

**Ministry of Transport and Communications
The Republica Srpska
Bosnia and Herzegovina**

**STUDY REPORT
ON
THE PROJECT FOR REHABILITATION OF
BANJA LUCA CITY TRANSPORTATION SYSTEM
IN
BOSNIA AND HERZEGOVINA**

FEBRUARY 1999

JAPAN INTERNATIONAL COOPERATION AGENCY



1149220[4]

PREFACE

In response to a request from the Government of Bosnia and Herzegovina, the Government of Japan decided to conduct a study on the Project for Rehabilitation of Banja Luca City Transportation System and entrusted the Japan International Cooperation Agency (JICA) to conduct the study with the assistance of the Japan International Cooperation System (JICS).

JICA sent to Bosnia and Herzegovina a study team from December 6 to December 25, 1998.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Bosnia and Herzegovina for their close cooperation extended to the team.

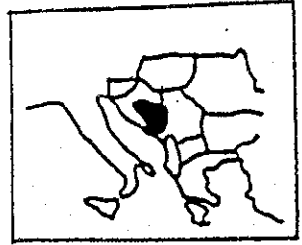
February 1999




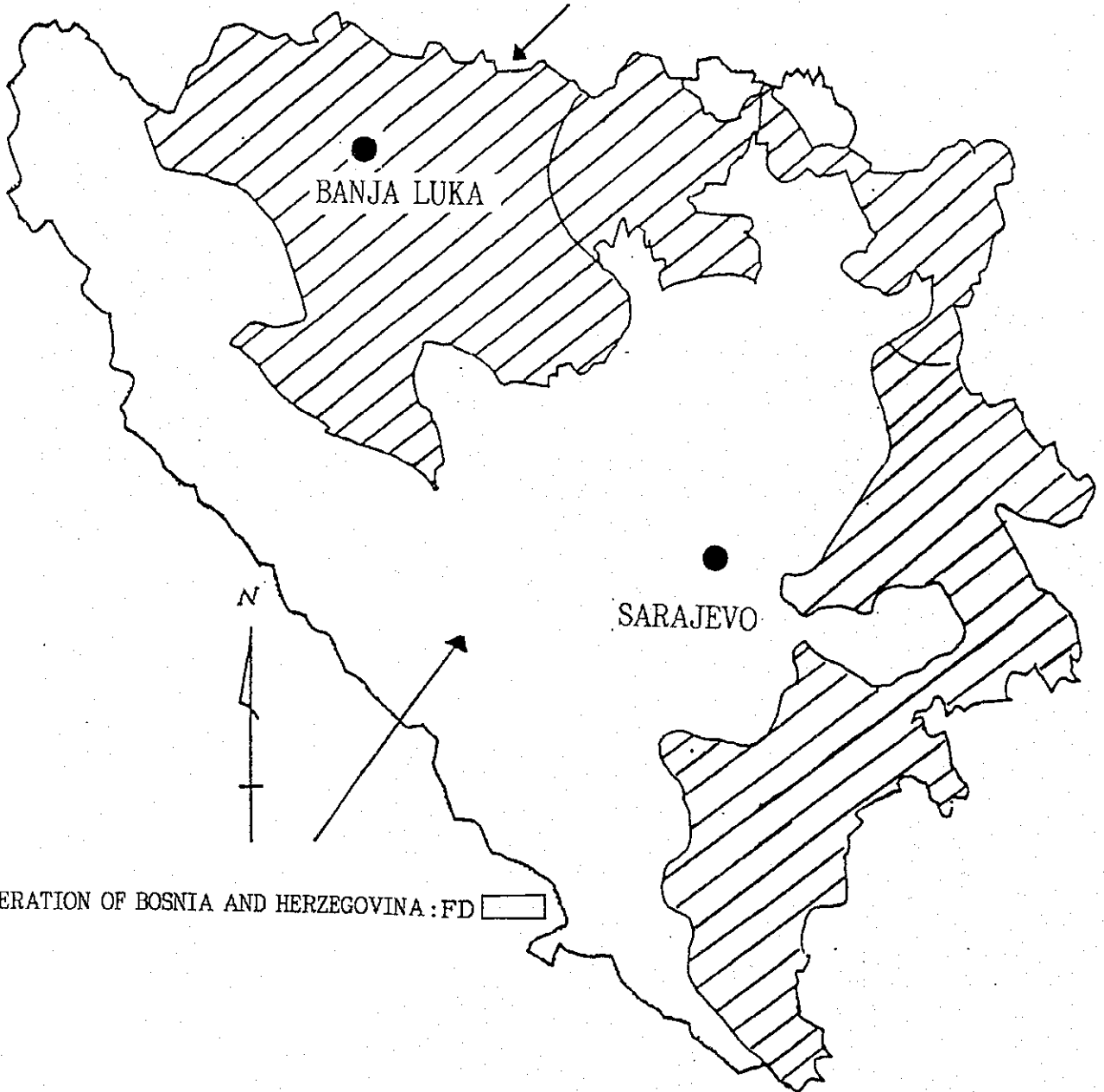
Kimio Fujita

President

Japan International Cooperation Agency



THE REPUBLIKA SRPSKA :RS 



BANJA LUKA

SARAJEVO

FEDERATION OF BOSNIA AND HERZEGOVINA :FD 

MAP OF BOSNIA AND HERZEGOVINA

ABBREVIATIONS

EU	European Union
EURO-1, EURO-2	European emission Standard 1, European emission Standard 2
RS	Republika Srpska

Table of Contents

Preface

Location Map

Abbreviations

	Page
Chapter 1 Background of the Project-----	1
Chapter 2 Contents of the Project-----	3
2-1 Objectives of the Project -----	3
2-2 Basic Concept of the Project -----	3
2-2-1 Examination of the Number of Vehicles to be Supplied under the Project -----	4
2-3 Basic Design -----	12
2-3-1 Design Concept -----	12
2-3-2 Basic Design-----	15
Chapter 3 Implementation Plan-----	17
3-1 Implementation Plan -----	17
3-1-1 Implementation Schedule -----	17
3-1-2 Obligations of Recipient Country -----	17
3-2 Operation and Maintenance Plan -----	18
Chapter 4 Project Evaluation and Recommendation-----	22
4-1 Project Effect -----	22
4-2 Recommendation -----	31

[Appendices]

1. Member List of the Survey Team
2. Survey Schedule
3. List of Party concerned
4. Minutes of discussion

Chapter 1 Background of the Project

Bosnia-Herzegovina (hereinafter called Bosnia) is a landlocked country located in the north-eastern part of the European continent and is bordered by Croatia to the north and west and Serbia and Montenegro of the former Yugoslavia to the east. The national land area is 51,000 km². The Dinaric Alps, which form the mountainous backbone of the country, can be found to the south. The climate moving from the west ranges between Mediterranean to a hot and humid climate and finally west coast marine climate and winters are very cold in inland areas. The annual average temperature ranges between a maximum of 28 °C and a minimum of -5 °C.

The gross domestic product of Bosnia (GDP) was 4 billion US \$ in 1990 (before the start of the internal conflict) and the country was home to the five major corporations of Yugoslavia. Retailing was almost totally carried out by private operators and the small company sector was greatly developed. The national land is not greatly suited to agriculture, however, the 1,580,000 hectare of cultivated land in 1990 did produce 460,000 tons of wheat, 730,000 tons of corn and 340,000 tons of potatoes. Buried mineral reserves amount to 17,970,000 tons of coal and 1,910,000 tons of bauxite, and there are also reserves of limestone, etc.

The internal conflict intensified in June 1991 and was followed by further ethnic clashes. The conflict claimed the lives of more than 6,000 people and led to 1,000,000 corporate employees losing their jobs and becoming unemployed by 1993. Economic activity in the country was destroyed as a result of the conflict and massive investment will be required in order to restore the damaged manufacturing base and industrial sector.

The Project site of Banja Luka is a city located in the northern part of Bosnia. Due to the steady return of internally displaced people and natural population increase, the population of the city has increased by roughly 30,000 over the population before the conflict in 1991 and currently stands at approximately 220,000.

Public transportation in Banja Luka consists solely of bus services, and the public agency (Executive Board of Municipal of Banja Luka) which directly supervises public transportation is the Banja Luka Transportation system. This public agency also manages Autoprevos which is the public transportation corporation.

Autoprevos ran 530 times bus services per day (with a daily transportation capacity of approximately 70,000 passengers) before the start of the internal conflict, however, as a result of the fighting and deterioration of facilities, it has been forced to reduce the number of routes by approximately 40% and currently operates 315 services per day (approximately 40,000 passengers).

Bosnia is currently putting all its efforts into post-war rehabilitation and restoration of public transportation networks. The revitalization of economic activity through reconstruction of the public transportation system is an issue that requires urgent attention. It was against this background that the Government of Bosnia compiled a project for the rehabilitation of transportation equipment intended to improve the transportation system in Banja Luka, and in 1998 requested the Government of Japan to provide grant aid for implementation of the project.

Chapter 2 Contents of the Project

2-1 Objectives of the Project

The Government of Bosnia aims to restore transportation capacity, which has been lost due to the internal conflict and deterioration of equipment, to pre-war levels and, by raising the level of citizen life and promoting the revitalization of economic activity, it aims to contribute to the rapid achievement of post-war rehabilitation. The Project aims to supply city transportation buses, maintenance and workshop tools and spare parts to Autoprevos and aid the achievement of the said objectives through securing the same number of operating buses that existed before the conflict, renewing equipment, and improving maintenance capacity.

2-2 Basic Concept of the Project

The Project is designed to supply equipment for the public transportation system of Banja Luka, RS, which is suffering from a shortage of such equipment due to deterioration and destruction caused by internal conflict and is thus unable to serve the public good, and in the process raise the capacity of the said system to what it was before the outbreak of fighting.

In addition, as a measure for countering harmful exhaust gases, it is necessary to supply vehicles fitted with EURO-2 specification engines and tools for carrying out vehicle inspections. The countries of Europe in 1996 newly adopted the EURO-2 specifications as a countermeasure against exhaust gases. Compared to the previous EURO-1 standard, EURO-2 has made it possible to reduce the concentration of exhaust gases by one-eighth. Through supplying equipment that complies with this new standard, it will become possible to implement public transportation in a planned fashion. Moreover, through introducing vehicles that comply with height level emission regulations and enhancing the vehicle inspection and overhaul setup, it will become possible to control emissions and prevent the abnormally emission that is caused by lack

of engine performance, etc.

The content and quantity of equipment have been decided based on the data given below and in consideration of the implementation setup on the Bosnian side.

2-2-1 Examination of the Number of Vehicles to be Supplied under the Project

(1) Examination of the Necessary Number of Vehicles

Table 2-1 gives details of the number of vehicles that have been requested based on the rehabilitation plan of Autoprevos.

Autoprevos owned a total of 53 buses in 1991, consisting of 14 units of articulated bus and 39 unit of large bus, and it now owns a total of 30 buses (for inner city transportation use), composed of eight articulated bus and 22 unit of large bus. The number of articulated bus and large bus decreased by 6 units and 17 units respectively between 1991 (the year when the internal conflict started) and 1998 (the year the conflict was brought to an end). In addition to these 23 buses, 3 units of the 8 units currently operating articulated bus and 9 units of the 22 units currently operating large buses suffer from extreme deterioration and frequent breakdowns and are deemed to be in need of renewal. Therefore, it has been decided to set the number of buses for supply under the Project as nine articulated buses (6 units to replace those lost in the conflict and 3 units for renewal) and 17 units to replace and for renewal 26 units of large buses (total 35 units buses).

Furthermore, since Autoprevos is a corporation with a firm responsibility to serve the public good, consideration has been given to the weak members of society (elderly people, pregnant women, sick people, children, etc.) when determining the specifications of buses. Concerning buses to be used from the center of Banja Luka, where road conditions are good (flat paved roads), to Banja Luka Municipal Hospital, the plan is to operate three barrier-free buses

(low-floor buses), which are the norm in advanced Western European countries, etc., so it is necessary to give consideration to supplying buses with low-floor model.

Table 2-1 Comparison of the Pre-War and Present Number of Vehicles
(Buses for Inner City Transportation)

	UNITS				
	1991	1998	Reduction	Number Requiring Renewal	Total Requested Buses
Articulated buses	14	8	6	3	9
Large buses	39	22	17	9	26
Total	53	30	23	12	35

Source: Autoprevos

(2) Basis for the Number of Vehicles

1) Examination based on the Population of Banja Luka

Table 2-2 shows the population of Banja Luka before the internal conflict in 1991 and now (1998).

Table 2-2 population of Banja Luka (1991 and 1998)

	PERSONS	
Year	1991	1998
Population of Banja Luka	196,000	225,300

As can be inferred from Table 2-2, the population of Banja Luka as of 1998 has increased by approximately 30,000 over the pre-conflict population in 1991 as a result of the steady return of internally displaced people and natural population increase.

Changes in the number of service routes and buses between 1991 and 1998 are as indicated in Table 2-3.

Table 2-3 Changes in Number of Routes, etc.

	1991				1998				Reduction
	Number of Routes	Number of Vehicles	Buses Assigned During Periodic Inspections	Total Number of Vehicles	Number of Routes	Number of Vehicles	Buses Assigned During Periodic Inspections	Total Number of Vehicles	
Articulated buses	2	11	3	14	3	8	0	8	6
Large buses	20	39	0	39	9	14	8	22	17
Total	22	50	3	53	12	22	8	30	23

Whereas there were 22 routes and 53 buses in operation in 1991, the same numbers in 1998 had fallen to 12 units and 30 units respectively, meaning that the number of routes has been reduced by 10 units and the number of buses by 23 (6 units of articulated bus, 17 units of large bus).

Furthermore, of the 30 buses that currently exist, 8 (3 units of articulated bus and 5 units of large bus) are in need of immediate renewal. In Project target year 2000, 4 units of large bus necessary to replace.

Since the population has grown in excess of what it was in 1991, it is necessary to immediately restore the public transportation service to its pre-war level. Therefore, there is a pressing need to newly introduce a total of 35 buses consisting of 9 units of articulated bus and 26 units of large buses.

2) Examination from the Viewpoint of Bus Fare Income

The following describes estimation of the number of passengers and examines the demand for buses based on bus fare income (income from monthly pass sales). Table 2-4 gives a comparison of the number of purchasers of monthly pass in 1991 and 1997.

Although the population of Banja Luka has increased by approximately 30,000 passengers between 1991 and 1998, the number of monthly pass purchasers has dramatically fallen by roughly 220,000 from approximately 380,000 (1991) to 160,000 (1998). The greatest reasons for this fall are considered to be the decline in the number of bus routes and buses, and it is estimated that the drop of approximately 220,000 users now exists as potential demand. Accordingly, it is essential to increase the number of buses in order to respond to this potential demand, and a trial calculation of the number of buses that are required is given below.

In 1997, the total number of operating buses was 22, and these provided public transportation for 167,280 monthly pass purchasers that year. Since 382,033 passengers purchased monthly pass in 1991, a trial calculation of the number of buses required to serve this number of users has been carried out.

The required number of buses was calculated using the following expression:

$$\left(\begin{array}{l} \text{Monthly Pass} \\ \text{Purchasers} \\ \text{In 1998} \\ 167,280 \end{array} \right) : \left(\begin{array}{l} \text{Number of} \\ \text{buses} \\ \text{in 1998} \\ 22 \end{array} \right) = \left(\begin{array}{l} \text{Monthly Pass} \\ \text{Purchasers} \\ \text{in 1991} \\ 382,033 \end{array} \right) : \left(\begin{array}{l} \text{Number of} \\ \text{required} \\ \text{buses} \\ \alpha \end{array} \right)$$

$$\alpha = 22 \times 382,033 \div 167,280$$

$$= 50.2$$

Although this is a simple calculation, it is estimated that more than 50 buses (including existing buses) are required in order to satisfy the potential demand.

Table 2-4 Comparison of the Number of Monthly pass Purchases in 1991 and 1997

	Annual Sales (¥:Yen)	Total Annual Purchasers
Monthly pass (1991)	371,096,956	382,033
Monthly pass (1997)	162,491,610	167,280

3) Summary

The population of Banja Luka is now higher than it was before the internal conflict, and when one considers that the total population that would benefit from restoring the number of buses to pre-war levels and the number of monthly pass purchasers has fallen dramatically in relation to the increasing population, it is inferred that there is an absolute deficiency in the number of buses. Moreover, a bus fleet of just over 50 vehicles (including existing buses) is considered appropriate to respond to the demand for public transportation (including potential demand) in Banja Luka.

It is deemed sufficiently appropriate from the viewpoints of population, benefiting population and required number of buses to introduce 35 new buses under the Project in order to restore the total number of buses to the pre-war level of 53.

(3) Examination of Operating Equipment

The average operating rate of inner city and suburban commuter buses in 1998 is approximately 83%. There is little chance that the operating conditions of the eight buses can be improved and, judging from the maintenance cost and operating fare income of these buses, renewal is considered to be necessary. The cost of repairing this equipment combined with the loss in income incurred during breakdown times for repairs are great; indeed, this cost and loss are sometimes equivalent to two-thirds the cost of buying a new bus.

Moreover, it is unlikely that these buses will run like new vehicles even if breakdown repairs are carried out, and there is a possibility that other breakdowns will occur even when the repairs shown in the table are completed. Therefore, it is necessary to carry out renewal of the equipment shown in Table 2-5.

Table 2-5 Repair cost, etc. of Equipment in Need of Renewal

	Registered No.	Type	Trouble Contents	Repair Cost (yen)	Repair Period	Income Loss from Breakdown
1	706	Large bus	Body corrosion, transmission breakdown	Approx. 5 million yen	Approx. 2 months	Approx. 2.5 million yen
2	963	Large bus	Body corrosion, differential breakage	Approx. 5 million yen minimum	Approx. 2 months	Approx. 2.5 million yen
3	996	Large bus	Body corrosion, transmission breakdown	Approx. 5 million yen	Approx. 2 months	Approx. 2.5 million yen
4	1024	Articulated bus	Body corrosion, engine breakdown	Approx. 8.6 million yen	Approx. 3 months	Approx. 3.7 million yen
5	1027	Large bus	Body corrosion, engine breakdown	Approx. 8.6 million yen	Approx. 3 months	Approx. 3.7 million yen
6	1072	Large bus	Body corrosion, engine breakdown, brake breakdown	Approx. 8.6 million yen	Approx. 4 months	Approx. 5 million yen
7	1076	Large bus	Body corrosion, transmission breakdown	Approx. 5 million yen	Approx. 2 months	Approx. 2.5 million yen
8	1079	Large bus	Body corrosion, engine breakdown, transmission breakdown	Approx. 8.6 million yen	Approx. 4 months	Approx. 5 million yen
9	1080	Articulated bus	Body corrosion, vehicle tilt	Approx. 5 million yen	Approx. 3 months	Approx. 3.7 million yen
10	1097	Articulated bus	Body corrosion, engine breakdown	Approx. 8.6 million yen	Approx. 3 months	Approx. 3.7 million yen
11	1122	Large bus	Body corrosion, transmission breakdown	Approx. 5 million yen	Approx. 2 months	Approx. 2.5 million yen
12	1126	Large bus	Body corrosion, transmission breakdown	Approx. 5 million yen	Approx. 2 months	Approx. 2.5 million yen

The contents of breakdowns were confirmed in site inspections. Repair costs have been estimated based on interviews with local staff. Losses from breakdowns are rough estimates.

(4) Assignment Plan

Based on the bus assignment situation in 1991, the newly supplied buses and existing buses will be assigned in the manner indicated in Table 2-6.

Table 2-6 Assignment Plan

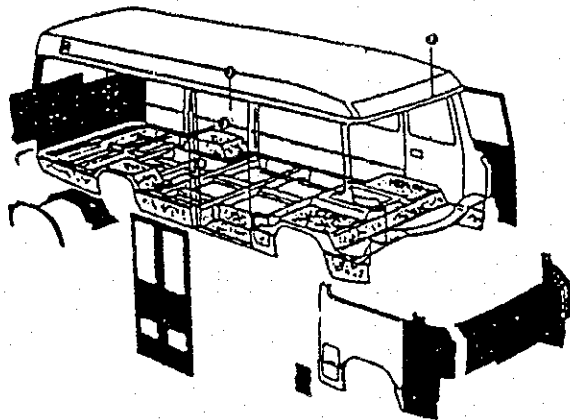
No.	Route No.	Route Name	Route km	Planned Number of Assigned Buses						
				Articulated Buses			Large buses			Total
				Exist-ing	New	Sub-total	Exist-ing	New	Sub-total	
1	1	CENTAR~OPTOPEDIJA	11.6	0	0	0	1	1	2	2
2	3	CENTAR~VRBANIA	16	0	0	0	2	2	4	4
3	3A	CENTAR~REBROVAC	18	0	0	0	1	0	1	1
4	3B	CENTAR~DEBEWACI	19	0	0	0	1	1	2	2
5	3C	CENTAR~Z. VIR	20.8	0	0	0	0	1	1	1
6	6	A. STANICA~NOVA BOLNICA	11.6	0	0	0	1	2	3	3
7	8	A. STANICA~SR. TOPLICE	16.6	0	5	5	0	0	0	5
8	9	CESMA~D. NOVOSEL	20.4	0	0	0	0	2	2	2
9	10	A. STANICA~CENTAR	6	0	0	0	0	3	3	3
10	10A	A. STANICA~OBILICEVO	9.2	0	0	0	0	2	2	2
11	13	LAZAREVO~OBILICEVO	16.9	2	4	6	0	0	0	6
12	13A	CENTAR~ZALUZANI	15.4	0	0	0	1	1	2	2
13	14	CENTAR~STARCEVICA	10.2	0	0	0	1	2	3	3
14	14A	A. STANICA~STARCEVICA	16.2	0	0	0	1	1	2	2
15	17	STARCEVICA~N. BOLNICA	16.3	0	0	0	1	1	2	2
16	19	CENTAR~SARGOVAC	18	0	0	0	1	1	2	2
17	21	CENTAR~SARACICA	13	0	0	0	1	1	2	2
18	21A	A. STANCIA~LAUS	12.1	0	0	0	1	1	2	2
19	22	MEIDAN~AS~TAS	13	0	0	0	0	1	1	1
20	22A	MEIDAN~TAS	18	0	0	0	0	1	1	1
21	36	TAS~LAUS	14	0	0	0	0	1	1	1
22	43	KUMSALE~HISETA	14	0	0	0	0	1	1	1
Subtotal				2	9	11	13	26	39	50
Assigned buses during periodic inspections				3	0	3	0	0	0	3
Total				5	9	14	13	26	39	53

(5) Selection of Low floor Buses

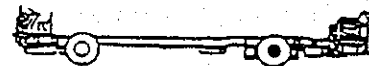
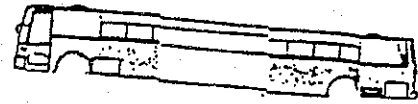
Following the signing of the minutes of discussions, consultations concerning the equipment specifications were carried out. At this time a request was put forward to adopt the low floor type of large buses that is widely used in Europe. The Study Team came to the conclusion that, in view of road conditions in Banja Luka, it was not possible to make all large buses the low floor type. However, the local side made a further request to adopt low floor buses on Route No. 10, where road conditions are good and the user population is high. Upon surveying conditions on Route No. 10, it was found that the paving rate is 100%, the paving integrity rate is 100%, the benefiting population in wayside areas is approximately 30,000 people, and the height of pavements at bus stops is approximately 300 mm and suited to low floor buses. Moreover, since facilities essential to citizen activities, etc. (hospitals, emergency hospitals, post offices, markets, youth sports facilities, government offices, etc.) are located close to the route, it is possible to appreciate the need to operate low floor buses. Furthermore, since three buses were operated on Route No. 10 in 1991, there is thought to be no problem in assigning three low floor buses as shown in Table 2-7 to this route. Incidentally, the differences between low floor buses and general buses are as shown in Table 2-7 and Figure 2-1.

Table 2-7 Difference Between Low floor Bus and General Bus

	Low-floor Buses	General Buses
Floor height (from ground)	Roughly 300 mm	Roughly 750-1,000 mm
Body structure	Monocock	Monoblock
Price	22 million yen ~	15~24 million yen
Remarks		



EXAMPLE OF MONOCOQUE BODY
(Low-floor type)



EXAMPLE OF MONOBLOCK BODY
(General type)

Figure 2-1 Difference Between low floor Buses and General Buses

(6) Examination of Equipment Specifications

- Upon considering the specifications of existing equipment and the contents of the request, equipment that involves easy maintenance shall be selected.
- European specifications shall be adopted with respect to buses.
- Three low floor large buses shall be supplied for use on Route No. 10.
- Workshop tools necessary for carrying out maintenance of buses shall be supplied for the workshop.

2-3 Basic Design

2-3-1 Design Concept

(1) Concept Regarding Natural Conditions

The countries of Europe have confirmed that high concentrations of the constituent elements that form automobile exhaust gases (nitrogen oxides, HC, CO₂, CO, graphite, etc.) are a contributory

factor to global warming, acid rain and cancer and have applied very strict regulations to such emissions. Accordingly, it is necessary for the buses which are to be newly supplied under the Project to comply with EURO-2 standards which demand that exhaust gases be of low concentration.

(2) Concept Regarding Social Conditions

Bosnia is currently reviewing its vehicle inspection system and, in line with the neighboring countries of Croatia and Macedonia and other countries in Europe, it is advancing the adoption of EU exhaust gas regulations and vehicle safety standards. In compliance with this trend, the Project will entail the utilization of injection pump testers among the operation and maintenance equipment to be supplied.

Furthermore, when the vehicle inspection system is fully established, it is likely that the import of vehicles that do not comply with EURO-2 and European safety standards will be prohibited. Since Japanese-made vehicles currently do not comply with the said standards, review of the local legislation or special authorization for import will be necessary.

(3) Concept Regarding Utilization of Local Equipment or Third Country Equipment

In order to achieve compliance with EURO-2 and other European standards, automobile manufacturers are investing massive funds in development, and small manufacturers, which do not possess such financial and technical resources, are producing vehicles by purchasing important parts (engines, etc.) from the major makers. Since this trend is being reflected in market prices and is leading to an increase in unit rates, it is necessary to have an adequate grasp of manufacturers' activities.

With respect to the situation concerning spare parts supply and procurement, there are practically no manufacturers' agents in

Bosnia, however, major European manufacturers possess agents in neighboring Croatia and Macedonia, and these are an advantageous source of parts.

(4) Concept Regarding the Maintenance Capacity of the Implementing Agency

Autoprevos possesses workshop, however, theft and destruction of equipment and facilities caused by the conflict are extreme. As a result, vehicle maintenance cannot be carried out efficiently and this is leading to an increase in repair and maintenance costs. In order to mitigate this burden, the Project will include the supply of workshop tools. There is no problem regarding the capability of the implementing agency to maintain such tools and inspection instruments, however, since the destroyed or stolen items will be replaced with the latest models, engineers will be dispatched at the time of supply to provide technical guidance in methods of use and so on.

(5) Concept Regarding the Setting of Equipment Range and Grade

The response to the 32 buses that were provided by the EU in 1996 is favorable, however, the Ministry of Transportation and Communications has pointed out that the engines of the said buses comply with the former EURO-1 standard and not the new EURO-2 standard (established from 1996), despite the fact that the difference in price between the two types is small at around 10%. The Bosnian side intends to use the equipment supplied under the Project as a model case for the adoption of European standards and aims to promote compliance with the said standards.

Table 2-8 shows a comparison of vehicle safety standards in Europe and Japan .

Table 2-8 Comparison of Vehicle Safety Standards in Europe and Japan

(Case of large buses)

	Item	European Safety Standards and EURO-2	Japanese Safety Standards
1	Total width	Maximum 2,550 mm	Maximum 2,500 mm
2	Effective inside height	Minimum 1,950 mm Maximum 2,200 mm	Minimum 1,800 mm
3	Step height	Maximum 350 mm	Maximum 450 mm
4	Effective inside area per person	Seat: 0.33 m ² Standing: 0.15 m ²	Seat: minimum 0.16 m ² Standing: 0.14 m ²
5	Axle-weight	Maximum 10 tons	Maximum 10 tons
6	Exhaust gas concentration (CO)	Maximum 4.00 g/kWh	Maximum 9.2 g/kWh
7	Exhaust gas concentration (N _{ox})	Maximum 7.00 g/kWh	Maximum 6.8-7.8 g/kWh
8	Exhaust gas concentration (HC)	Maximum 1.10 g/kWh	Maximum 3.8 g/kWh
9	Doors and door width	Minimum 2 doors Minimum width 700 mm	Minimum 600 mm
10	Floor height	Slip-proof coating	Slip-proofing of steps

Note: The above standards are only part of the total vehicle safety standards.

(6) Concept Regarding the Implementation Period

Because the Project is to be implemented under Japan's Grant Aid Scheme, implementation from the Exchange of Note through to the final payment must be completed within one financial year.

2-3-2 Basic Design

(1) Overall Design

The Project is intended to restore the war-damaged public transportation capacity of Banja Luka to pre-conflict levels and involves the supply of 31 buses that are required to provide transportation services for the directly benefiting population of 220,000 people. Moreover, in order to establish a new vehicle maintenance environment in line with rehabilitation of the service setup of the workshop and review of the vehicle inspection system, workshop tools will also be supplied. The equipment to be supplied under the Project is as indicated below.

- ① Carry out public transportation in Banja Luka using a total of 53 buses - 35 buses to be supplied under the Project and 18 existing buses.
- ② With respect to workshop equipment, repair tools will be supplied in order to strengthen the service setup of the workshop belonging to Autoprevos and respond to the new vehicle inspection system.

(2) Equipment Plan

The main specifications and purposes of use of the equipment are as indicated in Table 2-9.

Table 2-9 Equipment Specifications and Purposes of Use

	Equipment	Specifications	Q'ty	Purpose of Use
1	Articulated buses	4 x 2, total length: 18 m max., flexing type, approx. 138-160 passengers, European specifications	9	Inner city public transportation
2	Large buses	4 x 2, total length: 12 m max., approx. 94-110 passengers, European specifications	23	Inner city public transportation
3	Large buses (low-floor type)	4 x 2, total length: 12 m max., approx. 96-100 passengers, floor height: approx. 350 mm, European specifications	3	Inner city public transportation
4	Workshop tools	-	1 set	Maintenance work in workshop

Chapter 3 Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation Schedule

The implementation schedule is as indicated in Table 3-1.

Table 3-1 Implementation Schedule

	1	2	3	4	5	6	7	8	9	10	11	12	
Implement- ation Design	□	(Site survey)											
	□			(Tender)		□		(Assessment contract)					Total: 4.5 months
Study	□						(Equipment manufacture)						
	Total: 7.5 months						□	(Equipment transportation)					□

3-1-2 Obligations of Recipient Country

The items to be borne by the Bosnian side in the event of Project implementation are as follows.

- 1) Swift unloading of the supplied equipment and execution of customs clearance work.
- 2) Exemption of tariffs and domestic taxes that may otherwise be applied to the supplied items and supply work.
- 3) Provision of conveniences required for the entry into Bosnia and stay therein of Japanese nationals concerned with the Project.
- 4) Bearing of expenses not covered by the bounds of the grant aid.
- 5) Assignment of counterparts.
- 6) Appropriate maintenance and utilization of the supplied equipment.
- 7) Binding of a banking agreement.
- 8) Sure allocation of personnel and maintenance budget required for

Project implementation.

3-2 Operation and Maintenance Plan

(1) Operation and Maintenance Setup

The maintenance of vehicles is carried out by the workshop owned by Autoprevos. However, deterioration of the workshop equipment is extreme and this is hindering repair and maintenance activities. Through supplying new workshop tools, the Project will mitigate the problems that currently hinder repair and maintenance activities and enable efficient operation and maintenance to be carried out. In turn, this will lead to a fall in operation and maintenance costs and an increase in the service life of equipment.

Regarding vehicle maintenance, control and inspections are carried out in accordance with maintenance lists. The total workshop personnel of 73 are divided into groups for carrying out tire repairs, body repairs, painting, electrical system repairs, plate metal repairs and general repairs and maintenance, and no problems exist in terms of staff numbers or technical levels.

(2) Annual Operation and Maintenance Cost

In line with the increase in equipment resulting from the Project, the cost items shown in Table 3-3 will newly arise from 2000. When the equipment operation and maintenance cost is calculated based on the Construction Machinery Hire Calculation Tables used in Japan and with conditions in Bosnia taken into account, the annual cost works out to be approximately 160 million yen. This increase in cost can be comfortably absorbed by the increase in income that will result from the introduction of new buses and is considered small enough not to affect the business operation of Autoprevos

(A detailed examination of cost is given in the trial calculation of the various effects of equipment supply indicated in Chapter 4 Section 4-1 (1)).

Table 3-2 Equipment Operation Cost

Item	Cost (10,000 yen)
1) General control cost	754
2) Expendable parts cost	552
3) Oil cost	84
4) Fuel cost	9,505
5) Depreciation cost	5,428
Total	16,323

The method used to calculate the equipment operation cost is indicated below.

1) Control Cost

This is the general name given to the combined total of public imports and taxes, insurance premiums, storage facility maintenance costs and administration office expenses, etc. made necessary as a result of owning machinery. The annual control cost rate is calculated as 1% of the basic price of each item of equipment. Table 3-3 shows a breakdown of control cost for each type of equipment.

Table 3-3 Breakdown of Control Cost by Type of Equipment

(Unit: 10,000 yen)

Equipment	Basic Price	Annual Control Cost Rate	Quantity	Total
Articulated buses	2,500	1%	9	225
Large buses	2,000	1%	23	460
Large buses (low-floor)	2,300	1%	3	690
Total	-	-	35	754

(Note) The basic price refers to the standard current price of machinery of standard specifications.

The annual control cost rate used here is that applied to machinery which is loaned out by the government free of charge.

2) Expendable Parts Cost

This is the cost incurred by expendable parts which have an extremely high link between wear and tear and usage and which require no special skills for replacement or repair (tires). Table 3-4 shows a breakdown of the expendable parts cost for each type of equipment.

Table 3-4 Breakdown of Expendable Parts Cost by
Type of Equipment

(Unit: 10,000 yen)

Equipment	Cost per Vehicle (rough estimate)	Quantity	Total
Articulated buses	18	9	162
Large buses	15	26	390
Total		35	552

3) Oil Cost

Table 3-5 shows a breakdown of the cost incurred by oil replacements for engines, transmissions and differentials.

Table 3-5 Breakdown of Annual Oil Consumption by
Type of Equipment

(Unit: liter)

Equipment	Engine Oil	Transmission	Differential Oil	Number of Vehicles	Annual Consumption
Articulated buses	100	10	10	9	1,080
Large buses	100	10	10	26	3,120
Subtotal	-	-	-	-	4,200
Expression and cost	4,200 (liters) × 200 (¥/liters) = ¥840,000				

4) Fuel Cost

The fuel cost was calculated using the following expression:

Fuel consumption rate (estimate) × Estimated horsepower × Annual operating time × Local fuel cost (fuel oil)

Table 3-6 shows a breakdown of the amount of fuel consumption.

Table 3-6 Breakdown of the Amount of Fuel Consumption

Equipment	Fuel Consumption (liters/PS/h)	Horsepower (PS)	Annual Operating Time	Quantity	Annual Fuel Consumption (liters)
Articulated buses	0.04	310	4,080	9	455,328
Large buses	0.04	300	4,080	26	1,272,960
Total	-	-	-	-	1,728,280
Expression and cost	$1,728,280 \times 55 \text{ (¥/liters)} = ¥95,055,840$				

For horsepower, the average horsepower of the equipment under consideration has been adopted.

Since the price per liter of fuel is approximately 55 yen, this is the price that has been adopted.

5) Depreciation Cost

Depreciation cost was calculated based on fixed installments over 10 years. As of now, since it is estimated that the combined purchase cost of buses to be supplied under the Project is approximately 540 million yen, when this is depreciated as fixed installments over 10 years, annual depreciation works out as approximately 54 million yen. This amount has been added on to the cost incurred in the supply of new equipment.

Chapter 4 Project Evaluation and Recommendation

4-1 Project Effect

(1) Trial Calculation of the Various Effects of Equipment Supply

In the case where 35 new buses are supplied under the Project, it is considered that a bus fleet consisting of articulated buses and large buses could be operated in good condition. Moreover, the supply of workshop equipment will make it possible to maintain existing equipment in an operable state. When the existing equipment is combined with the equipment to be newly supplied, it is estimated that the bus fleet can be restored to its pre-conflict level and it is forecast that the operating rate of 90% being aimed for by Autoprevos can be achieved and sustained.

In addition, operation of the new equipment will bolster transportation capacity and lead to an increase in income through attracting more passengers, and renewal of deteriorated equipment will lead to a fall in maintenance costs. If the income and expenditure balance becomes more favorable in this way, a ripple effect will be had on equipment procurement plans to be carried out through the self efforts of Autoprevos from 2002 onwards. Below are indicated the trial calculations of these effects.

1) Trial Calculation of Passengers and Fare Income

The number of passengers shall be calculated and examined based on the income conditions of Autoprevos. and the income obtained from the sale of tickets and monthly pass in 1997. Table 4-1 gives a detailed breakdown of income in 1997.

Table 4-1 shows that total income from ticket sales was 279,134,320 yen, consisting of 116,642,710 yen from one-way ticket sales and 162,491,610 yen from monthly pass sales. The number of passengers can be calculated by dividing these amounts by the unit price of one-way tickets and the unit price of monthly pass.

The unit prices of these tickets are as indicated in Table 4-2.

Table 4-1 Breakdown of Income (1997)

(Unit: yen)

No.	Breakdown	Annual Sales
1	Inner city (one-way tickets)	116,642,710
2	Monthly pass	162,491,610
	Subtotal	279,134,320
3	Suburban	67,374,570
4	Inter-city transportation	213,857,920
5	Kiosk income	108,949,420
6	Bus stop rental	20,204,600
7	Cafeteria income	18,261,850
8	Parts sales	23,546,130
9	Land rental	3,108,400
10	General vehicle repair income	31,239,420
	Subtotal	205,309,820
	Total	765,676,630

Exchange rate: DM 1 = 77.71 yen (average rate between June and November 1998)

Table 4-2 Table of Unit Bus Fares

(Unit: DM)

Km	Ticket	Season (1 month)	
		Commutation	School Commutation
0-10	1.5	15	10
11-20	1.0	30	20
20-30	1.5	45	30

Here, it was decided to calculate the number of passengers using the fare for a ride of no more than 10 km, which is considered to be the most frequently rode distance. Moreover, concerning monthly pass, since the ratio of commuter and school commuter

passengers is unclear, an average value of DM 12.5/month is adopted.

Based on this unit price, the number of passengers has been estimated and the expected increase in income resulting from the introduction of 35 new buses has been calculated. The details of this are given in Table 4-3.

Table 4-3 Estimated Number of Passengers and Expected Rise in Income

(Unit: Number/yen)

No.	Breakdown	Annual Sales (1997)	Passengers/ 22 buses/year	Passengers/ 22 buses/month	Passengers/ day	Average passengers/ rides/buses/ day	Monthly ticket income/ 35 buses	Annual ticket income/ 35 buses
1	Inner city/rides	116,642,710	3,002,000	250,167	8,225	47	15,463,996	185,567,948
		Annual sales (1997)	Monthly pass purchasers/22 buses/year	Monthly pass purchasers /22 buses/month	-	-	Monthly pass income/ 35 buses/month	Monthly pass income/ 35 buses/year
2	Monthly pass	162,491,610	167,280	13,940	-	-	21,542,448	258,509,380
	Total	279,134,320	-	-	-	-	37,006,444	444,077,327

From Table 4-3 it can be seen that the increase in income in the event where 35 new buses are supplied will be 444,077,327 yen, composed of 185,567,948 yen from increased one-way ticket sales and 258,509,380 yen from increased monthly pass sales. The income and expenditure balance in 2001 (one year after the buses are to be supplied), estimated upon adding the above increase in income to actual income in 1997 and taking into account the increase in expenses resulting from the higher number of buses, is indicated in Table 4-4.

* Since details concerning income in 1998 were not available, basic data concerning income were taken from 1997, however, data concerning expenditure were taken from 1998.

The maintenance cost in 2001 compared with 1998 either increases or decreases depending on the item: items where the cost increases are general control cost, fuel cost and

depreciation cost (calculated based on fixed installments over 10 years), and items where the cost decreases are expendable parts cost, lubrication oil cost and spare parts cost.

Assuming that salaries (see the later section on personnel expenses), pensions, telecommunications costs and office costs, etc. remain the same as in 1998, it is thought that the total increase in cost will be approximately 100 million yen.

Although it is anticipated that implementation of the Project will incur an additional cost of approximately 100 million yen, since the expected increase in income is approximately 440 million yen, not only can the additional costs be absorbed, but the single year deficit can be erased and a final balance surplus of approximately 190 million yen can be expected. As was mentioned above, income data have been taken from 1997, and income in this year was approximately 150 million yen more than in 1998. However, even if the income forecast for 2001 is lowered to the income level in 1998 (i.e. reduced by 150 million yen), the income and expenditure balance in 2001 will still show a surplus of approximately 190 million yen. Therefore, even in this case, a balance will more or less be achieved between income and expenditure and there will be no problem.

Table 4-4 Forecast of the Income and Expenditure Balance of
Autoprevos in 2001

(Unit: yen)

Income Breakdown	1998	2001	Expenditure Breakdown in 2001	
Inner city (tickets)	n.a	302,210,658	Existing Equipment	Newly Supplied Equipment
Monthly pass	n.a	421,000,990		
Subtotal	-	723,211,648		
Suburban	n.a	67,374,570		
Inter-city transportation	n.a	213,857,920		
Total fare income	480,092,380	1,004,444,138		
Other	136,147,920	205,309,820		
Total income	616,240,300	1,209,753,958		
Expenditure Breakdown				
General control cost		7,540,000	-	7,540,000
Expendable parts cost (tires, etc.)	92,630,320	88,770,034	83,250,034	5,520,000
Fuel	135,992,500	217,276,947	122,221,107	95,055,840
Lubrication oil	14,220,930	13,620,835	12,780,835	840,000
Spare parts	147,726,710	132,767,043	132,767,043	-
Depreciation cost (buses)	18,339,560	54,286,000	-	54,286,000
Subtotal	408,910,020	514,260,859	351,019,019	163,241,840
Depreciation cost (others)	12,200,470	12,200,470		
Salaries	44,827,713	44,827,713		
Pensions	25,929,263	25,929,263		
Telecommunications cost	3,263,820	3,263,820		
Office cost	3,263,820	3,263,820		
Postage cost	233,130	233,130		
Insurance and tax	31,627,970	31,627,970		
Interest	-	-		
Other	383,731,980	383,731,980		
Total expenditure	913,988,185	1,019,339,024		
Balance (income - expenditure)	-297,747,885	190,414,934		

As is clearly shown in Table 4-4, implementation of the Project will improve the business conditions of Autoprevos enabling it to enter the black, and it is anticipated that Autoprevos will eventually be able to procure buses and maintenance equipment

through its own efforts.

2) Examination of Personnel Expenses

Bus drivers will naturally be required in order to operate the 35 buses that are supplied under the Project. Autoprevos currently employs 220 drivers. Since the company currently possesses 79 buses (including 12 irreparable buses used for inner city services), the number of drivers per bus following the introduction of 35 additional buses is calculated as follows.

$$\begin{aligned} \text{Number of drivers per bus} &= \frac{220}{(79 - 12 + 35) \text{ buses}} \times 0.8 \\ \text{(operating rate)} &= 2.6 \text{ drivers/bus} \end{aligned}$$

Accordingly, even if 35 new buses are supplied, there will still be two or three drivers available per bus and no need to employ new drivers. Therefore, the income and expenditure balance was forecast assuming no change in personnel expenses.

(2) Survey of Current Conditions of the Project for Rehabilitation of Public Transportation System in Sarajevo (Phase 1 and Phase 2)

In phases 1 and 2 of the Project for Rehabilitation of Public Transportation System in Sarajevo, the equipment shown in Table 4-5 was supplied. During the site confirmation study for the Project, the Study Team confirmed conditions of use in the Project for Rehabilitation of Public Transportation System in Sarajevo (Phase 1 and Phase 2), with a view to feeding back information to the Project and achieving even more efficiency in equipment supply.

Table 4-5 Equipment Supply in the Project for
 Rehabilitation of Public Transportation
 System in Sarajevo (Phase 1 and Phase 2)

	Phase 1	Phase 2
Articulated buses	6	4
Large buses	39	11
Medium-sized buses (for disabled persons)	5	-
Medium-sized buses	-	15
Maintenance tools	1 set	-
Spare parts	1 set	1 set

1) Examination Based on Running Distance

The running distances of buses following supply are shown on a separate sheet. The buses supplied in Phase 1 have been in use for seven months and have covered a distance of approximately 36,000 km on average. It is generally regarded that inner city buses in Japan are being properly used if they run for approximately 20,000 km per year. In view of this, it is deemed that the buses which have been supplied are being used a lot. Concerning articulated buses especially, since these are used to carry passengers to suburban areas, they have accumulated an average running distance of approximately 53,000 km.

2) Examination Based on Transported Passengers

Judging from the running distance and passenger transportation capacity of each type of bus, it works out that a total of approximately 8,000,000 passengers have so far been served by the new buses and that a major contribution has been made to public transportation in the city.

Phase 1	Total
6 buses x 150 passengers x 8 trips x 210 days x 0.8 =	1,209,600
39 buses x 100 passengers x 10 trips x 210 days x 0.8 =	6,552,000
Phase 2	
4 buses x 150 passengers x 8 trips x 30 days x 0.8 =	144,000
11 buses x 100 passengers x 10 trips x 30 days x 0.8 =	264,000
15 buses x 40 passengers x 10 trips x 20 days x 0.8 =	96,000

Total: passengers

Figures provided by GRAS

3) Examination by Interview Surveys

The citizens of Sarajevo have responded extremely favorably to the newly supplied buses. Moreover, other aid agencies have shown a strong interest and the implementing agency, GRAS, has received numerous observation visits and inquiries concerning the new equipment.

4) Use of Maintenance Tools

No problems have so far occurred in the course of tool use. Moreover, because the supplied tools are also being put to use in repairing existing equipment as well as the new equipment, the operation and maintenance setup of GRAS has been strengthened.

5) Manufacturer Service

The manufacturer of the new equipment (articulated buses, large buses, middle-sized buses only) is based in Turkey, while the manufacturer of main parts is based in Germany. Following the first phase of supply, both these manufacturers carried out ample monitoring of the equipment and promptly responded to any problem areas by applying warranty. Upon reviewing the problem areas, they improved their production lines and had already

implemented countermeasures by the time of second phase supply. Since it is essential that manufacturers provide backup service, it is important that this be secured in the case of the Project equipment too.

6) Maintenance Conditions

GRAS implements periodic inspections (checks of specifications every 1,000 km and 5,000 km) and has so far not experienced any major problems. Moreover, since buses are always washed after use, there is no peeling of paint or rusting.

7) Summary

The equipment supplied under the Project for Rehabilitation of Public Transportation System in Sarajevo (Phase 1 and Phase 2) is used a great deal and has presented no problems in terms of specifications. However, concerning the medium-sized buses, since these transport passengers to small suburban villages (districts where large buses cannot gain access due to narrow roads and mountainous land conditions), a high demand is placed on them and it was found that the medium-sized buses (for use by disabled persons) supplied in Phase 1 have not always been used by disabled people but ordinary citizens.

GRAS explained that it had no choice but to put the buses intended for use by disabled persons to general use, since the absolute shortage of medium-sized buses was not overcome until the Phase 2 buses were supplied. Since the Phase 2 supply of medium-sized buses has been completed and the shortage of buses has been resolved, the Study Team requested that the buses are used as originally intended, and GRAS has consented to this.

However, the medium-sized buses for disabled persons that were supplied through EU assistance were operated, albeit irregularly, for the benefit of disabled persons even during the period when there was a shortage of medium-sized buses. It is thought that

the situation regarding the use and operation of medium-sized buses for disabled persons will need to be monitored.

4-2 Recommendation

(1) Enhancement of Fares Collection System

As a measure to support citizens in the process of war rehabilitation, Autoprevos has set fares, which used to be 1 DM before the conflict, at 0.5 DM for commuters and commuting students. Although this is an effective means of supporting the livelihoods of citizens, it cannot be denied that it is putting pressure on the business running of Autoprevos is currently faced with a perennial operating deficit; therefore, in addition to strengthening route and transportation capacity through the introduction of new buses, it will need to consider a fares system that is closely tied to the process of post-war rehabilitation, put its business on a healthier footing (through cutting costs, etc.) and aim to purchase new equipment through self efforts.

(2) Improvement of the Workshop Environment

Autoprevos carries out equipment repairs in its own workshop. Since the ventilation system in the workshop is currently broken down, ventilation in the workshop is inadequate. System repair should be carried out immediately in order to improve the working environment for operators.

Appendices

1. Member List of the Survey Team

(1) Mr. Yoshitaro WATANABE
(Leader of Mission)

Japan International
Cooperation Agency (JICA)

(2) Mr. Kenichiro KOBAYASHI
(Coordinator)

Japan International
Cooperation Agency (JICA)

(3) Mr. Yoshikazu ITO
(Equipment Planner 1)

Japan International
Cooperation System (JICS)

(4) Mr. Takefumi MAYUMI
(Equipment Planner 2)

Japan International
Cooperation System (JICS)

(5) Mr. Takeshi AJIOKA
(Procurement Planner)

Japan International
Cooperation System (JICS)

2. Survey Schedule

No. of Date	Date		Official (2 persons)		Consultants (3 persons)			Stay
			1	2	3	4	5	
1	12/6	Sun			Narita 14:00-JL407-18:00 Frankfurt 20:10-OS128-21:35 Vienna			Vienna
2	12/7	Mon	AM: Meeting with JICA Office, Courtesy Call on the Embassy of Japan Vienna 13:20-OS831-14:35 Sarajevo					Sarajevo
3	12/8	Tue	Courtesy Call on M/o Foreign Affairs					Sarajevo
4	12/9	Wed	Sarajevo - Banja Luka (surface transport) PM: Courtesy Call on M/o Transport and Communications of Republic of Srpska, Autoprevoz					Banja Luka
5	12/10	Thu	Discussion					Banja Luka
6	12/11	Fri	Discussion					Banja Luka
7	12/12	Sat	Internal Meeting					Banja Luka
8	12/13	Sun	Banja Luka - Sarajevo (surface transport)		Internal Meeting		1~3 Sarajevo 4, 5 Banja Luka	
9	12/14	Mon	AM: Discussion PM: Signature on the Minutes of Discussions		Site Visit		1, 2 Vienna 3~5 Banja Luka	
10	12/15	Tue	Sarajevo 15:15-OS832-16:40 Vienna		Sarajevo - Banja Luka (Surface transport)	Site Visit		1, 2 Vienna 3~5 Banja Luka
11	12/16	Wed	Report to Embassy of Japan	Report to Embassy of Japan Vienna 17:40-OS125-19:15 Frankfurt 20:50-	Site Visit		3~5 Banja Luka	
12	12/17	Thu		JL408-Narita 16:05	Banja Luka - Sarajevo (Surface transport)		3~5 Banja Luka	
13	12/18	Fri			Site Visit (in FD)		3~5 Banja Luka	
14	12/19	Sat			Sarajevo 15:15-OS832-16:40 Vienna		3~5 Vienna	
15	12/20	Sun			Vienna 10:15-OS621-11:35 Warsaw	Vienna 13:30-OS863-15:15 Skopje	Vienna 13:45-OS835-14:45 Ljubljana	3 Warsaw, 4 Skopje, 5 Ljubljana
16	12/21	Mon			Site Visit (Broclaw)	Site Visit	Site Visit	3 Broclaw, 4 Skopje, 5 Ljubljana
17	12/22	Tue			Site Visit (Broclaw)	Site Visit	Site Visit	3 Broclaw, 4 Skopje, 5 Ljubljana
18	12/23	Wed			Warsaw 14:00-OS622-15:15 Vienna	Skopje 17:00-OS864-18:45 Vienna	Ljubljana 15:20-OS836-16:20 Vienna	3~5 Vienna
19	12/24	Thu			Report to Embassy of Japan and JICA Office Vienna 16:20-KL1946-18:15 Amsterdam 19:30-			
20	12/25	Fri			JL412-Narita 14:40			

1. Leader Mr. WATANABE. Yoshitaro (JICA)
2. Coordinator Mr. KOBAYASHI. Kenichiro (JICA)
3. Equipment Planner1 Mr. ITO. Yoshikazu (JICS)
4. Equipment Planner2 Mr. MAYUMI. Takefumi (JICS)
5. Procurement Planner Mr. AJIOKA. Takeshi (JICS)

3. List of Party Concerned

- 1) Bosnia and Herzegovina
 - a. Ministry of Foreign Affairs
 - Mr. Mihovil Malbasic (Assistant Minister)
 - a-1 : Department for Multilateral Relations
 - Mr. Mithat Pasic (Head of Unit for Reconstruction)
 - Mr. Aziz Hadzimuratovic B. Sc.
(Counselor, Head of Unit for Reconstruction)
 - Ms. Jasna Cehic M. A. (International Aid Coordinator)
 - Ms. Vildana Bijedic B. A.
 - b. Republika Srpska, Prime Minister's Cabinet
 - Mr. Zoran Jovanovic (Prime Minister's Adviser for relations with Japan)
 - c. Republika Srpska, Ministry of Traffic and Communications
 - Mr. Marko Pavic (Minister)
 - Mr. Kisin Novo (Manager of Traffic sector)
 - Mr. Miroslan Cicic (Deputy Manager of Traffic sector)
 - d. Banja Luka Municipality
 - Mr. Nebojsa Radmanovic (President of Executive Board)
 - Mr. Zoran Tadic (Assistant Secretary of Transportation)
 - e. Autoprevoz (Banja Luka Transportation authority)
 - Mr. Borislav Vitkovic (Director)
 - Mr. Krecej Ratko (Technical Manager)
- 2) Embassy of Japan in Austria
 - Mr. Yoshihiro TAKEYA (Secretary)
- 3) Embassy of Japan in Sarajevo
 - Mr. Miura (Interim Ambassador)
- 4) JICA Austria Office
 - Mr. Takeuchi
 - Mr. Tsurusaki (Project Formulation Advisor)

4 MINUTES OF DISCUSSIONS

STUDY ON THE PROJECT FOR REHABILITATION OF BANJA LUKA CITY TRANSPORTATION SYSTEM IN BOSNIA AND HERZEGOVINA

In response to the request from the Council of Ministers of Bosnia and Herzegovina, the Government of Japan decided to conduct the Study on the Project for Rehabilitation of Banja Luka City Transportation System in Bosnia and Herzegovina (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA")

JICA sent to Bosnia and Herzegovina (hereinafter referred to as "BiH") the Study Team, which is headed by Mr. WATANABE Yoshitaro, Resident Representative of JICA Austria Office, and the Study Team is scheduled to stay in the country from December 7 to December 19, 1998.

The Study Team held a series of discussions with the officials concerned of Bosnia and Herzegovina and conducted field surveys at the study areas.

In the course of discussions and field surveys, both parties confirmed the main items described on the attached sheets. The Study Team will proceed to further works and prepare the Study Report.

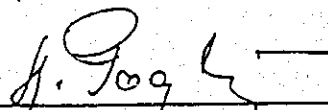
Sarajevo, December 14, 1998



Mr. WATANABE. Yoshitaro
Leader,
The Study Team
JICA



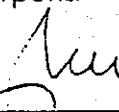
Mr. MARKO PAVIC
Minister,
Ministry of Transport and Communications
The Republika Srpska



Mr. NEBOJSA RADMANOVIC
President of Executive Board,
Municipality of Banja Luka
The Republika Srpska



Mr. MIHOVIL MALBASIC
Assistant Minister,
Department for Multilateral Relations
Ministry of Foreign Affairs
Bosnia and Herzegovina



Mr. BORISLAV VITKOVIC
General Manager,
AUTOPREVOZ
(The Banja Luka Transportation Authority)
The Republika Srpska

ATTACHMENT

1. Objective

The objective of the project is to purchase buses to recover public transportation in Banja Luka, which sustain economic and social activities towards the reconstruction of the country.

2. Responsible Organization and Implementing Agency

Responsible Ministry : Ministry of Transport and Communications,
the Republika Srpska

Ownership Agency : Municipality of Banja Luka

Implementing and Operating Agency : AUTOPREVOZ
(The Banja Luka Transportation Authority)

3. Project Site

The Project sites are shown in ANNEX- 1 .

4. Scope of Cooperation

1) After the series of discussions, the items shown in ANNEX- 2 were finally requested by BiH side.

However, the final components of the Project may differ from the above items, if it is judged necessary after further studies.

2) The scope of cooperation covered by the Japanese grant aid shall be based on the results of the further field study and analysis in Japan by taking into consideration of procurement condition (quantities of the products, time schedule) .

3) BiH side has agreed the following preconditions of the Project .

(a) AUTOPREVOZ shall be remained the state owned authority which is responsible for public transportation in Banja Luka in future.

(b) A reasonable budget for the financing of the recurrent costs related to the operation and maintenance of the equipment to be provided by the Japanese grant aid will be available.

5. Japan's Grant Aid System

1) BiH side has understood the system of the Japan's Grant Aid explained by the Study Team; the main feature is described in ANNEX- 3 .

2) BiH side will take the necessary measures, described in ANNEX- 4 for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

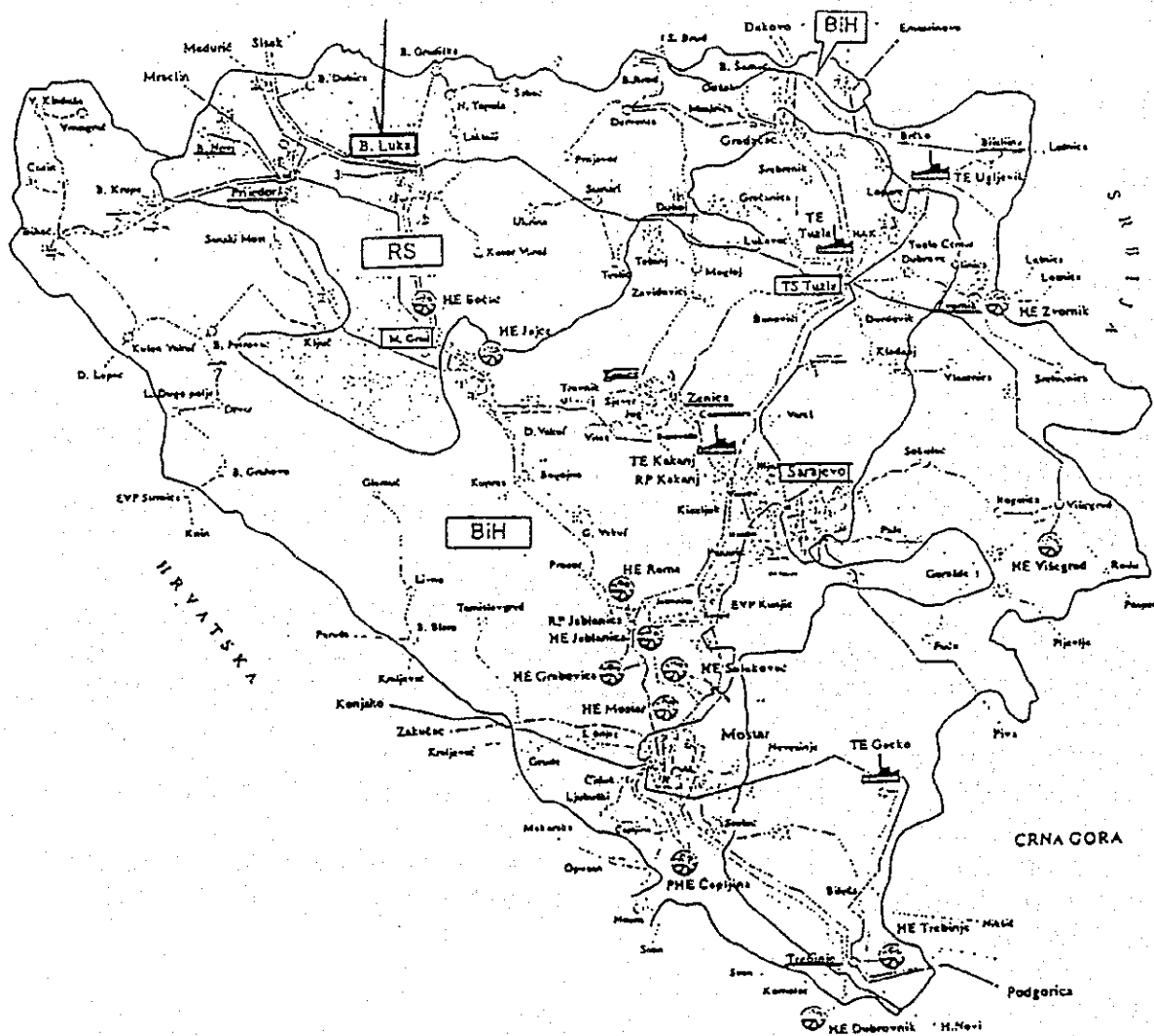
6. Further Schedule of the Study

1) The Study Team will proceed to further studies in BiH until December 19.

2) Based on the Minutes of Discussions and technical examination of the study results, JICA will complete the final report and send it to the Government of BiH by the end of May, 1999.

[Handwritten signatures and initials]

ANNEX-1: PROJECT SITES



Handwritten notes:
ku
1/1 P 43
nu
gw

ANNEX- 2 : ITEMS REQUESTED BY THE GOVERNMENT OF BOSNIA AND HERZEGOVINA

No.	Item	Priority		Specification	Remarks
		A	B		
1	Articulated bus	9	0	Max. 18m	
2	Large bus	22	4	Max. 12m	
3	Workshop Equipment	1set	-	-	
4	Spare parts	1set	1 set	-	

Ami
H. P. 95
Ami

ANNEX-3:

Japan's Grant Aid Scheme

1. Grant Aid Procedure

(1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of	(The Notes exchanged between the Governments of Japan and
Implementation	the recipient country)

(2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study, using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Contents of the Study

(1) Contents of the Study

The aim of the Study (hereafter referred to as "the study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- 1) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- 2) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- 3) Confirmation of items agreed on by both parties concerning the basic concept of the Project.

[Handwritten signatures and initials]

4) Preparation of a basic design of the Project

5) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA used (a) registered consultant firm(s). JICA select (a) firms(s) based on proposals submitted by interested forms. The firm(s) selected carry(ies) out a and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

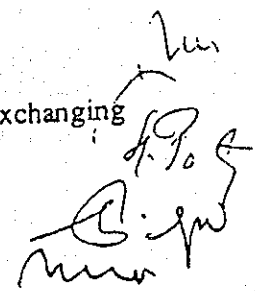
(1) What is Grant Aid ?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services(engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) " The period of Grant Aid "means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedures such as exchanging



of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertaking required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as following :

- 1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- 2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- 3) To secure buildings prior to the procurement in case the installation of the equipment.
- 4) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- 5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- 6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

4.9.65
G. J. W.
m.w.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

9) Banking Arrangements (B/A)

(a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government to the recipient country or its designated authority under the Verified Contracts.

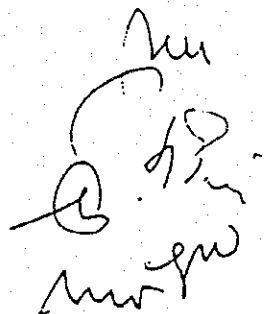
(b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

Handwritten signature and initials:
The
A. H. P.
M. P. W.

ANNEX-4 : NECESSARY MEASURES TO BE TAKEN BY BOSNIA AND HERZEGOVINA

The following necessary measures should be taken by Bosnia and Herzegovina on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. To ensure prompt unloading and customs clearance at ports of disembarkation in Bosnia and Herzegovina and internal transportation therein of the products purchased under the Grant;
2. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Bosnia and Herzegovina with respect to the supply of the products and services under the Verified Contracts;
3. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts such facilities as may be necessary for their entry into Bosnia and Herzegovina and stay therein for the performance of their work;
4. To maintain and use facilities constructed under the Grant properly and effectively for the Project;
5. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commissions, and
6. To bear all the expenses, other than those covered by the Grant, necessary for the Project.

Handwritten signature and initials in the bottom right corner, possibly reading 'M. J. M.' or similar.



JICA