

Terms of Reference for Consultancy Services for Program Evaluation Study of Deployment of Buses by Cities under JnNURM

Project Consultancy (PC1B-7)

1. BACKGROUND

Under the second stimulus package, announced by Government of India (GoI) on 2nd January 2009, states were provided with financial assistance under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) for the purchase of buses to support their public transport systems. Under this program, the GoI provided funding for bus purchases in 61 cities across India (see Annex I for project information).

The JnNURM public transport/bus improvement scheme had the following objectives:

- Provide new, cleaner, more user friendly buses to cities in order to provide a higher level of service and convenience for passengers.
- To ensure the implementation of public transport institutional and service reforms, including setting up SPV's for managing and operating JnNURM financed buses, changes in route and network structure, operations and maintenance practices, etc.

The Ministry of Urban Development (MoUD), GoI wishes to carry out a study to evaluate the impact of the buses procured under JnNURM on the bus systems of the respective cities and to synthesize the lessons learned for future Ministry of Urban Development Public Transport programs. This work will be undertaken as part of the Ministry's Sustainable Urban Transport Project (SUTP), supported by the Global Environment Facility (GEF) and administered through the World Bank. SUTP has the objective of assisting in the application of the Government of India's National Urban Transport Policy (NUTP) to achieve a paradigm shift in India's urban transport systems in favour of sustainable development (details on SUTP can be found in Annex II).

2. OBJECTIVES OF THIS CONSULTANCY

The objectives of this consultancy are to:

1. Analyse the change in public transport performance due to the deployment of modern buses and implementation of reforms under JnNURM, in terms of public transport efficiency, effectiveness, safety and environmental impact criteria;
2. Document and compare the impact of reforms related to the bus modernization program including setting up Special Purpose Vehicles (SPVs), changes in network and route structure, changes in operations and maintenance practices, construction of depots, ITS implementation, and others;
3. Analyse the change in bus user satisfaction due to deployment of modern fleet sanctioned under JnNURM and related reforms;

4. Propose national strategies and policies required to further enhance the public transport systems in Indian cities based on the lessons learned by the JnNURM cities to be applied to future initiatives such as NURM II.

In this project, the consultant will determine whether the sanctioning of buses under JnNURM and implementation of related reforms achieved their objectives, by comparing the baseline, pre-program situation with that after implementation of the project. The consultant shall select relevant performance indicators which reflect project objectives, collect and analyse related data and synthesize and document analysis results.

3. DETAILED SCOPE OF WORK

To achieve the objectives of the consultancy, it is divided into the following stages:

Stage I. Preparation of Methodology

Stage II. Conduct State-of-the-Art review of various other cities (national and international) and identification of indicators for measures adopted for review

Stage III. National workshop with participants of all the states (28), UTs (7) and the million plus cities (as per 2011 census) on findings on review of India and International Practices

Stage IV. Data collection

Stage V. Data Analysis, synthesis of results

Stage VI. Preparation of recommendations for national public transport strategies, policies and programs based on the lessons learned as well as development of an implementation approach

Stage VII. Dissemination/discussion workshop

Stage VIII. Develop final Impact Evaluation document

The detailed scope of the services would include:

STAGE I: Preparation of Methodology

In this stage, the consultant is to develop and obtain approval for an inception report that details the consultant's comprehensive approach for successfully accomplishing the tasks of the project. The consultant shall prepare a methodology to analyse the impact of modernised bus fleet and related reforms based on an understanding of the bus funding scheme under JnNURM.

Task 1: The shortlisting of sample cities out of the 61 participants, for data collection and analysis should be undertaken after documenting the broad status in each of the 61 cities viz. (i) # buses procured; (ii) # of buses in operation; (iii) reforms undertaken. The cities should be selected from the subset of cities where buses are in operation/have been procured and could be categorised for analysis as Metro,

Medium and Small cities based on their population and should have representation from each geographical location north, south, east, west and centre. The sample size should cover at least 50% of the JnNURM cities i.e. 30 cities and in ratio of bus allocation to Metro, Medium and Small cities.

Task 2: A methodology for conducting the entire impact evaluation study and also an information / secondary data collection plan for obtaining background data from GoI, cities and consultants on JnNURM related bus procurement and reforms will be prepared. The methodology adopted should be specifically justified in terms of time and cost savings for surveys and analysis.

Task 3: Review JnNURM bus funding details and develop a city database including JnNURM information as well as background data on all participating JnNURM cities and their transport systems. Information on buses procured can be taken from MoUD and also <http://jnnurm.nic.in/> and <http://www.urbanindia.nic.in/> websites.

STAGE II: Conduct State-of-the-Art review of various other cities (national and international) and identification of indicators for measures adopted for review

The consultant shall conduct State-of-the-Art review of various other cities (national and international which have successfully implemented and currently operating bus based Public Transport system in their city) and identify of indicators for measures adopted for review.

Task 1: Review best practices for improving public transport performance in four international cities concurrently to form a base line against which reforms in Indian cities related to JnNURM can be compared.

Task 2: Prepare list of indicators and finalise concrete data inputs needed for evaluation.

- Identify the **indicators for monitoring the progress and evaluation** of new JnNURM buses introduced in consultation with PMU, MoUD and the World Bank. The impact assessment of new fleet and reforms should include changes in:
 - revenue
 - bus speeds in the corridors where the new buses have been deployed
 - ridership
 - fuel consumption
 - operating and maintenance costs
 - reliability due to fewer mechanical breakdowns
 - profit made by the SPV/organisation
- The impact assessment should cover qualitative improvements in the environment after introduction of JnNURM buses.
- The evaluation should also cover the degree to which **integration** of the overall transport system including bus, urban rail, IPT modes (taxis, three wheelers), two wheelers (through construction of dedicated parking areas) etc. has changed.

Task 3: Finalise methodology to be adopted for the study after measures are finalised and analysis of international best practices

The consultant is to develop and obtain approval for list of indicators and measures to be adopted from the PMU.

STAGE III: National workshop with participants of all the states (28), UTs (7) and the million plus cities (as per 2011 census) on findings on review of India and International Practices

The consultant shall present the findings of the state of the art review to representatives dealing with bus operations for all JnNURM cities and other Non JnNURM cities at a workshop with 50 participants each. The aim of the workshop is to present findings on Indian and International practices that have successfully implemented and currently operating bus based Public Transport system in their city, at a central location such as New Delhi.

Task 1: Hold two, one day long workshops to disseminate the findings of the State of Art review and also have the findings appropriately validated, with about 50 participants for each workshop, with participants, representing various State Transport Undertakings, City bus operators, Local bodies and MoUD to be nominated and invited by MoUD. The workshops must also provide a forum for States/cities to share their current city bus operation initiatives. The workshop must also provide a forum for cities to share their current problems and issues. The consultant must develop questionnaires and other supporting material to understand issues faced in current bus operations and to gauge the level of preparedness of the cities in revamping bus operations. The consultant will be responsible for organising all the logistics of the workshop, including:

- Developing and sharing workshop material in both hard & soft formats,
- Arranging and hiring the venue - such as Habitat Centre, New Delhi conference rooms or similar, and
- Usual packages of Lunch & snacks.

Task 2: The Consultant shall write a brief report documenting the workshop details and outcomes

Task 3: Submit draft report for review and comments

STAGE VI: Data collection

The consultant shall collect data of the sample cities as follows:

- Collect baseline line data (pre-JnNURM fleet) from City Authorities / State Transport Undertakings / City bus operators as per the schedule of surveys and also verify the data.

- Collect data for indicators finalised to evaluate the impact to date of the buses procured under JnNURM
- Collect data on status of implementation reforms and procurement of buses. If procurements have not proceeded and related reforms have not been implemented by the cities then, ascertain reasons for the delay.

Task 1: Conduct necessary groundwork for the Study

- Design the necessary data collection formats/templates for efficiently collecting the performance measures which are to be approved by PMU.
- Obtain the necessary clearances from concerned agencies for the conduct of onsite surveys and for collecting information from databases.

Task 2: Conduct Surveys:

1. Public Transport (PT) system surveys. Survey shall establish a baseline and current situation (after introduction of JnNURM fleet)

- **Baseline data** (pre-JnNURM fleet) to be collected includes a description of the old fleet and of the earlier existing public transport system (see below)
- **Current data:**, This could include the following items for all cities
 - how many buses did the city buy under NURM and type of buses used, which includes but not limited to size and capacity including number of seats, propulsion system/fuel, floor height, number and width of doors
 - have the buses been delivered?,
 - if so are they running or just parked?,
 - if running who is running them, traditional STU operation, private operations or some other arrangement?
 - Whether the project (procurement of buses & buses running on road) was done on time and if not, reasons for delay and what should be done to make projects move faster?
 - Condition of all buses (JNNURM & other city buses) and stops
 - Depot and maintenance facilities – numbers, condition
 - Type of ITS system and condition
 - Reform history
(Details of the reforms to be implemented can be obtained from Annex I DPR phase II guidelines & <http://jnnurm.nic.in/funding-of-buses.html>)
 - Physical description of the corridors where the JnNURM buses were deployed (whole system if randomly deployed)
 - Existing fare structure
 - Total Bus vehicle trips/day by bus vehicle type
 - Total daily bus passenger boarding's on all routes plying corridors
 - Km between service interruptions caused by mechanical failures by vehicle type (JNURM versus non-JNURM)
 - Which buses are better and why, including O&M aspects of buses and their Technical specifications
 - Procedure for procurement/ maintenance/operation / vendors
 - The studies should make appropriate recommendations.

Data such as number of buses procured and their type can be obtained from bus procuring authority and DPRs submitted to MoUD for funding under JnNURM.

2. **Interviews:** The consultant should interact with Traffic Police, Association of State Road Transport Undertakings (ASTRUs), State Transport Undertakings (STUs), City Bus operators and local bodies to understand issues in city bus operations, procurement of buses, Operations & Maintenance, specification of buses, fares and revision and any other issue related with city buses and operations.
3. **Customer Satisfaction Surveys:** A sufficient number of passengers should be surveyed in the corridor(s) where the JnNURM buses are deployed to ascertain the impact on customer satisfaction of the modern buses and related reforms. The following information should be collected, as a minimum for each traveller surveyed:
 - Purpose for the given trip
 - Frequency of bus use (e.g., every day, 2-3 trips per week, once per week, occasionally)
 - Vehicle (two or four wheeler) availability
 - Household size
 - Trip purpose

These surveys need to be detailed enough to provide an evaluation of the adequacy of transport system before and after introduction of the JnNURM buses in terms of:

- Span of service and Frequency
 - Travel time, Reliability
 - Stop amenities, safety and security
 - Vehicles (ease of boarding alighting, noise, pollution, ride quality, lighting, etc)
 - Fares and fare payment
 - Stop access / egress and related street crossings
 - Passenger information
 - Preferred bus model
 - General experience
4. **Non-Customer Surveys;** A random survey of people not using buses, in the respective corridors should be collected. These would be people travelling on foot, on two, three or four wheelers, filtered to extract a sample of those that never use the bus. They should be asked a series of questions similar to those described above for bus users, but structured to determine why they do not use bus. A series of questions would also be used to determine the changes that would have to take place to get non-users to become users, if only occasionally.

- Collate and verify the data.

Task 3: Conduct interviews of various stakeholders

- State transport corporations and City bus operators should be involved to understand the delays and the impact of the buses

STAGE V: Data Analysis, synthesis of results

Task 1: Data entry and Validation

- Analyse data and present the findings regarding impacts of program with tables/exhibits, charts, graphs and illustrations. Wherever relevant, the report

shall also include photos of the sites and descriptions of the data collection process.

- Collate, compile, compare, analyse and document the findings through the study period to determine the benefits of the new JnNURM buses introduced under the JnNURM scheme.
- Compare **performance** with what was proposed in DPRs submitted for JnNURM funding, e.g., Frequency of 6 buses/hr proposed, is adhered to or not on listed corridors, as well as before and after experience.
- The consultant to review **procurement methodology** for JnNURM buses and figure out why funding sanctioned for procurement of buses has not been utilised. The delays in procurement should be analysed
- The consultant should evaluate **operations and maintenance** of the JnNURM buses
- **Reforms** contemplated, implementation & any delays in implementation and impact should be analysed
- The consultant to review existing fares, any changes made in fare structure after procurement of JnNURM buses & impact and whether any revision is required or not
- Prepare report summarizing data collected, analysis results and lessons learned covering each of the above categories. The analysis should be both qualitative and quantitative.

The analysis should focus on public transport improvements in terms of ridership, operational efficiency, productivity and customer satisfaction .

Task 2: Recommendations shall include but not limited to:

- Ways to improve the manner in which financial and technical assistance is provided from the Government of India to the respective states and cities in order to promote improved public transport.
- Ways to improve procurement to make projects move faster and O&M for the buses.
- Specifically, based on review of international best practices and actual implementation of reforms undertaken in response to JnNURM incentives, recommend changes and ways in which the Government of India MoUD could promote implementation of reforms.

STAGE VII: Dissemination workshop

The consultant shall carry out two dissemination workshops for Central, State and city government officials from each of the JnNURM cities and Non JnNURM cities to impart the lessons learnt, innovative and best practices from the above study, at a central location such as New Delhi. Each workshop shall include at least 50 participants.

Task 1: Hold two, one day workshop with about 50 participants each to disseminate the findings of the State of Art review and also have the findings appropriately validated, with participants, representing various State Transport Undertakings, City bus operators, Local bodies and MoUD. The workshop must also provide a forum for cities to share their current problems and issues. The consultant must develop questionnaires and other supporting material to gauge the level of preparedness of the cities in revamping bus operations. The consultant will be responsible for organising all the logistics of the workshop, including:

- Developing and sharing workshop material in both hard & soft formats,
- Arranging and hiring the venue - such as Habitat Centre, New Delhi conference rooms or similar, and
- Usual packages of Lunch & snacks.

Task 2: The Consultant shall write a brief report documenting the workshop details and outcomes

Task 3: Submit draft report for review and comments

STAGE VIII: Develop final Impact Evaluation document

Submit final document incorporating all the changes suggested by PMU. The final report should bring out the impact of the modern fleet of JnNURM buses and reforms implemented.

4. DELIVERABLES AND TIME FRAMES

The consultant shall commence work within a week of signing of the contract and shall complete the assignment within **15 months**. The Table 1 lists the deliverables and their respective time frames. Detailed work plan has been given in Table 2. Along with the deliverables listed in the table below the consultant shall also submit a monthly progress report.

Table 1: Deliverable and Time Frame

S. No.	Deliverables	Time Frame (Months from the date of signing of the contract)	Payment (%)	Total Payment (%)
1.	Inception Report	2	10	100%
2.	Conduct State of the Art Review	4	10	
3.	National Workshop	5	5	
4.	Data collection report	9	15	

5.	Report on analysis	12	25	
6.	Report on recommendation	13	15	
7.	Conduct Workshops & submit draft report	14	10	
8.	Final reports	15	10	

Table 2: Work Plan

Activities / Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Inception Report	■	■													
Conduct State of the Art Review			■	■											
National Workshop					■										
Data collection report				■	■	■	■	■	■						
Report on analysis										■	■	■			
Report on recommendation													■		
Conduct Workshops & submit report														■	
Final reports														■	■

All the reports submitted to the client will be supplied in six hard Copies, along with a CD comprising relevant electronic copies.

It must be noted that the copyright for all the manuals, plans and reports and other intellectual property created as a part of this project will vest exclusively with the Government of India (MoUD) which would be free to use all such material, without restrictions, in any of its training programs or for any other purposes.

5. STAFFING

The suggested key staffing requirement and schedule required for the project has been outlined in Table 3. The additional staff needed to conduct the project must be identified by the consultant.

Table 3: Qualification & Experience

Position	Man Mont hs	Years of Professional Experience	Minimum Qualification	Specific Experience
1. Team Leader cum Urban Transport Specialist	12	15 years	Master Degree in Transportation Planning / Economics/Business or Public Administration or Equivalent	The Team Leader shall have a minimum of 10 years of experience in transportation sector specializing in urban public transport. Experience as Project Leader, experience in, Transportation Economics and Public Transport policy and operations, and communications expertise is desirable. Should have demonstrated analytical skills to analyse and interpret data
2. Public Transport Specialist (2)	6	15 years	Master Degree in Transportation Planning / Engineering or equivalent	The Public Transport Specialist shall have a minimum of 10 years of experience in working with projects that focus on Operational Analysis that include Data identification, Data transformation, conduct of Surveys, Planning and Scheduling, PT Modelling, and scenario based analysis.
3. Traffic data expert (1)	6	7 years	Masters degree in Transportation engineering / planning or equivalent	Passenger transport data expert shall have at least 5 years of experience in data collection and use for public transport studies.
4. Business Analyst (1)	1	10 years	Masters degree in Business Management (Finance) / Commerce / Chartered / ICWA or equivalent	The financial analyst will have at least 5 years of experience with financial modelling and have developed commercially sustainable revenue models for attracting private sector participation. They must have a graduate degree in Finance.

About JnNURM bus funding scheme:

- ❖ After two years long consultation the Central Government came out with NUTP in April, 2006.
- ❖ NUTP provides an overall guidance to the State level action plans and also to several key agencies at the Central Government level.
- ❖ It lays guidelines for offering Central Financial Assistance under various schemes of the Central Government including JnNURM.
- ❖ NUTP envisages encouragement for
 - ▶ The greater usage of Public Transport and non-motorized modes.
 - ▶ Integration of land use and transport planning in order to minimize the travel distances and improve accessibility with overall reduction in travel demand.
 - ▶ Establishing institutional mechanism for coordination in planning and management of transport systems.
 - ▶ Setting up of effective regulatory and enforcement mechanisms and enhance safety for users.
- ❖ JnNURM is a reform based mission with the Central Financial Assistance (CFA).
- ❖ Some of the reforms made conditional to the sanction of Urban transport Projects are,
 1. Comprehensive Mobility Plan (CMP)
 2. Setting up of UMTA.
 3. Setting up of Dedicated Urban Transport Fund at state and city level.
 4. Approval and implementation of TOD policy, parking policy and advertisement policy.
 5. Setting up of city specific SPV.
 6. Setting up of Traffic Information and Management Control Centre etc.
- ❖ About 22% of the projects sanctioned under JnNURM are for Urban Transport and majority of them are for Public Transport, Pedestrianisation, NMT, parking and Traffic Transit Management centres

Funding of Buses for City Transport

- ❖ The Govt. of India as part of its second economic stimulus package announced to fund procurement of buses for urban transport under JnNURM to bail out the automobile industry.
- ❖ 15260 modern ITS enabled buses as per urban bus specifications sanctioned under economic stimulus package
- ❖ 61 mission cities
- ❖ Total cost - INR 4800 Cr (Approx.)
- ❖ ACA - INR 2100 Cr (Approx.)
- ❖ 2700 buses are on road in more than 20 cities as on 30th, 2009.
- ❖ Low floor (400mm), semi low floor (650mm) and standard buses (900mm) as against prevailing 1100mm floor height buses
- ❖ ITS features like LED sign boards, audio visual passenger information system, multiplexing, On board diagnostics, Two cameras, integrated controller/ On board computer, GPS, GPRS, Smart card ticketing machines
- ❖ Implementation in one year

The buses under JNNURM were sanctioned with following reforms conditionality:

- a) Set up an SPV to manage bus services, set up an UMTA to coordinate urban transport and use PPP for operations
- b) Use of ITS and integration of multi-modal systems
- c) Bus prioritisation at intersections, dedicated/demarcated lanes for buses
- d) Designate a nodal department for urban transport
- e) Formulate a policy on parking and its implementation plan
- f) Formulate a policy on advertising and its implementation plan
- g) Formulate a policy on Transit Oriented Development
- h) Set up an Urban Transport Fund
- i) Waive/reimburse state and local taxes on public transport
- j) Mechanism for periodic revision of public transport fares
- k) Set up a Traffic Information and Management Centre

As per JnNURM, DPR phase II guidelines following information is expected from the relevant city seeking release of second instalment for funding from Gol for procurement of buses.

Guidelines for detailed DPR-Phase II

1. Scientific determination of bus network, routes, frequencies;
2. Details of infrastructure arrangement being made to accord priority to the operation of buses; and other infrastructure improvement required;
3. Details of the institutional arrangements being put in place for introduction/improvement of the public transport system;
4. Details of how the buses shall be maintained through their entire useful life;
5. Concessioning strategy for operation of buses and involvement of private sector in public bus transportation, wherever applicable;
6. Details of the ITS facilities regarding fare collection system; operation and maintenance system proposed to be put in place;
7. Mechanism for implementation of passenger information system and management; scientific management control/management information system;
8. Integration of the services with other public transport systems and the multimodal integration;
9. System of performance evaluation, incentives and penalties for performance efficiency;
10. Institutional mechanism for periodic studies and assessment of travel patterns;
11. Institutional mechanism of periodic revision of fares, but not only city bus service, but other modes of public transport and intermediate transport;
12. Strategy for making bus operations financially self sustainable;
13. Details of the proposed UMTA structure, composition, legal backing, functions, manpower requirements and staffing plan, etc along with time lines for implementation.
14. Details of the Urban Transport Fund proposed to be set up the State and City level, along with the sources of funding, estimates of funds that will be raised, management plan for the fund, eligible claims from the fund, appraisal and approval mechanism for claims from the fund, etc., along with time lines.
15. Advertisement policy statement and time lines for implementation.
16. Parking policy statement and time lines for implementation.
17. Mechanism to enforce the parking policy that has been formulated along with restrictions on parking proposed to be implemented as well as new parking spaces to be created.
18. Transit Oriented Development (TOD) policy and amendments proposed in the byelaws to encourage TOD.
19. Details of the coordination department in the State Government and the measures proposed to strengthen the concerned department to deal with the subject of urban transport.
20. Details of the Traffic Information and Management Control Centre proposed to be set up giving its
 - Objectives / Functions
 - Structure
 - Reporting Channel
 - Staffing
 - Information systems
 - Control systems
21. Set effective system for training of drivers and conductors.
22. Monitoring parameters to be set up and progress report of the projects to be send to the ministry on regular basis.
23. Establish a control cum information centre having public interface, so that the queries of Public Transport users about the route, availability of buses etc can be resolved.

The second instalment was to be released subject to the adherence of the guidelines as per the policies issued by the MoUD.

<http://jnnurm.nic.in/funding-of-buses.html>

The Government of India (GoI) has initiated the Sustainable Urban Transport Project (SUTP) with support of Global Environment Facility (GEF) with the objective of ensuring that environmental considerations are taken into account in the application of the National Urban Transport Policy (NUTP) and to achieve a paradigm shift in India's urban transport systems in favour of sustainable development. The Ministry of Urban Development (MoUD) has been appointed as the nodal agency for implementation of the project. A dedicated Project Management Unit (PMU) has been set up by the MoUD to manage SUTP. The SUTP objectives are to be achieved through the implementation of following three components:

1. Component I is targeted towards National Capacity Development in Urban Transport;
2. Component II aims at preparation and implementing green transport demonstration projects in selected participating cities; and
3. Component III of this project to provide support for management of the project.

Component 1A of GEF-SUTP comprises tasks required for capacity building in the field of sustainable urban transport. The National Capacity Development Initiatives will help the governments at the Central, State and City levels to strengthen the core functions necessary for efficient administration and delivery of Sustainable Urban Transport.

It promotes building sustainable capacities in urban transport by enhancing the knowledge, skills and productive aptitudes of the organizations / employees involved in the field of urban transport in the context of reforms necessitated by globalization, democratization, the information revolution and changing technologies.

Component 1B aims at providing Technical Assistance to the Ministry of Urban Development in order to improve national, state, and local capacity to implement the National Urban Transport Policy, including: (i) development of implementation strategies and plans to implement key urban transport reforms envisioned in the National Urban Transport Policy; (ii) piloting model urban transport databases; (iii) identification and preparation of potential environmental-friendly urban transport investments in cities; and (iv) developing a national research program on sustainable urban transport. The current work is part of component 1B.

Hence, additional capacity building components form part of Component 1B, including the establishment and capacity building.