

## Detailed scope of Work for Consultant for Management Information System (MIS) Implementation Support

### 1. INTRODUCTION

**Efficient and Sustainable City Bus Services (ESCBS)** Project is a step forward in the initiative taken by the Government of India (GoI) after Jawaharlal Nehru Urban Renewal Mission (JnNURM) and Sustainable Urban Transport Project (SUTP), under GEF 5, to promote bus based public transportation in the country. The GoI through Ministry of Urban Development (MoUD) with assistance from the Global Environment Facility (GEF) and the World Bank has initiated the project on ESCBS with focus on improvement of Bus Transport infrastructure, fleet management, ITS/MIS and improvement in fuel efficiency. This project underlines the goals of the National Urban Transport Policy formulated by GoI.

The ESCBS project is designed to complement the baseline project, Bus Funding Scheme of the Government of India under the JnNURM, through additional activities that would help realize its full potential. The Project is designed to specifically focus on (i) Review of the legal, regulatory, institutional and fiscal constraints to operation of sustainable city bus services, identification of areas for reform and development of policy notes for initiating deliberations at the national, state and city levels for addressing these issues; (ii) A comprehensive capacity building program for the nascent urban bus sector including training programs, knowledge and exchange events for sharing of best practices and experiences among public and private stakeholders; (iii) Targeted city level modernization interventions to showcase low cost high impact initiatives in bus operations and user responsive initiatives.

Four cities have been selected by MoUD for purposes of demonstration on modern and sustainable city bus service -these include Bhopal, Chandigarh, Jaipur and Mira -Bhayandar. One of the bus service improvements involves demonstrating the application of MIS application for service improvements.

The Bhopal City Link Limited (BCLL) under the project intends to apply a part of the GEF grant proceeds towards hiring the service of a qualified agency to provide implementation support of MIS infrastructure for its city bus services.

BCLL is a **Special Purpose Vehicle (SPV)** majorly owned company of Bhopal Municipal Corporation (BMC), incorporated in 2006 to provide an organized dimension to public transportation in Bhopal. The Mayor of BMC is the Chairman and Commissioner of Bhopal Municipal Corporation is the Managing Director of SPV. BCLL has been successful in fulfilling the municipal responsibility of providing Public Transport facility for the conveyance of public mandated under Sec 66 (S) of Municipal Corporation Act. It started its

operation with a fleet of just 30 buses in 2006, after receiving JnNURM Sanction, has grown to 225 buses comprising AC and Non AC Low Floor Buses, plying on 12 different approved routes of Bhopal city including BRTS route. The current daily ridership is around 1.25 Lacs passenger.

Bus services are operated for BCLL under contract. All technical and IT systems need to take full account of the allocation of roles and responsibilities among the parties, and should also allow for multiple bus operating companies under separate contracts. Currently, BCLL has the responsibility for the network planning, route and service planning and schedule development.

A MIS is to be installed in all the Bhopal City Link Limited Bus to assist in Schedule Planning, Fleet Management and maintenance, Operations control, Fleet Management. The implementation of MIS will also be useful in city bus operations and optimization in utilization of assets for improvement in service quality and manpower performance. There are existing AVLS and fare collection systems, to which the MIS will interface and exchange information.

The consulting services ("the Services") shall broadly include but not be limited to; conceptual design and specification of the Management Information System (MIS) to include service planning, vehicle and crew scheduling, timetable production; operations planning; resource optimization, crew rostering, contract management of operators and other related applications; interface with both Intelligent Transport System(ITS) and back-office System; development of specifications and implementation strategy; providing assistance in bid process management for hiring System Integrator (SI) for implementation of MIS; development of relevant operational Key Performance Indicators (KPIs) to monitor the performance of SI; helping the Bhopal City Link Limited (BCLL) to build capacity and knowledge transfer from SI; and post deployment monitoring and evaluation support.

While BCLL would be the primary user of MIS, the Bus operator(s) may also utilize the applications. The assignment is expected to take about 18 months and will be carried over in 2 stages: pre-implementation stage and post-implementation stage.

## **2. OBJECTIVES OF THIS CONSULTANCY ASSIGNMENT:**

The objective of the assignment is to hire a qualified consultant agency to provide expertise in

- i. Assessing Client/User needs and outlining functional specifications for the MIS;
- ii. Collaborating with ITS Consultants to ensure seamless integration between existing ITS components and proposed MIS;

- iii. Finalizing the MIS design, specification and implementation strategy that will form the basis of technical implementation ;
- iv. Conducting Bid process management for hiring the System Integrator (SI) for MIS and incorporate any changes that may occur during pre-bid meeting, finalization of deliverables under the bid and contracting process for SI finalization including stakeholder consultation if necessary for approval of changes made to the RFP;
- v. Monitoring the performance of the System Integrator; and
- vi. Helping the city to build capacity and knowledge transfer from System integrator.

### **3. SCOPE OF WORK:**

The tasks to be undertaken by the agency to be hired have been outlined in two stages, namely – pre- implementation stage and post -implementation stage. The details of tasks, expected outputs and schedules have been discussed in paragraphs below.

#### **Pre-Implementation Stage:**

The Consultant is required to provide expertise in terms of information technology experience, procurement expertise and subject matter expertise in MIS operations to further augment initiative of providing best in class transit services to commuters and a relevant action and delivery oriented MIS. The scope of the consultant would include end to end Project Management broadly including the tasks mentioned below and allied activities. The consultant shall

- Be required to develop proper understanding of the project objectives after a thorough due diligence of all stakeholder needs and studying all available project documents, and develop the following from the perspective of implementation.
  - Reports, specifications, designs and drawings
  - Finalizing RFP
  - Bill of Quantities (BOQ)
  - Implementation of strategy and sequencing of activities,
  - Any other relevant documents, as may be required
- The consultant shall coordinate and take feedback from all concerned stakeholders and shall also make sure that the required modifications are incorporated in the existing documents in consultation with the designated city transport authorities.
- Review & prepare an implementation schedule for each phase of the work in conformity with the overall project implementation schedule of the project.

To better understand and simplify the scope of work, the following tasks have been envisaged:

#### **Task 1: Solution Design Assessment & Project Management Planning for MIS Implementation (Approx. 3months)**

- 1.1.1 Assessment of design for MIS in a way that it meets the requirements of the Project and finalizes the same in consultation with the stakeholders.
- 1.1.2 Extensive study and scanning of MIS marketplace to explore potential Commercial Off-the-Shelf (COTS) and Cloud-based implementation strategies for the proposed MIS solution.
- 1.1.3 Ensure the proposed MIS design will fully and seamlessly integrate with existing ITS installation.
- 1.1.4 Review and sign-off the detailed design document which clearly spells out the MIS solutions, processes and infrastructure envisaged for the project.
- 1.1.5 Develop functional requirements of the proposed solution, change management process including development, staging and production environment details.
- 1.1.6 To review and prepare reports on the following MIS action plans:
  - Architecture design specification
  - Solution specification
  - Component description
  - Deployment plan
  - Training plan
  - Integration test plan
  - Acceptance test plan
  - Review service level agreement with the implementation agency and also develop the service level parameters for measuring the effectiveness of MIS in the ITS environment.
  - Propose MIS and Business Critical Dashboards to aid efficient operations environment.
  - Prepare Operations SOP's to ensure management and delivery on predictable levels in alignment with existing ITS installations
  - Risk assessment of proposed MIS and mitigation strategies.
- 1.1.7 Feedback from the designated city transport authorities shall be incorporated into these documents and subsequently provided to the implementing agency for implementation as a standard project activity.

#### **Deliverables: Review & Sign-off (MIS Action plan)**

1. High level design document and solution architecture for MIS implementation.
2. Review report should include, but not limited to following:
  - a) Solution Architecture design specification.
  - b) Dashboard capabilities.
  - c) Reporting format and decision capabilities of the deployed system
  - d) Use case review.
  - e) Standard Operating Procedures and task allocation and management

procedures.

- f) Integration test plan
  - g) Acceptance test plan
  - h) Service level agreement and the key service level parameters for measuring the effectiveness of MIS.
3. Document the capabilities of the proposed MIS solution.
  4. Final RFP document for proposed MIS.
  5. Prepare Work plan to implement MIS.

**Task-2: Bid process Management or support required during selection of System Integrator**  
(If required, approx. 6 months; this would be required and this timeline have to be revised based on the new 18-month timing)

Assist client in various stages of tendering process i.e. Short listing consultants, answering queries raised during the pre-bid meeting, evaluating proposals received, preparing Evaluation report and selection of The System Integrator.

To ensure that the technical solution proposed by the selected bidder meets all the requirements and objectives defined in the RFP documents.

Assist the city in preparing the contract along with Service level Agreement (SLA) with the successful bidder. The consultant will prepare this in consultation with all the stakeholders.

**Deliverables:**

- Technical and combined evaluation report
- Contract along with Service level agreement with the selected System Integrator

**Implementation Phase**

**Task-3: Solution Implementation** (Approx. 6 months this timeline have to be revised based on the new 18-month timing)

3.2.1 In this stage the consultant shall supervise and monitor as well as provide guidance to the staff of client. Key activities shall include:

- The consultant shall provide proactive inputs to the designated transport authorities (or department) as well as to the Implementation agency engaged under the project to ensure that results are achieved as per the desired objectives.
- Monitor the performance of the Implementation Agency on various services as per defined SLAs.

- Ensure schedule and process compliance with the agreed project process through project planning and monitoring; status reporting; risk assessment with recommendations to mitigate the identified risks; resource utilization and variances; validation of solutions proposed; acceptance testing; formulation of service level agreements with the service vendors etc. The consultant is expected to make suggestions for business process re-engineering wherever required.
- The consultant shall be responsible for reviewing solution provider's project methodology, project templates, questionnaires and other toolkits that aid in capturing detailed requirements in building the solution. In cases where necessary, workshops and interviews need to be conducted for evolving the solution
- Guide the Client on the necessary preparatory activities they must perform for the MIS, including the preparation and verification of base data that will be required by the various applications. The Consultant will be responsible to identify the data needs, prepare data templates, develop data verification methods, etc. It will be the responsibility of the Client to gather and verify the data.
- Assist the designated city transport authorities in Project management including compliance with timelines, certification of quality assurance including certification of hardware, software and other related components before commissioning and monitor compliance to service level agreement for the same
- Outline processes and activities for transition to ensure that the project is implemented successfully towards delivering benefits that were envisaged in the project proposal. The consultant shall give recommendations on training and deployment plans, proposed migration plan and may include phases (alpha, beta, pilot roll out) before a full scale roll out. Critical reports such as transition plan, feedback of pilot roll out shall be submitted to the designated city transport authorities. Feedback from the city transport authorities shall be incorporated into the specifications and provided to the vendor for implementation as a standard project activity.
- Ensure that the vendor has addressed the issues of maintenance of the system satisfactorily.
- Ensure that the project life cycle activities are conducted as per the project plan finalized with the implementation agency.
  - Plan and publish projects milestone plans.
  - Ensure quality of deliverables at each review milestone and advise corrective action as needed.
  - Evaluate project progress on cost, schedule and resource utilization and advise corrective action for variance in performance against set

standards.

3.2.2 Review the working prototype and final delivery of the solution.

3.2.3 The consultant shall advise the MIS agency on evolving the test plan required to meet the outlined specifications and SLA. consultant shall ensure timely and proper fixing of any bugs which may be reported. The consultant shall conduct testing based on the integration test plan. Critical test reports in areas such as scalability, interoperability and performance shall be submitted.

**Deliverables:**

- Review the prototype of all the modules of MIS
- Detail report on works carried out by system integrator for MIS implementation.
- Risk assessment and mitigation strategies
- Periodic Project Progress Report
- Exception report (SLA breach)
- Full scope Testing and evaluation report

3.3 **Stage 3: Post Deployment Monitoring and Evaluation Support** (approx. 1.5months; this timeline have to be revised based on the new 18-month timing)

3.3.1 The consultant shall conduct monthly post deployment reviews to ensure that the objectives of the project agreement and delivery of the services are as per the SLA.

3.3.2 Provide a framework for post deployment activities.

3.3.3 Implement a post deployment assessment activity of the project as per the framework.

3.3.4 Assess effectiveness of the project deliverables and variance with respect to the framework.

3.3.5 Review the SLA for the Project solution provider and bring out the variances and options to mitigate these if necessary.

3.3.6 Monitor the performance of the Implementation agency on various services as per defined SLA

3.3.7 The consultant shall monitor processes and activities to ensure that project deliveries deliver the intended benefits. A record of the implementation experience, assessments from the stakeholders on the deliveries, deviations from the original SLA is recorded. The consultant shall conduct a post implementation survey of the stake holders to establish appropriate practices for program.

3.3.8 Ensure critical elements of the project are covered in the Proof-of-Concept (PoC) for technology and solution validation.

- 3.3.9 Validate solution architecture to ensure interoperability, scalability and Performance.
- 3.3.10 Review the various manuals (user manual/maintenance manual/training manual) prepared by the implementation agency and recommend revisions if any.
- 3.3.11 Supervise the capacity building and change management exercise expected to be provided by the system integrator to the related staff responsible for implementation of MIS components and also supervise the guidance imparted to the relevant stakeholders to take advantage of the knowledgeable and result oriented decision disseminating MIS.
- 3.3.12 Knowledge transfer to the client listing the learning, best practices followed, challenges faced (i.e. Managerial, technical and financial) and improvements suggested.
- 3.3.13 Assessment of capacity building of the staff of the client.
- 3.3.14 Risk Assessment with recommendations to mitigate the risks.
- 3.3.15 Ratify implementation agency plan for withdrawal and post withdrawal support.

**Deliverables:**

Submission of Post-deployment Evaluation report comprising the following

- Performance report on implementation vendor
  - Risk Assessment and Mitigation Strategy
  - Survey Report
  - User Manual evaluation report
  - Capacity building and change management evaluation report
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- 1. Exception Report (SLA breach)
  - 2. Periodic Project Evaluation Report

**Stage: 4: Evaluation Support:** (approx. 3months)

- 3.3.16 With the objective of evaluating the effectiveness of the MIS investment, the consultant shall create an Evaluation plan. The plan should consist of methodology and performance measures for comparing the existing scenario with the post- implementation scenario. The Evaluation plan shall provide a roadmap for evaluating the project outcomes through collecting, analyzing and documenting relevant performance indicators. The consultant shall incorporate a review of project outcomes and compare them to the expected outcomes and baseline data in its final report.

**Deliverables:**

- Project Evaluation Report
- Project learning's, knowledge transfer document and lesson learned report.



#### 4 Consultant Team Requirement

Position	Minimum Qualifications	Specific Experience	Years of Professional experience	Period of involvement	Estimated Man Months
<b>Project Manager</b>	Degree in Engineering and MBA or Masters Degree in technical discipline	<p>Experience as Project Leader in implementing all aspects of the planning, design, implementation, Integration and operations of Intelligent Transportation Systems and Management Information Systems. In addition to expertise in the transportation operations, the PM should also have experience in Information technology and communication.</p> <p>PMP, PMI, prince2 or similar Certification and training are desired. Should have demonstrated analytical skills to analyze and interpret data Good communication skills in local language and English and good written</p>	<p>10 –</p> <p>At least 3-4years experience in IT sector</p>	<p>Entire agreement Period including the successful commissioning of all MIS components, period of operation and providing training to personnel of the client</p>	12 Months

		communication skills in English.			
<b>MIS Specialist</b>	Degree in Engineering preferably in Computers / electronics or Equivalent	Progressive experience in at least 2 similar Management Information System (MIS) projects as well as demonstrated Knowledge and credentials in the MIS industry. It is expected that between the two IT specialists there are experience and expertise available in MIS for operations planning a resource management. Experience with Intelligent Transport Systems would be an added advantage.	8	Entire agreement Period including the successful commissioning of all MIS components, period of operation and providing training to personnel of the client	12 Months
<b>IT Specialist</b>	Degree in Engineering preferably in Computers / electronics or Equivalent	IT expert having experience in at least two similar projects – ITS/MIS design, implementation technology and Systems integration. It is expected that between the two IT specialists there is experience and expertise available in ITS/MIS for operations planning and resource management.	8	Should be involved up to successful Commissioning of all MIS components.	8 Months
<b>Procurement Specialist</b>	Degree in Engineering or Masters	Experience in preparation of tender documents and in carrying out bid process management. Should have experience in MIS	10	During the period of development of strategy for different procurement until the commissioning/deployment of all	4 Months

		related procurement. The expert should have ability to conduct market research, negotiate pricing and establish terms and conditions for services and product maintenance. Experience with World Bank or other development bank procurement preferable.		products as per the contract.	
<b>Site Team Leader</b>	Degree in Engineering	Conversant with Information Technology, project management and Transport domain. Conversant with the local language.	8	Designated to be onsite for entire period of the project.	18 months

## 5 Schedule

Months	3	6	9	12	15	18
Pre-Implementation Phase (3+6 months)						
Implementation Phase (6 months)						
Post Deployment and M&E Phase (3 months)						

## 6 Payment Schedule

S. No.	Deliverable	Time Frame	Payment (%)
1	Signing of contract (Advance subject to equivalent amount in BG)	T+0 days	10%
2	Inception Report	T+15 days	10%
3	Reports defined in deliverable sections of task 1 - DPR, functional specifications, SoPs, RFP	T +30 days	10%
4	System Integrator is on-board	T + 90	20%
5	Finalizing the implementation plan for proposed MIS	T +270 days	10%
6	Submission of Test and commissioning report on successful commissioning	T +360	10 %
7	Operational Acceptance / Successful Go-Live	T +450	20%
8	Submission of post-deployment evaluation report at the end of solution implementation stage	T + 480	10%
9	Submission of Project Evaluation Report at the end of monitor and evaluation support stage	T +540	10%