

TERMS OF REFERENCE (TOR)

for Consultancy Services for

Demand and Economic Analysis for the China-ASEAN Sea-Rail Multimodal Logistics Project

April 2024

1. Project Background

To promote regional and cross-border trade and connectivity, the Qinbei District Government (QDG), the Qinzhou Municipal Government (QMG), and the Qinzhou Huangma Asset Management Group Co., Ltd. (QHAMG) (collectively referred as “Project Owner”) are preparing the China-ASEAN Sea-Rail Multimodal Logistics Project (referred as “Project”) to be financed by the Asian Infrastructure Investment Bank (referred as “AIIB” or “Bank”) to support the development of a green and smart multimodal logistics park in Qinzhou, Guangxi Zhuang Autonomous Region (Guangxi), China.

The Project is planned to be adjacent to the existing Mahuang freight marshaling yard, the largest of its kind in the coastal region of Guangxi, and would integrate the freight marshaling yard with the Qinzhou Port, one of the key ports along the coastal line of the North Bay, and the regional highway network. In addition, the Project would add capabilities of streamlining cargo handling, storage, value-adding manufacturing, e-commerce as well as sales and distribution to the integrated local infrastructure system, which would play a pivotal role in realizing Qinzhou’s full economic potential as a Sea-Rail multimodal logistics regional center as well as promoting regional and cross-border connectivity. The Project supports Infrastructure 2.0, aiming to not only develop physical infrastructure but also promote operational sustainability including economic, environmental, and social sustainability.

Located at the gateway of the Western Land-Sea New Corridor (WLSNC), this Project is a flagship project supporting the Cross-Border Connectivity between China and ASEAN countries and other economies by addressing both capacity and efficiency challenges. Qinzhou serves as a key gateway connecting the southwest region of China to the Pearl River Delta Economic Zone domestically and to the Association of Southeast Asian Nations (ASEAN) region via the sea channel across the bay. ASEAN has become China’s largest international trading partner in the past few years and China has been ASEAN’s largest trading partner since 2009. Located in the China-ASEAN Economic Cooperation Zone designated by the Guangxi Zhuang Autonomous Region, this Project supports one of China’s top 10 ports and the largest port in southwest China, the Beibu Gulf Port, which includes three ports in the North Bay: Qinzhou Port, Fangchenggang Port, and Beihai Port.

The Project consists of the following four components, which may be further refined in later stages of project preparation: (1) Dedicated Rail Line and Cargo Yard, including a dedicated rail line connecting the cargo yard to the existing Mahuang Station, a cargo unloading and uploading yard, and the reconstruction of the Mahuang Station due to the addition of the dedicated rail line; (2) Logistics Storage & Service Facilities, including cross-border e-commerce logistics and warehousing center, agricultural logistics and warehousing center, trade logistics center, cross-border cold chain logistics center, logistics industry center, smart logistics service center, cross-border e-commerce incubation center, comprehensive service center, and rooftop distributed photovoltaic power generation system, etc.; (3) Supporting infrastructure, including a 10-km entrance trunk road connecting the logistics park to the regional highway network, internal roads within the logistics park, and utility and service facilities such as water, gas, electricity, and landscaping; and (4) Smart Logistics

Information Management Platform and Capacity Building such as research and training.

The total estimated capital cost of the Project is USD 405 million (approximately RMB 2,630 million), out of which AIIB plans to finance USD 300 million and the Project Owner is responsible for the remaining USD 105 million. The anticipated construction period of the Project is five years, from 2025 to 2030.

2. Objectives of the Assignment

The QHAMG is looking for an internationally recognized high-quality consultancy (referred as “Consultant”) to carry out the Project’s economic feasibility study, including a Freight Transport Demand Analysis (FTDA), a Cost-Benefits Analysis (CBA), and a Financial Analysis (FA). The CBA shall be carried out per AIIB guidelines (see attachment: Guidance Note on Cost-Benefit Analysis of Projects - July 2023) and help the Bank and the Project Owner to assess the economic and financial sustainability of the Project.

3. Scope of Services

The Consultant’s scope of services includes the four tasks listed below. The length of the analysis period is 25 years, starting from the year in which the construction of the Project begins. The Consultant shall work closely with the Project’s Feasibility Study Report (FSR) consultants, the project owner, and AIIB to ensure consistency between different, inter-related pieces of the Project’s due diligence work. The Consultant shall provide full transparency of the analysis, including data sources, assumptions, calculations, results and their interpretations.

Task 1: Market Study

The Consultant shall carry out a Market Study for the Project, including but not limited to:

- Macroeconomic overview of regional economy associated with the Project, particularly domestic and cross-border trade.
- Industry/sector overview of logistics services, including policy development, market size of logistics services, warehousing supply and demand. The Consultant should be aware of the China-ASEAN Industrial Cooperation Zone¹ and identify the positioning of the Project.
- Comparison of similar projects in China and relevant countries or economies, and summary of best practices and lessons learned to inform the demand and economic analysis for this Project.

Task 2: Freight Transport Demand Analysis (FTDA)

The Consultant shall conduct a comprehensive Freight Transport Demand Analysis for the Project to

¹ In order to strengthen industrial cooperation with ASEAN countries, Guangxi has taken advantage of its borders, ports and rivers to develop the China-ASEAN Industrial Cooperation Zone, which includes industrial parks in seven districts and cities: Nanning, Beihai, Fangchenggang, Qinzhou, Yulin, Baise and Chongzuo. The total planned area of the cooperation zone is about 1,500 square kilometers, with a start-up area of 80 square kilometers, including 11 national-level development zones, 18 autonomous region-level development zones, and 9 autonomous region Class A industrial parks. The leading industries mainly involve electronic information, new energy vehicles and parts, petrochemicals, equipment manufacturing, new metal materials, textiles and clothing, home appliances, toys and accessories, business logistics, etc. <http://bbwb.gxzf.gov.cn/ztzl/ywzt/zgdmcyhzq01/index.shtml>

thoroughly understand the potential cargo traffic volume after the Project commences operations and forecast future cargo traffic volumes in the Project's lifecycle (not less than 25 years). The FTDA should be linked to the Market Study in Task 1 and consistent with market and macroeconomic outlook. The FTDA should clearly identify the quantities of cargo in terms of both volume (tons and twenty-foot equivalent unit or TEUs) and monetary value (in USD or RMB), the origins and destinations (ODs) of cargo, existing modes and routes of transportation without the Project, future modes and routes of transportation with the Project, and types of cargo.

More specifically, the FTDA includes the following activities at a minimum:

- Review historical (at least 7-10 years) and existing freight transport demand (referred as the "Without Project" scenario), including the quantities, ODs, modes, routes, and types of cargo that are relevant to the Project.
- Forecast future freight transport demand after the Project commences operations and in the Project's lifecycle (referred as the "With Project" scenario), including the quantities, ODs, modes, routes, and types of cargo that would be served by the Project. This analysis should differentiate non-incremental (or transfer) cargo versus incremental (or induced) cargo defined as follows:
 - Non-incremental (or transfer) cargo simply takes advantage of the Project's multimodal transportation function without utilization of the Project's production facilities.
 - Incremental (or induced) cargo uses the Project's production facilities.
- Based on the results from the above, estimate the Project's impact regarding shortened transport distance, reduced transport time and cost, modal shift to more sustainable modes (e.g., from road to rail, inland waterway, and sea), increased domestic and cross-border trade, and other relevant parameters.

Task 3: Cost-Benefits Analysis (CBA)

The Consultant shall conduct a comprehensive Cost-Benefit Analysis, including computing the Economic Internal Rate of Return (EIRR) and the Economic Net Present Value (ENPV), to understand the economic feasibility of the Project. The CBA should be closely linked to the freight transport demand forecast in the Task 2 FTDA. The CBA includes the following activities at a minimum:

- Identify and compute the economic benefits and costs according to AIIB guidelines (see attachment: Guidance Note on Cost-Benefit Analysis of Projects – July 2023) for the 25-year period. To this end, the Consultant is expected to work with the Bank and the FSR consultants to:
- Provide insights and identify the key beneficiaries of the Project.
- Provide data input for computing EIRR and ENPV as guided by the Bank team. This includes but is not limited to parameters such as shortened transport distance and time, reduced transport cost, carbon emissions, and air pollutions, and increased domestic and cross-border trade, etc.
- Conduct sensitivity analyses of EIRR and ENPV and identify key factors affecting these estimates.
- Conduct CBA for each of the four Components of the Project and ensure the highest possible level of data transparency.
- Propose any policy support to enhance the economic impact of the Project, if any.
- Adjust and iterate the CBA if any changes occur in the Project scope over the course of project preparation.
- Other activities essential to ensure the quality and transparency of the listed tasks above, including data clarification, recalculation, etc.

Task 4: Financial Analysis (FA)

The Consultant shall conduct a comprehensive Financial Analysis, including computing the Financial Internal Rate of Return (FIRR) and the Financial Net Present Value (FNPV), to understand the financial feasibility of the Project. The FA should be closely linked to the traffic demand forecast in the Task 2 FTDA. The FA includes the following activities at a minimum:

- Identify and compute the financial cashflow for the 25-year period. To this end, the Consultant is expected to work with the Bank and the FSR consultants to:
- Provide insights and obtain all necessary Project financials information to perform a functional, standard Project Finance analysis.
- Provide data input for FA. This includes but is not limited to collect detailed data about the Project capex breakdown, revenue, and cost.
- Conduct sensitivity analyses of FIRR and FNPV and identify key factors affecting these estimates.
- Conduct FA for the Project and ensure the highest possible level of data transparency.
- Adjust and iterate the FA if any changes occur in the Project scope over the course of project preparation.
- Other activities essential to ensure the quality and transparency of the listed tasks above, including data clarification, recalculation, etc.

4. Deliverables and Payment Schedule

The Consultant shall complete the Scope of Services described above within twelve (12) weeks. The deliverables and payment schedule are provided as follows (Table 1). The Consultant shall develop their methodology based on the indicated timeline and budget.

Table 1: Deliverables and Payment Schedule

No.	Task	Key Deliverables	% of Contract Price	Expected Deadline (weeks from contract signing date)
1	Market Study	<ul style="list-style-type: none"> • Market Study Report • Supporting documents and data 	10%	3
2	FTDA	<ul style="list-style-type: none"> • Freight Transport Demand Report • Supporting data and documents 	35%	8
3	CBA	<ul style="list-style-type: none"> • Cost/Benefit Analysis Report • Supporting data and documents 	25%	10
4	FA	<ul style="list-style-type: none"> • Financial Analysis Report • Supporting data and documents 	20%	12
5	Workshops, trainings, seminars & conferences	<ul style="list-style-type: none"> • Workshops • Trainings • Seminars • Conferences 	10%	12

5. Consultant Qualifications and Staff Input

The following requirements are a broad description of the likely expertise needed for this consultancy assignment. The Consultant may propose additional experts in the Technical Proposal as may be needed to fulfil this TOR. The Consultant may mobilize supporting experts and administrative staff, including translators and editors, as necessary to execute the Scope of Services. The Consultant is encouraged to engage diverse team compositions, including a mixture of genders. The Consultant is expected to:

- be a firm, a consortium of them, with appropriate and sufficient capabilities, resources, and experience to execute the full extent of the Scope of Services to a very high quality;
- have demonstrated experience in (a) freight transport demand modeling, (b) cost-benefit analysis of infrastructure investments; and (c) financial analysis of infrastructure investments;
- have a proven record of completing at least three similar assignments in terms of value and nature in the past five years successfully;
- bring a good mix of relevant international and national expertise - international consultants are encouraged to team up with local Chinese consulting firms/think tanks/academic institutions, if it enhances the team's qualifications and expertise; and
- formulate a dedicated project team with the relevant qualifications, work experience, communication skills (English and Chinese), and project management skills.

The suggested composition of the core team is as follows:

- **Team Leader / Senior Economist.** She/he will be responsible for the overall performance, timeliness, and quality of all deliverables; lead the project team; development of all outputs; provide technical inputs; lead the Cost-Benefit Analysis workstream; facilitate stakeholder consultation meetings and workshops; and be the key point of communication for the the client. The Team Leader should have the following qualifications:
 - Education Background: A master's or higher degree in economics, finance, transportation, or a related field, demonstrating a solid academic foundation in economic analysis.
 - Professional Experience: Proven track record with a minimum of 10-15 years of relevant experience in economic analysis, particularly in the context of infrastructure projects.
 - Sector Expertise: Specialized knowledge in the specific industry or sector related to the infrastructure project, ensuring a deep understanding of its economic dynamics and challenges.
 - Financial Modeling skills: Proficiency in constructing and analyzing financial models, including experience in forecasting, cost-benefit analysis, and sensitivity analysis.
 - Regulatory Knowledge: Familiarity with local and international regulations governing infrastructure projects, ensuring compliance, and mitigating potential legal risks.
 - Data Analysis and Research Skills: Strong analytical skills with a proven ability to collect, interpret, and analyze data relevant to economic assessments.
 - Communication Skills: Excellent verbal and written communication skills in both English and Chinese to convey complex economic concepts and findings to diverse stakeholders, including non-experts.
 - Project Management Experience: Demonstrated ability to manage economic analysis projects from initiation to completion, ensuring timely delivery and adherence to project requirements.
 - Understanding of Socioeconomic Factors: Awareness of the socioeconomic impacts of infrastructure projects, including considerations for community development, employment generation, and overall societal well-being.
 - Knowledge of Funding Mechanisms: Familiarity with various funding mechanisms for infrastructure projects, including public-private partnerships (PPPs), grants, and loans.
 - Problem-Solving Skills: Strong problem-solving abilities, enabling the consultant to address unforeseen challenges and propose effective solutions during the economic analysis process.
 - References and Past Projects: Positive references from previous clients and successful completion of similar economic analysis projects, showcasing the consultant's reliability and competence. Experience with projects funded by International Financial Institutions (IFIs) including MDBs is desirable.

- **Senior Freight Transport Specialist.** She/he will lead the Freight Transport Demand Analysis workstream and provide inputs to the Cost-Benefits Analysis and Financial Analysis workstreams. The Senior Freight Transport Specialist should have the following qualifications:
 - Educational Background: A master's or higher degree in transportation planning, logistics, civil engineering, economics, or a related field, indicating a strong academic foundation in freight transport.
 - Professional Experience: A minimum of 5-10 years of relevant experience in freight transport demand analysis, with a track record of successful projects in a similar context.
 - Transportation Expertise: In-depth knowledge of transportation systems, including freight logistics, supply chain management, and familiarity with different modes of transportation (road, rail, inland waterway, maritime, air).
 - Data Analysis Skills: Proficiency in statistical and data analysis tools to process and interpret large datasets related to freight movements, trade flows, and logistics.
 - Market Research Abilities: Experience in conducting market research to understand industry trends, competitor analysis, and potential impacts on freight demand.
 - Modeling Proficiency: Strong skills in developing and utilizing transportation demand models to forecast freight demand based on various factors, such as economic growth, industrial activities, and trade patterns.
 - GIS (Geographic Information System) Competence: Familiarity with GIS tools for spatial analysis, helping to assess the geographical aspects of freight movements and identify optimal transportation routes.
 - Regulatory Knowledge: Understanding of local and international regulations impacting freight transport, including compliance requirements and considerations for sustainable and environmentally friendly practices.
 - Project Management Experience: Proven ability to manage the entire freight transport demand analysis process, from project initiation to delivering actionable recommendations, while adhering to timelines and budget constraints.
 - Environmental Impact Assessment Knowledge: Awareness of the environmental implications of freight transport and the ability to incorporate sustainability considerations into the analysis.

- **Senior Financial Analyst.** She/he will lead the Financial Analysis workstream. The Senior Financial Analyst should have the following qualifications:
 - Educational Background: A master's or higher degree in finance, economics, transportation, or a related field, showcasing a solid academic foundation in financial analysis.
 - Professional Experience: Extensive experience of at least 5-10 years in financial analysis, with a focus on infrastructure projects or related sectors.
 - Project Finance Expertise: In-depth knowledge of project finance principles, including cash flow analysis, risk assessment, and financial modeling specific to infrastructure investments.
 - Infrastructure Sector Understanding: Familiarity with the specific industry or sector related to the infrastructure project, ensuring a deep understanding of its financial intricacies and challenges.
 - Financial Modeling Skills: Proficiency in creating complex financial models for infrastructure projects, incorporating factors such as construction costs, operating expenses, revenue projections, and financing structures.
 - Risk Management Knowledge: Ability to assess and manage financial risks associated with infrastructure investments, including familiarity with risk mitigation strategies and financial hedging instruments.

- Regulatory Compliance Expertise: Knowledge of local and international financial regulations relevant to infrastructure projects, ensuring compliance and minimizing legal risks.
- Cash Flow Analysis Skills: Proficient in analyzing and projecting cash flows over the project's lifecycle, considering various funding sources, repayment schedules, and financial metrics.
- Sensitivity Analysis Capability: Skill in conducting sensitivity analysis to assess the project's financial robustness under different scenarios and external factors.
- Communication Skills: Excellent verbal and written communication skills in both English and Chinese to convey complex financial concepts and findings to various stakeholders, including non-financial experts.
- Project Management Experience: Proven ability to manage financial analysis projects from initiation to completion, ensuring timely delivery and adherence to project requirements.
- Understanding of Socioeconomic Impact: Awareness of the socioeconomic impacts of infrastructure projects and the ability to incorporate these considerations into financial assessments.

A summary of the Demand and Economic Analysis consultants' team and required person-months is shown in the following table (Table 2).

Table 2: Team Composition and Estimated Person-Months for the Demand and Economic Analysis

No.	Position	Indicative inputs in person-months
		International
K-1	Team Leader / Senior Economist	3
K-2	Senior Freight Transport Specialist	3
K-3	Senior Financial Analyst	3
	Total	9