

Country Name	Master Plan Study on the Introduction of Intelligent Transport System (ITS) in Bengaluru and Mysore								
India									
<b>I. Project Outline</b>									
Background	<p>In accordance with the rapid urbanization and ever increasing number of vehicles, Bengaluru, the capital of the state of Karnataka with a metropolitan population of about 8.7 million (the 5th largest in the country) and known as the country's largest concentration of information and communication industries, had faced serious traffic congestion. Traffic management for future transportation demand was deemed an important issue for Mysore, the second largest city in the state of Karnataka and one of the most popular cities for tourists in India, although Mysore did not face the serious traffic congestion for the time-being.</p> <p>Under this circumstance, the Government of India have decided to prepare Intelligent Transport Systems (ITS) Master Plan, a tool to improve efficiency of transportation through cooperation with JICA.</p>								
Objectives of the Project	<p><b>Expected Goals to be achieved by utilization of the proposed plan<sup>1</sup>:</b></p> <p>(1) Traffic congestion will be improved by optimum traffic flow on the road network including the Peripheral Ring Road (PRR) realized by ITS.</p> <p>(2) Usage of public transport will be enhanced and improved by assistance of ITS.</p> <p>(3) Proper planning and implementation of road infrastructure development and traffic management will be realized by utilization of quantitative data on traffic.</p>								
Activities of the Project	<p>1. Project site: Bengaluru and Mysore</p> <p>2. Main activities: (1) development of ITS Master Plan, (2) preparation of required organization and operation for ITS, (3) basic design concept of prioritized ITS projects (menus) for Bengaluru, (4) capacity building</p> <p>3. Inputs (to carry out above activities)</p> <table border="0"> <tr> <td>Japanese Side</td> <td>Indian Side</td> </tr> <tr> <td>1) Experts from Japan: 19 persons</td> <td>1) Staff allocated: The number was not confirmed</td> </tr> <tr> <td>2) Training in Japan and Singapore: 11 persons</td> <td>2) Land and facilities: office</td> </tr> </table>			Japanese Side	Indian Side	1) Experts from Japan: 19 persons	1) Staff allocated: The number was not confirmed	2) Training in Japan and Singapore: 11 persons	2) Land and facilities: office
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Project Period	January 2014-June 2015	Project Cost	(ex-ante) 192 million yen (actual) 241 million yen						
Implementing Agency	Directorate of Urban Land Transport of Karnataka State Government (DULT)								
Cooperation Agency in Japan	NIPPON KOEI CO., LTD., EAST NIPPON EXPRESSWAY CO., LTD., CTI ENGINEERING Co., LTD.								

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of India at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>The project was consistent with the development policy of India both at the time of ex-ante evaluation and project completion. The urban population in India was projected to grow to almost 473 million by 2021 and 820 million by 2051 from 285 million in 2001. The Government of India launched the “National Urban Renewal Mission (NURM)” to provide suitable mobility to growing urban population. NURM was an initiative for balanced urban development. It aimed to bring about comprehensive improvements of urban infrastructure, suitable funds and structural reforms.</p> <p>&lt;Consistency with the Development Needs of India at the Time of Ex-Ante Evaluation and Project Completion &gt;</p> <p>The project was consistent with the development needs of India for transport development. At the time of ex-ante evaluation, Bengaluru had faced serious traffic congestion and traffic management for the future transportation demand in Mysore was deemed an important issue. At the time of project completion, in Bengaluru and Mysore, there were many problems in the sphere of road traffic, road infrastructure, public transport, traffic manner, facilities and management and coordination.</p> <p>&lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;</p> <p>The project was consistent with Japan’s ODA policy for India. Promotion of Economic Growth was one of the priority areas under the “Country Assistance Program to India” (2006). Assistance for the Transport Sector is included under the category.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Status of Achievement for the Objectives at the time of Project Completion&gt;</p> <p>At project completion, all the outputs were achieved, as (i) ITS Master Plan was developed, (ii) Required organization and operation was proposed, (iii) Basic concept of prioritized ITS projects (menus) for Bengaluru was designed, and (iv) capacity building was implemented.</p> <p>As to the capacity building, the technical tour was carried out for capacity building of the stakeholders including DULT, Bengaluru Development Authority (BDA), Mysore City Police, etc. as part of ITS Master Plan preparation. ITS Master Plan for Bengaluru Metropolitan Area and Mysore was formulated based on observations provided by participants of the technical tour.</p>

<sup>1</sup> The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan (“output” of the project).

< Utilization Status of the Proposed Plan at the time of Ex-post Evaluation >

After the project completion, the proposed plan was partially under implementation as expected.

The Master Plan was approved by the state government of Karnataka. DULT has been implementing a project, “The Project for Implementation of Advanced Traffic Information and Management System (ATIMS) in Core Bengaluru” funded by JICA (Grant Aid Project). Some components of ITS Master Plan proposed under the project have been taken-up for implementation on a pilot basis. The capital cost is funded by JICA and operation and maintenance cost shall be funded by the state government of Karnataka.

The evaluation team inquired about the reason for the delay in implementing the rest of the proposed components, however, the response was not obtained within the deadline of this evaluation survey. The basic concept design of prioritized ITS projects for Bengaluru has been partly adopted in the project implementation. The ATIMS Project mentioned above is based on the basic concept of ITS master plan, which includes the establishment of Bengaluru Traffic Information Centre and roadside-sensors to analyze the traffic condition on roads and junctions.

<Status of Achievement for Expected Goals through the Proposed Plan at the time of Ex-post Evaluation >

The ATIMS project has still been under implementation, therefore, it is difficult to evaluate the impact at the time of ex-post evaluation.

<Other Impacts at the time of Ex-post Evaluation >

According to DULT, the grant aid project (ATIMS), which is being implemented under the master plan formulated by the project, has been categorized as “C” under the JICA Guidelines for Environmental and Social Considerations (promulgated in April 2010), as the impact is considered to be minimal. ATIMS project has less negative impact on the natural environment and no land acquisition or resettlement has occurred.

<Evaluation Result >

Therefore, the effectiveness/impact of the project is fair.

3 Efficiency

Although the project period was within the plan (the ratio against the plan: 100%), the project cost exceeded the plan (the ratio against the plan: 126%). The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect >

There has been a policy which supports the ITS. The “Comprehensive Mobility Plan” (2020-2035) by the Karnataka state government has been prepared for the Bengaluru which support the ITS implementation.

<Institutional Aspect >

DULT has technical staff for the ITS implementation and other technical verticals. The DULT team has been coordinating with JICA and a consultant team for the implementation of ATIMS project. A section called “ITS” under DULT has been responsible for coordination and monitoring of implementation. The number of staff was two at the time of ex-post evaluation, having more than 10 years of experience and capable of handling large projects. The number has been sufficient.

The project proposed to form an “ITS Society” by government to oversee all activities of ITS, and suggested that the ITS Society should be organized by senior officials of stakeholder organizations, headed by DULT, and function as a body for monitoring, coordinating and proposing decisions to take care of matters. However, it was not established at the time of ex-post evaluation.

<Technical Aspect >

According to DULT, DULT has the team who has sufficient skills for coordination and may hire additional staff if it is required.

<Financial Aspect >

As mentioned above, ITS components have been taken-up for implementation and financial arrangement for major infrastructure projects including PRR, City ITS and Bengaluru Metro has been confirmed, therefore, sustainability in terms of financial aspect is firmly confirmed.

<Evaluation Result >

Therefore, the sustainability of the effects through the project is high.

5 Summary of the Evaluation

At project completion, the all outputs were achieved, as (i) ITS Master Plan was developed, (ii) Required organization and operation was proposed, (iii) Basic concept of prioritized ITS projects (menus) for Bengaluru was designed, and (iv) capacity building was implemented. After the project was completed, the proposed plan was utilized as expected, as (i) The Master Plan was approved by the Karnataka government, (ii) Some of ITS components under ITS Master Plan have been taken up for the implementation, and (iii) Basic concept design was adopted in prioritized ITS projects. As for the efficiency, although the project cost slightly exceeded the plan, the project period was as planned.

Considering all of the above points, this project is evaluated to be satisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

It is required to expedite the implementation of the projects in order to realize the expected impacts of the Master Plan. DULT is requested to make further efforts for securing the budget for implementing planned projects in Master Plan. (e.g., it is expected to expand the pilot project which is currently being implemented as JICA’s grant aid project. DULT was expected to ensure strong coordination with the Bengaluru Development Authority (BDA) to implement the City ITS component, Highway Traffic Management and Toll Management System under the Bengaluru Peripheral Ring Road Project. Also, it is required for DULT to expedite process of implementation of the grant project. As proposed by the Project, Forming ITS society headed by DULT might be one of the effective measures to further improvement of sustainability of the implementing Projects. Thus, JICA recommended DULT to consider this aspect in accordance with the progress of the project implementation.



Project site under ATIMS in Bengaluru



Heavy traffic jam in Bengaluru/Project site under ATIMS