2.2.4 Implementation Plan

2.2.4.1 Implementation Policy

(1) Precondition for Procurement

As the Project will be implemented under the grant aid scheme of the Government of Japan, it will only commence after the approval of project implementation by the Government of Japan and the signing of the E/N by the two governments.

(2) Necessity for Dispatch of Engineers

GSP Belgrade has sufficient experience in the operation of buses and the installation of repair equipment. Also, repair equipment to be procured under the Project can easily be installed. Therefore, the dispatch of engineers to Belgrade will not be necessary for the transfer of skills regarding to the operation and maintenance of the buses.

(3) Implementation System on the Yugoslavian Side

The window organization for the Project on the Yugoslavian side is the Federal Ministry of International Economic Relations of Federal Republic of Yugoslavia. The organization responsible for the implementation of the Project on the Yugoslavian side is the Belgrade Municipal Authority, i.e. City Assembly of Belgrade, while the implementation agency is GSP Belgrade, i.e. Public Transport Company “Belgrade”. The organization of GSP Belgrade will be responsible for the operation and maintenance of the buses and repair equipment in the post-Project period. For the smooth implementation of the Project, GSP Belgrade will maintain close contact and will consult with the Japanese Consultant and Implements Supplier and will be required to select a person to be in charge of the implementation of the Project.

This person in charge of the implementation of the Project at GSP Belgrade will be required to fully explain the components of the Project, i.e. buses and repair equipment, etc. to be procured under the Project, to the related organizations, including the Government of Yugoslavia and the Belgrade Municipal Authority, with a view to securing their cooperation for the Project.

2.2.4.2 Procurement Conditions

(1) Delivery Date

There are three bus manufacturers in Yugoslavia. While the annual production capacity was as high as 1,000 units in the case of one company some 10 years ago, the production capacity is now much lower compared to the past in terms of manpower and other aspects even though production space and equipment, etc. are available. Moreover, a project using an EBRD loan to supply 111 buses of similar types to those under the Project is currently in progress ahead of the Project. It is, therefore, necessary to carefully examine the tender result, successful bidder and other relevant issues regarding this EBRD loan project and also to examine the delivery data and schedule control for the Project in detail.

(2) Quality

Following the situation of existing local bus manufacturers described in (1) above, examination of the quality of their products as well as their production capacity is necessary in view of the fact that the survey on the existing buses of GSP Belgrade which consists of locally manufactured buses and those supplied by European countries found the expected life of locally manufactured buses to be short at 7 to 8 years due to the poor quality of the chassis and body, etc. Even though the specifications adopted for the Project take the qualitative requirements of the new buses into consideration, proper management of the Project is essential to ensure good design and quality control.

2.2.4.3 Scope of Works

The Japanese side will be responsible for the procurement of the buses and repair equipment for the Project. Some of the equipment to be procured (i.e. screw compressor, breaking drum lathe etc.) will require installation and the Yugoslavian side will be responsible for this installation work. Under the Project, 93 buses will be procured and to operate and maintain those buses, improvement of bus stop facilities will be needed. The Yugoslavian side will be responsible for the improvement of those facilities. The detailed division of work between the Japanese and Yugoslavian sides is shown in Table 2-2-10.

Table 2-2-10 Division of Work Between Japanese and Yugoslavian Sides

Work Item	Equipment Procurement		Installation Work		Remarks
	Japan	Yugoslavia	Japan	Yugoslavia	
1. Buses					
(1) Articulated Buses	○				
(2) Standard Buses	○				
(3) Inspection & Maintenance Manuals	○			○ (Storage)	Two years supply of spare parts
(4) Pre-Shipment Inspection	○				
(5) Pre-Handing Over Inspection	○ Execution	○ Witnessing			
2. Repair Equipment					
(1) Apparatus & Equipment	○			○	
(2) Tools	○				
3. Others					
(1) Improvement of Bus Stops		○		○	
(2) Removal of Buses Withdrawn from Service				○	

Note: ○ indicates the side responsible for the work in question.

2.2.4.4 Consultant Supervision

In accordance with the grant aid scheme of the Government of Japan, the Consultant will establish a project team which will be consistently involved in the detailed design and procurement supervision stages to ensure the smooth progress of all of the work, taking the purport of the basic design into consideration. At the procurement supervision stage, the Consultant will conduct the quality control of the buses and repair equipment to be procured. The supervisory work of the Consultant will also involve the presentation of manuals relating to the test operation and adjustment of such equipment and the appointment of Japanese engineers to participate in the factory inspection in order to prevent any equipment problems after the delivery of the equipment to Yugoslavia.

(1) Basic Policy for Procurement Supervision

The Consultant will supervise the manufacturing progress so that the Project is completed within the predetermined period and will also provide supervision and

guidance for the Implements Supplier to ensure the proper manufacture and safe as well as punctual transportation and delivery of the buses and repair equipment. The key points for the supervisory work are described below.

1) Schedule Control

The Consultant will compare the actual progress of the work with the agreed implementation schedule every month to ensure observance of the terms of agreement. If any delay is foreseen, the Consultant will remind the Contractor of such possibility and will request the Contract to submit and implement measures to rectify the situation so that all of the work, including the delivery of the equipment, is completed within the agreed period. This comparison between the planned schedule and actual progress will mainly be conducted with reference to the following matters.

① Confirmation of the completed procurement amount (completed manufacturing amount at each factory)
② Confirmation of the delivered amount of equipment

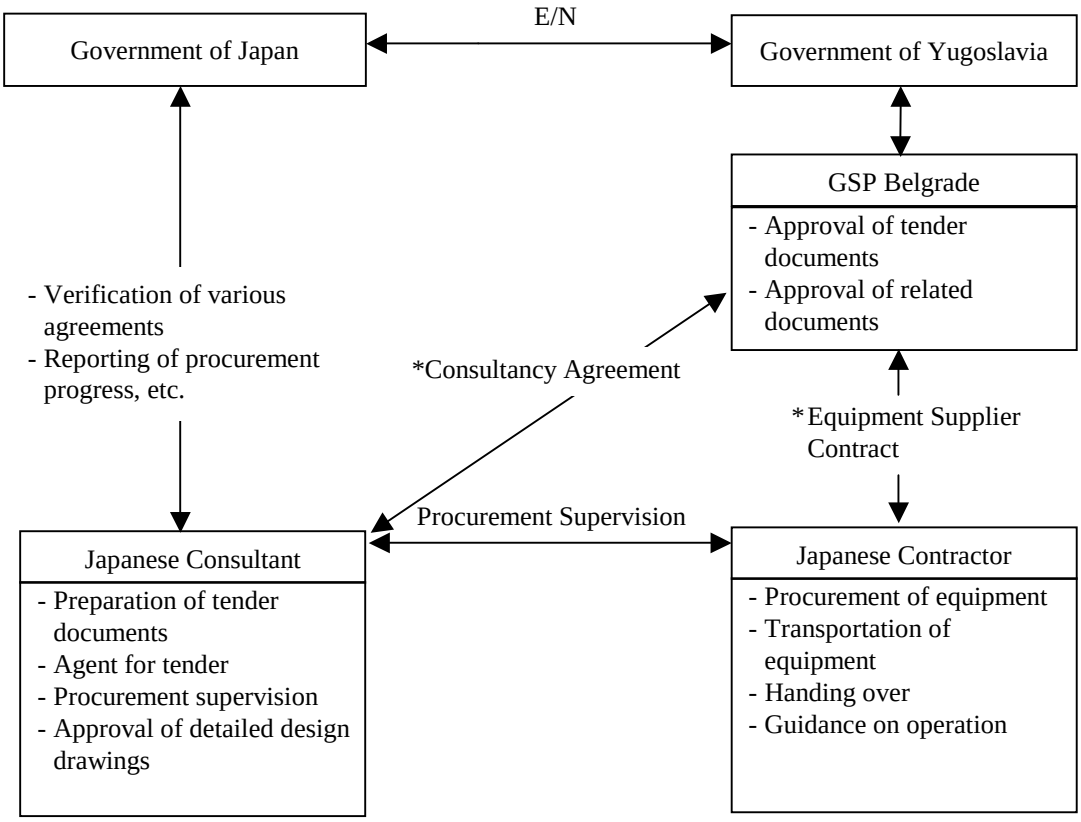
2) Safety Control

Through consultations in cooperation with the responsible person of the Contractor, the Consultant will conduct safety control with emphasis on the following points to avoid any accidents during equipment transportation or accidents involving a third party.

① Preparation of safety rules and appointment of a safety manager
② Confirmation of the transportation routes

(2) Project Implementation System

The project implementation system, including procurement supervision, is shown in Fig. 2-2-3.



Note: The consultancy agreement and equipment supplier contract must be verified by the Government of Japan.

Fig. 2-2-3 Project Implementation System

1) Consultant

In order to conduct the equipment procurement for the Project, the Japanese Consultant will conclude a design and supervision agreement with GSP Belgrade and will conduct the detailed design and procurement supervision for the Project. The Consultant will also prepare the tender documents and act as the agent for GSP Belgrade, which is the project implementation agency, for the tender.

2) Contractor

The Japanese Contractor selected by the Yugoslavian side through an open tender in accordance with the grant aid scheme of the Government of Japan will conduct the procurement of equipment for the Project.

As after-services involving the supply of spare parts and the proper handling of equipment breakdowns, etc. is deemed to be necessary in the post-Project period, it will be necessary for the Contractor to pay proper attention to the necessary

communication and arrangements with GSP Belgrade following the handing over of the buses and repair equipment.

2.2.4.5 Quality Control Plan

The Consultant will check whether or not the manufactured and delivered equipment meets the quality and quantity required by the contract documents by means of the following methods. Also, the Consultant will make timely visits to the site to conduct direct quality control and will be required to submit a Mill Certificate. If there is any risk that the required quality and/or quantity will not be met, the Consultant will immediately request the Contractor to conduct the necessary corrections, changes or modifications. The inspection prior to the loading of the equipment on to the ship will be conducted by a third party organization that will be selected by the Consultant.

① Confirmation of manufacturing countries of engines and chassis

② Confirmation of Mill Certificates for frames and plates

③ Confirmation of painting specifications and record of inspections

④ Checking of the trial operation, adjustment, testing and inspection manuals for the equipment and witnessing of the inspection

⑤ Checking of the results of the factory inspection or witnessing of the factory inspection of the equipment

⑥ Checking of the packaging, transportation and temporary on-site storage methods

⑦ Checking of the trial operation, adjustment, testing and inspection manuals for the equipment and witnessing of the inspection

2.2.4.6 Procurement Plan

Although the buses to be procured under the Project should, in principle, be procured locally, their procurement from a third country (OECD member) is added because of the unreliable production period of bus manufactures in Yugoslavia. Because the specifications for engines are based on EURO 3 standards and it is difficult to manufacture EURO 3 engines in Japan, procurement from Japan is difficult. However, there is no manufacturer of implements for repair locally, they will be procured from Japan.

In the case of procurement in Yugoslavia, the new buses will be driven and delivered to Belgrade on the road. In the case of procurement from an OECD country in Europe or the

Middle East, the new buses will be delivered from the manufacturing plant to Belgrade by sea and land. Where possible, they will be driven on the road.

Port Bar in the Republic of Montenegro may be used as the landing port for the equipment and materials to be used for the Project. However, there is no direct service to this port from Japan, making reliance on an irregular shipping service from a hub port in a neighbouring country necessary. It is, therefore, necessary to select a port which will not affect the planned transportation period and which promises safe road transportation in order to observe the implementation schedule for the Project. Having taken all of the relevant conditions and requirements into consideration, Port Genoa in Italy is judged to be the best port for the present purpose. The roads from Port Genoa to Belgrade, covering a distance of some 1,000 km, are asphalt paved roads and several days will be required. The planned transportation of the equipment and materials from Japan is by sea to Port Genoa, followed by road to the Project Site. Other ports considered for landing include Port Thessalonica in Greece and Rijeka in Croatia. It must be noted that the use of Port Thessalonica will involve road transportation through the Republic of Macedonia and the insurance fee will be much higher than in the case of using Port Genoa as the landing port.

2.2.4.7 Implementation Schedule

The following project implementation schedule has been prepared in accordance with the grant aid scheme of the Government of Japan.

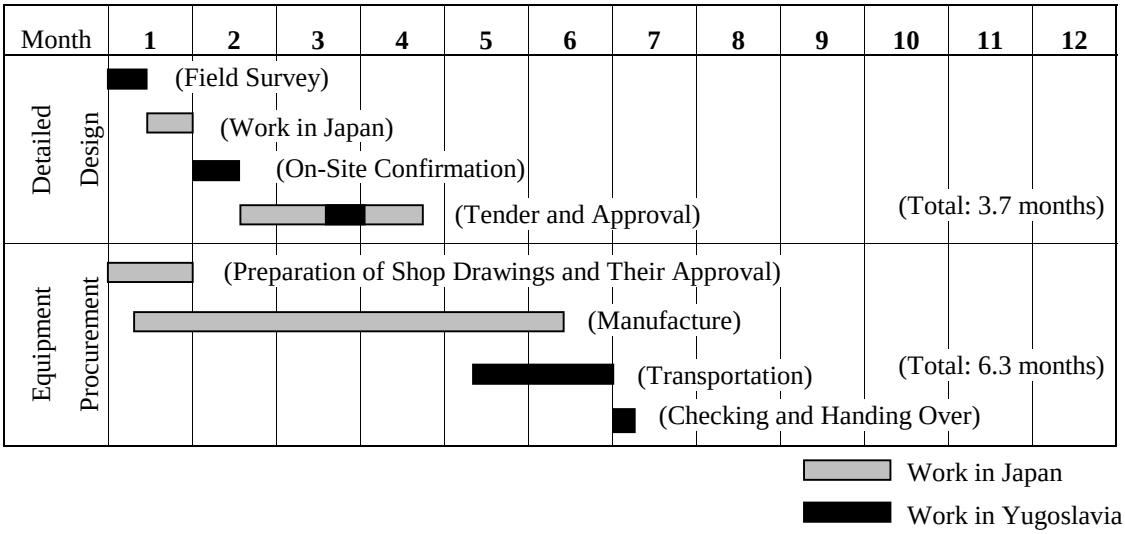


Fig. 2-2-4 Project Implementation Schedule

2.3 Obligations of the Recipient Country

(1) Obligations of Recipient Country Confirmed in M/D

The obligations of the Yugoslavian side confirmed in Annex 5 of the Minutes of Discussions dated 21st November, 2001 and the feasibility/suitability are described below.

1) Banking Arrangements

The Yugoslavian side shall conclude banking arrangements (B/A) with a Japanese bank after the signing of the E/N to open a project account and shall pay the commission for banking services, such as the issue of an A/P.

(Feasibility/suitability: Yugoslavia has had experience in receiving grant aid in Non Projects from Japan before. Thus it should be able to implement the Project without any problem with a full explanation of Japan's grant aid scheme as well as the Project being given.)

2) Exemption from Taxation

The Yugoslavian side shall ensure the smooth landing, unloading and customs clearance at the port of landing in Yugoslavia of the equipment to be procured under the Project and shall exempt such equipment for any customs duties which may be imposed at the airport or port of landing.

(Feasibility/suitability: as in the case of 1) above, no problems are anticipated with a full explanation of Japan's grant aid scheme and the Project being given.)

3) Permission for Entry and Stay

The Yugoslavian side shall accord Japanese nationals whose services may be required in connection with the provision of products or services in accordance with verified agreements under the Project such facilities as may be necessary for their entry to Yugoslavia and stay therein for the performance of their work.

(Feasibility/suitability: as in the case of 1) above, no problems are anticipated with a full explanation of Japan's grant aid scheme and the Project being given.)

4) Exemption from Taxes

The Yugoslavian side shall exempt Japanese nationals whose entry to and stay in Yugoslavia may be required in connection with the provision of products or services in accordance with verified agreements under the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Yugoslavia.

(Feasibility/suitability: as in the case of 1) above, no problems are anticipated with a full explanation of Japan's grant aid scheme and the Project being given.)

5) Appropriate Use and Maintenance of Equipment

The Yugoslavian side shall ensure the appropriate as well as effective use and maintenance of the equipment to be procured with Japanese grant aid.

(Feasibility/suitability: no problems are anticipated in view of the manpower and technical capability of GSP Belgrade.)

6) Payment of Expenses Outside the Scope of Japanese Grant Aid

The Yugoslavian side shall bear all expenses other than those to be paid by the Japanese grant aid.

(Feasibility/suitability: no problems are anticipated as the City Assembly of Belgrade plants to account for the project-related expenses in its 2002 budget.)

(2) Other Obligations of Yugoslavian Side

The obligations of the Yugoslavian side in relation to the division of work described in 2.4.3 and their feasibility/suitability are described below.

1) Pre-Handing Over Inspection

When the equipment procured under the Project is handed over to the Yugoslavian side, pre-handing over inspection will be conducted with the person responsible for the Project on the Yugoslavian side acting as a witness. It is, therefore, necessary for the Yugoslavian side to appoint such a person.

(Feasibility/suitability: as the engineers of GSP Belgrade are experienced and will ultimately be responsible for the operation of the newly procured buses, no problems are anticipated for the execution of the pre-handing over inspection by GSP Belgrade.)

2) Installation of Equipment

The Yugoslavian side is required to conduct the installation work for some of the equipment to be procured under the Project which will required proper installation.

(Feasibility/suitability: no problems are anticipated as the engineers of GSP Belgrade have sufficient experience of the required installation work.)

3) Improvement of Bus Stops

In order to implement the Project more efficiently, Yugoslavia will be responsible for improvement of bus stop facilities as follows:

① Measures for the improvement of 60 bus stop facilities (current standard type)

- Installation of acrylic roof (length: 4.0m, width:1.5m)
- Installation of 1.5m wide acrylic windbreak boards on both sides of facility
- Installation of bench for 3 persons
- Installation of time-table and bus route guidance board

② Measures for the improvement of 150 bus stop facilities

- Installation of signage which makes bus stops recognizable
- Installation of time-table and bus route guidance board

(Feasibility/suitability: no problems are anticipated in regard to the proposed improvement as some bus stops along the target routes have already been improved in the proposed manner.)

4) Disposal of Buses Withdrawn from Service

At the depots where the new buses to be procured under the Project will be parked, scrapped old buses which have been withdrawn from service are currently left unattended, so that there is not enough parking space for the new buses. However, if those scrapped buses are removed, enough parking space will be ensured. Therefore, Yugoslavian side will take responsibility for the removal of the scrapped buses. The removal should be handled with care, especially for environment because of the waste of metal, rubber, and plastic.

(Feasibility/suitability: GSP Belgrade will officially announce the sale of unusable buses in newspapers and sell to junk disposal traders. Junk disposal traders will take them apart to parts, metal and other materials. Parts will be resold as second–hand

parts, and metal will be sold to refineries. Other non-recyclable materials will be disposed at a final disposal plant. Because GSP Belgrade has handled the same disposal operations in the past and there is no involvement of cost in the withdrawal of the scrapped buses, there will be no problems anticipated for implementing this measure.)

5) Procured Buses and Equipment

The spare parts for articulated buses and standard buses, and workshop equipment and tools procured under the Project can be used only for the Project, and these materials should not be allowed to use for other projects. The recipient country also is required to operate and maintain buses and workshop equipment purchased under the Project. The bus fleets, spare parts, and workshop equipment procured under the Project should not be allowed alienated, sold, and re-exported to any other third party.

6)Cost to be Borne by Yugoslavian Side

The main cost items for the Yugoslavian side are listed below.

① Equipment installation cost : DM 66,600
② Bus stop improvement cost : DM242,600
③ Bus registration cost : DM 91,700
④ Bus disposal cost : DM 0 (GSP Belgrade believes that there will be no bus disposal cost based on its past experience)

2.4 Project Operation Plan

(1) Maintenance System

Appropriate maintenance is essential to ensure the reliable operation of the equipment to be procured under the Project.

The implementation of appropriate preventive maintenance as well as regular maintenance aimed at reducing the frequency of breakdowns and improving the reliability, safety and operational efficiency of each equipment is necessary to maintain the performance and functions of the equipment to be procured under the Project in order to provide a reliable public bus transportation service for the citizens of Belgrade.

The basic concept of the required maintenance work is shown in Fig. 2-4-1.

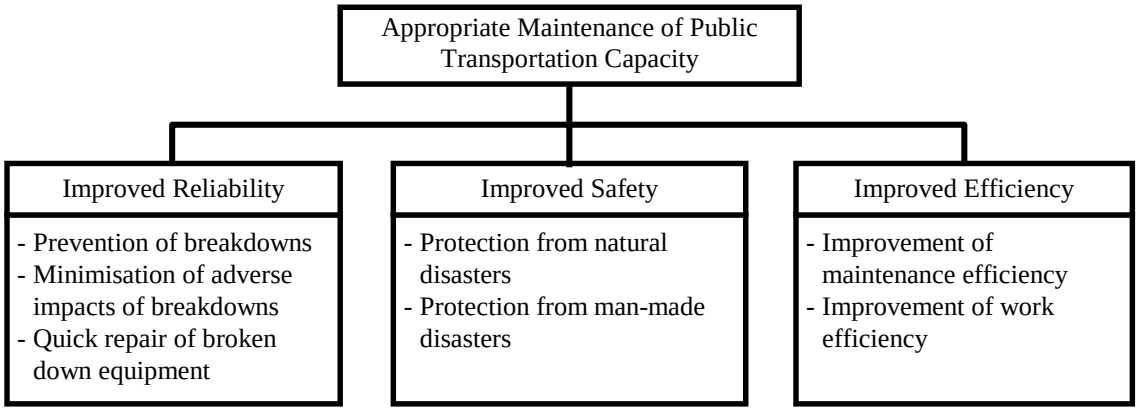


Fig. 2-4-1 Basic Concept of Maintenance Work

In line with the basic concept of maintenance work shown in Fig. 4-1, preventive maintenance should be the main feature of the maintenance work for the equipment to be procured under the Project.

(2) Personnel Training Plan

As part of the Project, the dispatch of engineers of the equipment manufacturers is planned to provide guidance on the operation and maintenance of the procured equipment. GSP Belgrade will be responsible for the maintenance of the procured equipment at the time of its operation commencement using the skills transferred through the operation and maintenance guidance and bearing the maintenance requirements shown in Fig. 2-4-1 in mind.

(3) Operation and Maintenance Cost

For the smooth operation and maintenance of the new 93 buses and repair tools, etc. to be procured under the Project, GSP Belgrade is planning to recruit some 770 people as mentioned earlier.

① The total personnel cost for the new employees based on the annual salary per employee of GSP Belgrade, which is calculated based on the present total personnel cost and the total number of employees, is estimated to be approximately Din 100 million (see Table 2-5-1 – Personnel Cost). This represents a some 12% increase of the present total personnel cost. The total maintenance cost, including the fuel cost, parts cost and others, in 2003 will be approximately Din 2,650 million, this is a 22% increase on the actual cost of Din 2,167 million in 2001.

② The fuel (diesel) cost in 2003 will increase by some 53% on the 2001 level because of the increase of 93 buses under the Project, 111 buses under the EBRD Project and 62 buses to be procured by the City Assembly of Belgrade.

③ It is assumed that hardly any cost for spare parts and others will be incurred because of the fact that new buses will be procured together with spare parts for these buses to be minimum required but some additional spare parts will be needed. However, the numbers of existing superannuated buses will be decreased gradually, and the maintenance cost for the existing buses will be decreased. .

④ Meanwhile, the number of daily passengers using the bus service provided by GSP Belgrade (Table 2-5-3) is used to estimate the income of GSP Belgrade as follows (100% fare collection rate).

Income Breakdown

- Season ticket holders	(600,000)	=	Din 960,000,000/year
- General users	(281,734)	=	Din 845,229,000/year
- Advertisement revenue	(actual figure for 2001)	=	Din 98,126,725/year
	Total	=	Din 1,903,355,725/year

⑤ The estimated income and expenditure for GSP Belgrade in 2003 are Din 1,903 million and Din 2,650 million (Table 2-5-2) respectively, showing a revenue shortfall of Din 747 million which will be met by a municipal subsidy.

⑥ As the City Assembly of Belgrade has already expressed its intention to continue to provide the necessary subsidy for GSP Belgrade which operates public bus transportation, i.e. the most important means of public transportation in the city, it is judged that GSP Belgrade will not face any funding problems in regard to its operation and maintenance cost.

Table 2-5-1 Estimated Maintenance Cost

(Unit: Din)

Item	Personnel Cost	Fuel Cost	Parts Cost	Others	Total
Past Records (2001)	825,960,207	671,975,064	364,296,829	304,737,596	2,166,969,696
	38%	31%	17%	14%	100%
Future Prediction (2003)	926,296,925	1,055,548,813	364,296,829	304,737,596	2,650,947,163
	35%	40%	14%	11%	100%

Table 2-5-2 Estimated Number of Passengers

(Unit: Din)

Item	Actual Number of Passengers in 2001 (persons/day)	Estimated Number of Passengers in 2003 (persons/day)
Number of Passengers	855,864	881,743

Table 2-5-3 Estimated Balance

(Unit: Din)

Item	Income	Expenditure	Balance
Past Records (2001)	1,030,228,952	2,166,969,696	-1,136,740,744
Future Prediction (2003)	1,903,355,725	2,650,947,163	-747,591,438

The above balance shows the single year balance for 2003 where the municipal subsidy is temporarily reduced because of the decline of the cost of spare parts and others following the procurement of the new buses. Given the fact that the spare parts to be procured under the Project represent the minimum requirement to cover a period of two years, the cost of spare parts will begin to increase in 2 – 3 years time, increasing the amount of the municipal subsidy. GSP Belgrade must, therefore, introduce the following measures to increase its income from bus fares and to reduce the amount of the municipal subsidy as much as possible.

① Introduction of bus fare collectors, etc. to achieve a decreasing non-paying fare collection rate
② Development of new bus passengers by means of publicity and advertisement
③ Provision of a reliable and pleasant bus service to attract commuters using private cars to the bus service
④ Introduction of bus roads/lanes to ensure a punctual bus service to exploit potential bus passengers

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3
PROJECT EVALUATION AND RECOMMENDATIONS

3.1 Project Effects

Present Situation and Problems	Remedial Measures Planned Under the Project	Degree of Effects and Improvement by the Project
GSP Belgrade currently operates 417 buses on 98 routes in the city. However, the existing fleet suffers from much deterioration and many buses are withdrawn from service every year. GSP Belgrade estimates that the number of operable buses will be reduced to 336 in 2002, resulting in a substantial shortage of buses. Accordingly, bus transportation will be unable to maintain its public transportation role as it is on the verge of total collapse.	* The rehabilitation capacity of bus transportation will be attempted by selecting eight routes with a high passenger demand. * 201 buses will be required to provide an adequate bus service on these eight routes. However, only 108 buses are currently in operation. 93 new buses will be procured under the Project to meet this shortfall in order to restore the bus transportation capacity on these eight routes.	* The overall capacity of bus transportation will be increased by more than 20%, greatly improving the social service for citizens and refugees. * It is estimated that some 1.2 million people will benefit from the improved bus service on the eight routes as the public transportation capacity to serve these people will be greatly enhanced. * The shorter travelling time for passengers will produce an economic benefit for passengers, etc., contributing to the vitalisation of the local economy.
The peak-hours passenger rate is currently more than 150%, i.e. 240 passengers for a bus designed to carry up to 160 passengers for example, creating harsh travelling conditions for passengers.	93 new buses will be procured to improve the peak-hours passenger rate to approximately 100%, i.e. 160 passengers for a bus designed to carry up to 160 passengers.	* The harsh travelling conditions for commuters, students and daily shoppers will be improved with a reduction of the passenger rate to some 100%. * The approximately service interval will be reduced from the current 10 minutes to 5 minutes.
The buses currently in operation are extremely aged and freely release exhaust gas, increasing air pollution.	EURO-3 engines which meet EU emission standards for automobile engines will be selected.	* Air pollution will be reduced.
Due to its funding shortage, GSP Belgrade finds it difficult to procure spare parts and has been forced to cannibalise its buses to obtain parts.	Spare parts will be procured for the new buses under the Project.	The expected life of the new buses to be procured under the Project will be prolonged.
Due to its funding shortage, GSP Belgrade finds it difficult to replace aged repair tools, etc. As a result, the proper maintenance of its buses is difficult.	Repair tools, etc. for the proper maintenance of the new buses will be procured under the Project.	* Smooth maintenance will prolong the life of the buses. * The shorter repair time will increase the number of buses actually in service.

3.2 Recommendations

(1) Formulation and Realisation of Comprehensive Transport Plan

The traffic situation in urbanised areas of Belgrade during peak hours is characterised by severe congestion everywhere and the travelling speed of buses substantially drops to some 5 – 7 km/hr from the some 17 – 20 km/hr during off-peak hours. Improvement of the travelling speed of buses will not only facilitate the smooth, efficient and effective operation of the new buses to be procured under the Project but will also have an economic benefit for passengers in terms of shortening their travelling time. Moreover, the increased bus service frequency will improve the public transportation capacity in Belgrade. The formulation and ensuring of the early implementation of a comprehensive transportation plan which is designed to alleviate the existing traffic congestion is recommended in view of the Project's smooth and effective management.

The City Assembly of Belgrade and GSP Belgrade already possess a large quantity of transportation-related data and materials as well as staff members with in-depth knowledge of planning and other work. It is, therefore, judged that the City Assembly of Belgrade and GSP Belgrade are capable of formulating and realising the recommended comprehensive transportation plan without any outside assistance.

(2) Improvement of Bus Fare Collection System

Bus fares are currently collected directly from passengers by a conductor assigned to each bus. In the case of an articulated bus, passengers simultaneously get on and off the bus using four doors and the passenger number of 150 – 250 during peak-hours means that it is practically impossible for a single conductor to collect the fare from each passenger because of congestion inside the bus. Although official records are unavailable, it is considered that some 20% of passengers use buses without paying the fare. Given the fact that GSP Belgrade currently receives a subsidy from the City Assembly of Belgrade to cover some 50 – 60% of its operating cost, GSP Belgrade should reduce the number of non-paying passengers by means of increasing the number of conductors or introducing a fare collection system using prepaid cards at bus entrances in order to reduce the amount of the municipal subsidy. The increased revenue will lead to the sound financing and management of the bus service.

Recognising the importance of improving the fare collection rate, the Planning Department of GSP Belgrade commenced the preparation of a draft fare collection improvement plan in January, 2002. Because of the availability of researchers in the transportation sector and of the cooperation regime with bus manufacturers and

bus-related machine manufacturers, GSP Belgrade is judged to be capable of making the required improvement of the fare collection system without any outside assistance.

(3) Improvement of Bus Stops

For the smooth and effective implementation of the Project, it will be necessary to improve the facilities as bus stops. Such bus stop improvement will improve the convenience for bus passengers and will also educate bus drivers on the importance of a punctual bus service. Such improvement can also be expected to lead to an increase of the number of bus passengers while contributing to the overall improvement of public transportation for the citizens of Belgrade. It is, therefore, recommended that the facilities at bus stops be improved to achieve a better outcome of the Project.

As shown in Table 3-2-1, there are 377 bus stops along the eight subject routes, 167 bus stops of which have already been improved, leaving 210 bus stops in need of improvement.

Table 3-2-1 Current State of Improvement of Bus Stops

Current State of Improvement of Bus Stops	Number of Bus Stops	Situation of Available Space at Bus Stops
Total number of bus stops along eight routes (A)	377	-
Already improved bus stops (B)	166	The existing pavement is 3.0 m or wider.
Number of unimproved bus stops (A – B)	210	-
Number of sites where bus stop facilities are not in place but where space is available (C)	60	The existing pavement is 3.0 m or wider.
Number of sites where bus stop facilities are not in place and where space for their construction is unavailable (D)	150	The existing pavement is as narrow as 0.7 m – 1.5 m.

The recommendation under the Project to improve the facilities at bus stops have concluded that bus stop facilities could be constructed at 60 sites out of the 210 unimproved bus stops because of the availability of a pavement of 3.0 m or wider. The construction of certain bus stop facilities will be difficult at the remaining 150 sites. Accordingly, it is recommended that the bus stop facilities described in 1) below, i.e. Type A which is comparable with the existing bus stop facilities as shown in Fig. 4-2-1, will be introduced at 60 sites while only bus stop information facilities (Type B) described in 2) below will be introduced at the remaining 150 sites where the existing pavement is too narrow to accommodate the full facilities.

1) Type A Improvement

The following facilities will be introduced at 60 bus stops (comparable facilities to the existing bus stop facilities).

① Acrylic roof of 4.0 m in length and 1.5 m in width
② Acrylic windbreak panels on both sides of the bus stop
③ Bench
④ Information board displaying a timetable and bus route map

2) Type B Improvement

The following facilities will be introduced at 150 bus stops.

① Facility indicating the bus stop location
② Information board displaying a timetable and bus route map

As GSP Belgrade has already constructed bus stop facilities at 167 sites, GSP Belgrade is judged to be capable of conducting the improvement of bus stop facilities as recommended under the Project.

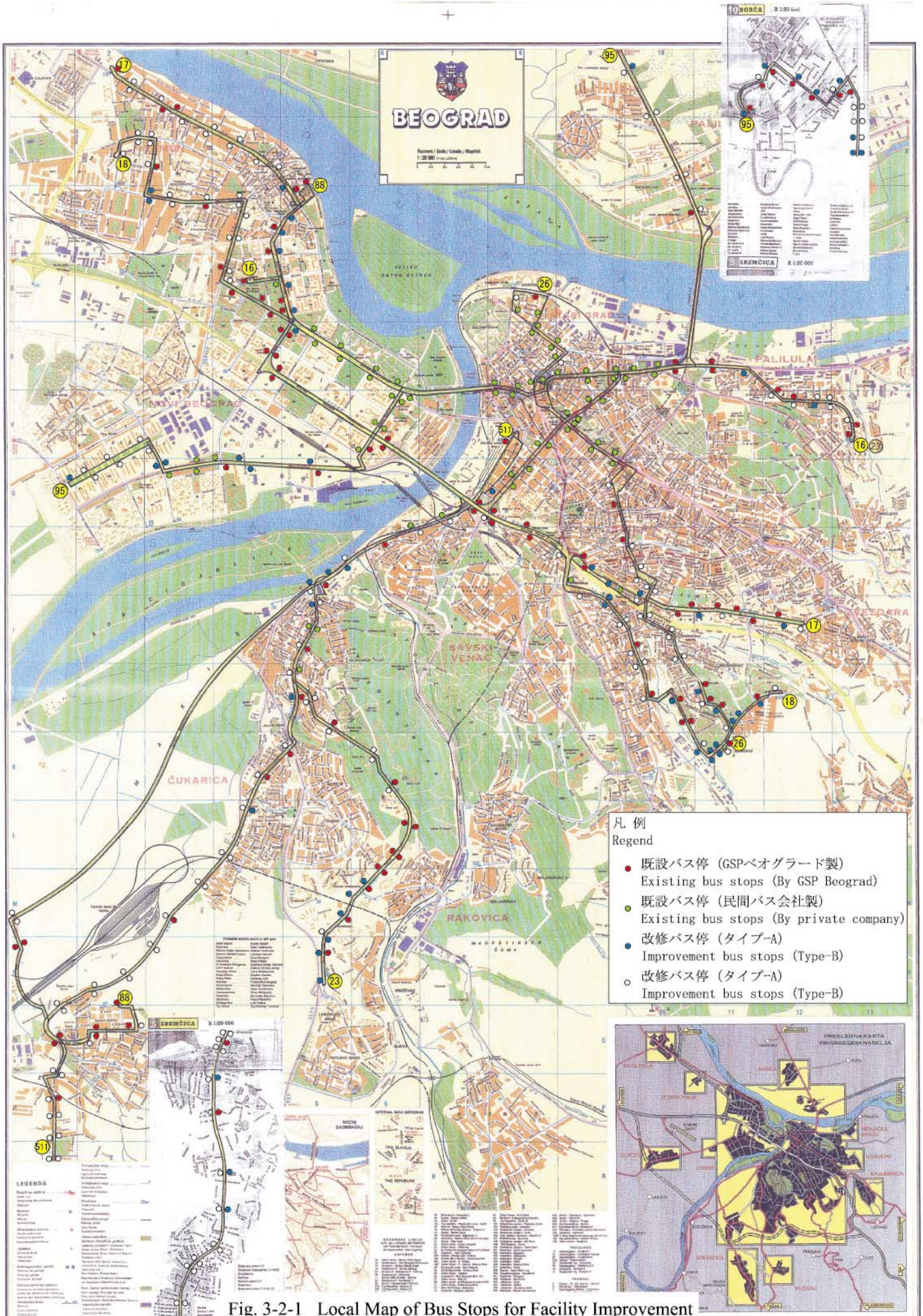


Fig. 3-2-1 Local Map of Bus Stops for Facility Improvement