green products that are mostly standard product with transparent market price, they are integrated into other packages, i.e. the green products are integrated in the building upgrade works contract, the sensors are integrated into relevant sub-system contracts, to minimize the resource and cost for procurement management. For low-carbon equipment, which is specialized, they are packaged into individual contract packages to reduce the contract complexity. One stage and one envelope procurement method will be adopted. All procurement packages for works will be evaluated based on the lowest evaluated price, where cost is the main contributor to value for money, and contracts will be awarded to the lowest evaluated substantially responsive bidder. However, for the equipment especially for the Tri-generation and PV panels, life-cycle cost will be considered in the determination of lowest evaluated price.

22. The Goods-Information technology product and service involved under this program include the subsystem for building energy management, for environmental monitoring, for ITS, for flood early warning, for smart city platform, etc. The strategies for these sub-systems vary. To reduce risks for all these subsystems that are highly specialized, they are packaged into individual packages. Because the market has been fairly developed with sufficient suppliers available, customization is required for local conditions. Thus, international advertisement will be used, except for a building energy management system for the hospital. In addition, combination of conformity and performance based technical specification will be used to encourage better quality, which will also ensure value for money. For the subsystem for the community-based energy management, the domestic market hasn't been well developed. Thus, international advertisement will be used to attract international bidders to participate in the competition. These contracts will be encouraged to use attractive commercial terms to attract good and qualified bidders, which can bring in higher quality product.

23. The consulting services involved under this program include various design services, the project management and capacity building, and integrated urban catchment management plan and design development. Due to the nature of such services and the extreme reliance of PMO on the external consulting services, quality instead of price will be the focus in evaluation. Thus, QCBS procedure with a quality and cost ratio of 90:10 will be adopted. In addition, international advertisement and full technical proposal will be used to attract highly experience firms in the competition to improve the quality of the service and deliverables. Weighted and scored non-cost (quality) criteria will be used in the evaluation. The contract will be awarded to the first-ranked consultant with the highest combined score.

24. For the non-consulting services, especially the EDGE certification for which the competition is very limited, and pricing is transparent, domestic procedure will be used to minimize the need of resource in the procurement. Counterpart funding will be used to financing such contracts.

25. Advance contracting will be used for five consulting service packages- all the design services and the project management and capacity building package. Retroactive financing will apply up to 20% of the loan amount for expenditures incurred prior to loan effectiveness, but not earlier than 12 months prior to the signing of the loan agreement. By advancing some of these contracts, the EA/IA can minimize their implementation schedule and reduce their up-front cost in the project preparation.

26. Though the e-procurement platform in the Xiangtan Public Resource Trading Center can bring convenience, which can save the resource in procurement management, however it also brings in undesired limitation on competition, which can jeopardize the overall value for money. Therefore, while the facility might be used to facilitate advertising for national advertised OCB packages, its bidding procedure will not be adopted under this Program.

27. At the very beginning of each contract execution, an effective contract management plan will be developed to ensure that the contracts are successfully implemented and that the deliverables are met as agreed in the contract.