

Country Name	Urban Transport Improvement Master Plan Project for Santa Cruz de la Sierra Metropolitan Area
The Plurinational State of Bolivia	

I. Project Outline

Background	The Santa Cruz Metropolitan Area is the second largest urban area and economic center of Bolivia. The population of the area was 1.75 million (2012) and increasing in rapid pace. The economic growth rates showed a good economic performance of the Department of Santa Cruz. Due to the increase in its population and vehicles, the Santa Cruz Metropolitan Area faced various transport issues, such as traffic congestions, insufficient service of public transport and traffic accidents. Also, the limited capacity of urban drainage caused submersion on the road which made traffic condition worse. The Metropolitan Area was low density on the whole. Low-rise buildings were dominant even in the central business district, as the urban area was expanding to outskirts where newly developed as residential areas. The urban sprawl was proceeding in the backdrop that land use management did not function well. This fact made it difficult to create effective transport system.								
Objectives of the Project	By strengthening the capacity of the implementing agency through developing the transport improvement master plan for Santa Cruz Metropolitan Area, the project contributes to transport improvement in the metropolitan area.								
	Expected Goals through the proposed plan ¹ : 1) Traffic conditions in the Santa Cruz metropolitan area are improved. 2) The capacity of the implementing agency to implement the Master Plan is strengthened.								
Activities of the Project	<p>1. Project site: Santa Cruz Metropolitan Area (Municipalities of Santa Cruz de la Sierra, Cotoca, Warnes, El Torno, La Guardia, and Porongo).</p> <p>2. Main activities: Traffic surveys including the household interview survey, formulation of the Transport Improvement Master Plan (M/P) for the Metropolitan and the Central Area with Strategic Environment Assessment (SEA), analysis and proposal of drainage system, proposal on the revision of the land use plan, etc.</p> <p>3. Inputs (to carry out above activities)</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Bolivian Side</td> </tr> <tr> <td>1) Mission members: 10 persons</td> <td>1) Staff allocated: 24persons</td> </tr> <tr> <td>2) Trainees in Japan: 9persons</td> <td></td> </tr> </table>			Japanese Side	Bolivian Side	1) Mission members: 10 persons	1) Staff allocated: 24persons	2) Trainees in Japan: 9persons	
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Project Period	(ex-ante) February 2016 to July 2017 (actual) February 2016 to December 2017	Project Cost	(ex-ante) 305 million yen, (actual) 277 million yen						
Implementing Agency	Secretariat of Public Works and Land Use of the Department of Santa Cruz (SOPOT)								
Cooperation Agency in Japan	Nippon Koei Co., Ltd., Tamano Consultants Co., Ltd., Oriental Consultants Global Co., Ltd., Nippon Koei LAC Co., Ltd.								

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Bolivia at the time of Ex-Ante Evaluation></p> <p>The project was consistent with the development policy of Bolivia at the time of ex-ante evaluation, as the “Department Development Plan of Santa Cruz 2025” (2014) has the following strategic areas: (1) emphasis on autonomy and democracy; (2) equality, livability, and security; (3) promotion of the transformation of the industrial structure; (4) planning, order, and sustainability; and (5) emphasis on citizen participation and solidarity.</p> <p><Consistency with the Development Needs of Bolivia at the time of Ex-Ante Evaluation></p> <p>The population of the Santa Cruz Metropolitan Area was 1.75 million (2012) and increasing in rapid pace. Due to the increase in its population and vehicles, the area faced various transport issues, such as traffic congestions, insufficient service of public transport and traffic accidents. The project was consistent with the development needs of Bolivia for development of the transport improvement master plan for improving the traffic conditions.</p> <p><Consistency with Japan’s ODA Policy at the time of Ex-Ante Evaluation></p> <p>One of the priority areas in the “Country Assistance Policy for Plurinational State of Bolivia” (2012) was improving productivity through rural development, under which one of the programs was for transport network improvement. Thus, the project was consistent with Japan’s ODA policy at the time of ex-ante evaluation.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Status of Achievement of the Objectives at the time of Project Completion></p> <p>The objectives of the project were achieved by the project completion. By the time of project completion, the “Transport Improvement Master Plan (M/P) for 2035” was formulated, which consisted of the Transport Master Plan for Metropolitan Area and the Transport Master Plan for the Central Area. The Transport Direction under SOPOT and its engineers were trained on the drainage system, demand forecast, and so on.</p> <p><Utilization Status of the Proposed Plan at the time of Ex-post Evaluation></p>

¹ 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).

The proposed plan has been partially utilized at the time of ex-post evaluation. The formulated transport master plan was approved as the plan of Santa Cruz Department in January 2020. Among the 37 projects proposed for 2035 in the master plan, 19 projects have been in the phase of the design, implementation and completion. These have been budgeted by the Autonomous Department Government of Santa Cruz (GADSC), some target municipalities and private developers. Projects implemented have included “Bus Rapid Transport (BRT) System Development for Santa Cruz Municipality,” “Road Safety Audit,” “Traffic Signals for Traffic Safety,” “Improvement at Intersection with Traffic Sign and Markings “Signal Control System Upgrading,” and “Change Roundabouts to Traffic Signal-Controlled Intersections,” and so on. Since the time of project completion, GAMSC has had opportunities to exchange information and receive advices on urban transport development from experts of Brazil and Colombia through coordination of JICA Bolivia Office. In August 2018, a Colombia expert on urban planning was invited to Santa Cruz by GAMSC, and he explained the Colombian experience in urban planning laws and land use planning and made an advice for political prioritization. In September 2018, a Brazilian team including one office from the Municipality of Curitiba and two experts on urban transport with financial support from the Brazilian Cooperation Agency (ABC). After observation of the situation in Santa Cruz, the team made recommendations for promoting urban transport development from the legal, institutional and technical aspects. In October 2018, seven officers and technicians were dispatched to Curitiba, Brazil by JICA to learn the process for introducing the BRT system, including administrative procedure, public comments, actual operation of the plan. These opportunities have accelerated the implementation of BRT system. At the time of ex-post evaluation, GAMSC was coordinating with the Colombian Government for bilateral cooperation on preservation and utilization of the old city center.

Based on the developed master plan, among the six target municipalities, only one municipality (Santa Cruz) has formulated the municipal transport plan and three municipalities (La Guardia, Porongo and El Torno) have planned the development of the plan. It was presumed that other municipalities have not developed the municipal plan because there are lots of troubles when there begins a new period with a different political team. The presumption is because usually last administration in charge do not leave information to the new one. Also the new one rejects what was done by the last administration even though it had been well executed. In addition, they had not known that they were expected to develop the municipal plan based on the department transport master plan formulated by the project because the authorities have been new after the election in 2021.

As supplemental information, some of the actions proposed by the project for implementing the master plan have been carried out. For example, as the institutional arrangement, the coordination body has been in the process of establishment in GADSC. For the public transport development, the Municipal Secretary of Urban Mobility (SEMURB) of the Autonomous Municipal Government of Santa Cruz de la Sierra (GAMSC) has completed the diagnostic study in the central area, and GADSC has conducted the feasibility study of BRT system. For the traffic management, GAMSC has developed an application for accident registration with support from the Emory University and the Georgia Institute of Technology.

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

The Expected Goal has been partially achieved. Traffic conditions have been partially improved in Santa Cruz Metropolitan Area. According to GADSC, the travel time in the area has been reduced and users’ comfortability have been improved due to the improved accessibility in the rainy season, although they could not be verified with quantitative data in the ex-post evaluation. In addition, GAMSC answered that there was improvement in the public transport regulations (for controlling routes and service hours), and the sidewalks for pedestrians along the BRT corridor were improved by the implemented mass transit system (“Common Universal Design Guidelines and Improvement of Sidewalks”). The Municipal Government of Porongo also answered that road congestions were improved as results of the improved road signs and control system. On the other hand, target municipalities which have not developed their master plan did not recognize improved traffic conditions.

Regarding the capacity development of target municipalities to implement the master plan, there has been improvement in the Municipalities of Santa Cruz and Porongo. In GAMSC, they have developed “Municipal Transport Plan” on their own capacity. In Porongo, it has established the Traffic and Transport Division with a technical staff and assigned the budget for implementing the transport plan. However, no such improvement could not be confirmed in other target municipalities which could not develop the municipal transport plan.

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

Some positive impacts have been reported in the ex-post evaluation. First, related to gender, in the project of “BRT System Development for Santa Cruz Municipality” women’s participation in economic activities has been promoted by improving the security as a certain percentage of female bus drivers and female security guards at the bus stops has been promoted. These efforts have made women more comfortable, who have been vulnerable to gender harassment and violence. Second, the usability has been improved for persons with disability by “Common Universal Design Guidelines and Improvement of Sidewalks”. The sidewalks have been improved with the universal design, with slopes for wheelchair users and braille block on the sidewalk for blind persons. Third, As one of the activities for “Program for the Connection of Communities”, the Municipality of Porongo has provided a free public transport service for school students who commute from the rural areas.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is fair.

Utilization of the Proposed Plan

Aim	Indicators	Results	Source
(Status of achievement of the Outputs)	1. The transport master plan for Santa Cruz Metropolitan Area for 2035 is formulated.	<u>Status of achievement: Achieved.</u> (Project Completion) <ul style="list-style-type: none"> The Transport Improvement Master Plan (M/P) was formulated. It consisted of the following two components. The target year of M/P was 2035. The plans for the intermediate years of 2020 and 2025 were prepared as short-term and medium-term plans. <ol style="list-style-type: none"> Transport Master Plan for Metropolitan Area Transport Master Plan for the Central Area 	Final Report.
	2. Capacity is developed to implement the master plan.	<u>Status of achievement: Achieved.</u> (Project Completion) <ul style="list-style-type: none"> The Transport Direction under the SOPOT worked with the JICA Study Team for organizing the workshops, forums, and arrangement of 	Final Report.

		<p>various meetings and data collection. Although the Transport Direction was not mentioned in the implementation structure in the R/D, it plays an important role as the Project Management Office.</p> <ul style="list-style-type: none"> ● A workshop focusing on the drainage system in Santa Cruz de la Sierra was held on August 2nd, 2016 at the Direction of Drainage of the municipality of Santa Cruz, where 24 engineers participated. ● The Project used Cube Voyager for the demand forecast modeling. A training course of the demand forecast was conducted using the software. 	
<p>(Utilization Status of the Proposed Plan)</p> <p>1. The formulated transport master plan is approved as the plan for Santa Cruz Metropolitan Area.</p> <p>2. Target municipalities formulate necessary plans for each.</p>	<p>1.1 The formulated transport master plan is approved as the plan of Santa Cruz Department.</p>	<p><u>Status of achievement: Achieved</u> (Ex-post evaluation)</p> <ul style="list-style-type: none"> ● The formulated transport master plan was approved in January 2020 (Department Law No. 187 of January 31, 2020). 	GADSC.
	<p>1.2 Budgets are allocated for the proposed plan.</p>	<p><u>Status of achievement: Achieved</u> (Ex-post evaluation)</p> <ul style="list-style-type: none"> ● Some project have been budgeted and started or completed. Six other projects have been in the design stage. <p>Projects started (completed in part):</p> <ol style="list-style-type: none"> 1) Development of Road Network in La Guardia (private developer) 2) Program of the Connection of Communities (Porongo) 3) Okinawa–Warnes Road Connection III (Government of Japan and the Development Bank of Latin America (CAF)) 4) BRT System Development for Santa Cruz Municipality (GAMSC and CAF) 5) Common Universal Design Guidelines and Improvement of Sidewalks (GAMSC and CAF) <p>Projects completed:</p> <ol style="list-style-type: none"> 1) Development Road Network in Porongo (Porongo) 2) Pavement of Local Roads (GADSC, Porongo and Warnes) 3) Road Safety Audit (GAMSC) 4) Traffic Signals for Traffic Safety (GAMSC and CAF) 5) Improvement at Intersection with Traffic Sign and Markings (GAMSC) 6) Signal Control System Upgrading (GAMSC) 7) Change Roundabouts to Traffic Signal-Controlled Intersections (GAMSC) 8) Introduce Regulations and Build Facilities for the Loading and Unloading of Goods Around the Markets (GAMSC) <p>Projects in design:</p> <ol style="list-style-type: none"> 1) Traffic Accident Database (GAMSC) 2) Parking Facility Development Policy (GAMSC) 3) On-street Parking Management (GAMSC) 4) Development of New Parking Facility (GAMSC) 5) Mobility Management/Shift Traffic Demands from Peak Hours (GAMSC) 6) Reversible Traffic Lanes (GAMSC) 	GAMSC.
	<p>2. Based on the project outputs, target municipalities formulate and revise each urban plan and urban transport plan.</p>	<p><u>Status of achievement: Not achieved</u> (Ex-post evaluation)</p> <ul style="list-style-type: none"> ● Among the six target municipalities, one (Santa Cruz) has formulated the transport plan (Transport Municipal Program) and three (La Guardia, Porongo and El Torno) have planned the development of the plan. 	Target municipalities.
<p>(Expected Goals through the proposed plan)</p> <p>1. Traffic conditions are improved in Santa Cruz Metropolitan Area.</p> <p>2. Capacity of the related organizations (target municipalities) is improved to implement the master plan.</p>	<p>1. Traffic conditions are improved in Santa Cruz Metropolitan Area.</p>	<p><u>Status of achievement: Partially achieved</u> (Ex-post evaluation)</p> <ul style="list-style-type: none"> ● Although data were not available, the travel time has been reduced due to the improved accessibility in the rainy seasons. ● Citizen’s mobility has become more comfortable due to the improved sidewalks for pedestrians and developed the mass transit system through the First Ring Road BRT corridor. ● Road congestion has been reduced due to the improved control system and bridge between Porongo and Santa Cruz. 	ADSC, Santa Cruz Municipality, Porongo Municipality.
	<p>2. Capacity of the related organizations is improved to implement the master plan.</p>	<p><u>Status of achievement: Achieved</u> (Ex-post evaluation)</p> <ul style="list-style-type: none"> ● Capacity of Santa Cruz Municipality has been improved as it formulated the municipal transport plan by itself and allocated budgets to BRT development. ● Capacity of Porongo Municipality has been improved as the Traffic and Transport Division was newly established with a technical staff and budgets. 	Santa Cruz Municipality, Porongo Municipality.

Although the project cost was within the plan (ratio against the plan: 91%), the project period exceeded the plan (ratio against the plan: 128%). The project period was extended because it took more time than expected to carry out the traffic survey. Outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

In the Department Law of Creation and Regulation of the Metropolitan Area “Santa Cruz Metrópoli” (Department Law No.187, January 31st 2020), the objective of establishing the metropolitan area and introduction of the developed master plan as efforts for urban transport improvement in the Section 5 of the Article 6.

<Institutional/Organizational Aspect>

The Directorate of Infrastructure, Projects and Transport under the Department Secretariat of Economic Development has been responsible for implementing the developed master plan. At the time of the ex-post evaluation, the staff number was five including one transport specialist and two engineers, after being reduced due to the budget shortage, and it make them facing difficulty to implement the master plan. At the municipal level, in GAMSC, SEMURB has been in charge of the transport plan implementation. In the new administration since 2021, 90% of the staff who had experience in the project were removed. In the Municipality of Porongo, the Traffic and Transport Division has taken responsibility of the transport plan. It answered that the number of the staff has not been sufficient due to the budget shortage, as well as other municipalities (Warnes, La Guardia, and El Torno).

<Technical Aspect>

Regarding the capacity to implement the master plan, until the election of the new administration started in 2020 there were skilled staffs who were trained by. In the ex-post evaluation GADSC and all of the surveyed target municipalities answered that they have not fully sustained the skills and knowledge gained from the project, but they have designed and implemented some proposed projects. In GADSC and the surveyed municipalities, since the change of the administration, experienced staff were removed, and new qualified technical staff have not been assigned.

<Financial Aspect>

Even the previous -administration had implemented some projects in MP with assigned budget, currently GADSC and all of the surveyed target municipalities answered that the budget to implement the master plan has not been sufficiently assigned and that they have been seeking a financial support from international partners. For example, GAMSC has negotiated for the possible loan from the Development Bank of Latin America and the World Bank. In some municipalities, the project and the necessity of developing the municipal plan has not been familiarized by the new administration, which has made no budget allocation. It was also pointed out by GAMSC that the normal budget allocation in amount and schedule could be hindered by the pandemic of COVID-19.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, technical and financial aspects of the implementing agencies. Therefore, the sustainability of the effectiveness is fair.

5 Summary of the Evaluation

In the project, the “the Transport Improvement Master Plan (M/P) for 2035” was prepared. Since the time of project completion, it was officially approved in 2020 by GADSC, and some projects have been implemented by some target municipalities. As results of the implemented projects, positive impacts have been confirmed such as improved traffic conditions including the accessibility of the persons with disability. Regarding sustainability, there have been concern on the shortage on the technical staff and budgets to implement the master plan, though they have been seeking an external financial support. With regard to efficiency, the project period exceeded the plan.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is recommended to GADSC to implement capacity development training by using human resources who were engaged in the project to implement the master plan at the possible earliest timing. GADSC also should convince the same action to the target municipalities, so that they could utilize the gained experience and developed capacity from the project.
- It is recommended to GADSC and GAMSC to take an initiative and share their experience of the project and their efforts for implementing proposed projects after the project completion with other target municipalities where the experienced staff were removed, firstly by explaining the project outputs and the importance of the transport development of the Santa Cruz Metropolitan Area to the new municipal authority.

Lessons Learned for JICA:

- In the project, the master plan was developed and after the project it was officially approved at the department level. However, the administration changed in the election two years after the project completion, and it was found in the ex-post evaluation that most target municipal governments even did not know the master plan and thus they have not developed their municipal master plan or assigned sufficient personnel and financial resources for implementing projects proposed by the project. In countries where the change of the administration could lose the continuity of the project outputs, it is desirable to get the written agreement from the implementing agency to sustain the trained staff for taking actions suggested by the project in a certain period or at least by the following election period. There may be a case in which the continuity of the proposed projects including budgetary measures by the government due to the administrative change, even if there is a written agreement. In such a case, it is necessary to consider countermeasures such as involving private companies and academic groups in the projects formulation or to disseminate the masterplan to stakeholders including the ruling and opposition parties from the project period. In addition, JICA country office should keep following up more frequently each time after the change of administration.
- Since the time of project completion, proposed projects have been implemented in the Municipality of Santa Cruz. The driving force was the sharing of information and experiences with other countries in the region. There are two reasons why these experiences were easy for Santa Cruz to understand and apply. First, these countries had similar laws, regulations, administrative structures, and budgetary situations. Second, these countries had customized and localized their experience of JICA project implementation to their own contexts and had concrete practical examples. Thus, it is effective and efficient to use the resources of third countries to accelerate

implementation after the project completion and also promote the triangular cooperation. In this regard, it is necessary for country offices to investigate the availability of technical resources in neighboring countries and coordinate with embassies and other partner agencies to provide support for inviting experts and dispatching the counterpart personnel. This kind of follow-up could be more efficient in terms of time and costs than to formulate a new project and such as a technical cooperation project and dispatch of experts.



Braille Block on the sidewalk



BRT Corridor



BRT Bus Station