

STUDY REPORT
ON
THE PROJECT FOR SUPPLY OF
ROAD CONSTRUCTION EQUIPMENT
IN
THE REPUBLIC OF BOSNIA-HERZEGOVINA

MARCH 1998

JAPAN INTERNATIONAL COOPERATION AGENCY

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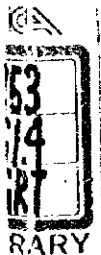
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PREFACE

In response to a request from the Government of the Republic of Bosnia-Herzegovina, the Government of Japan decided to conduct a basic design study on the Project for Supply of Mobile Road Asphalt Mixing Plants and Paving Equipment 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 Philippines a study team from January 10 to January 28, 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 the Republic of Bosnia-Herzegovina for their close cooperation extended to the team.

March 1998

A handwritten signature in black ink, reading "Kimio Fujita". The signature is written in a cursive style with a long horizontal stroke at the end.

Kimio Fujita

President

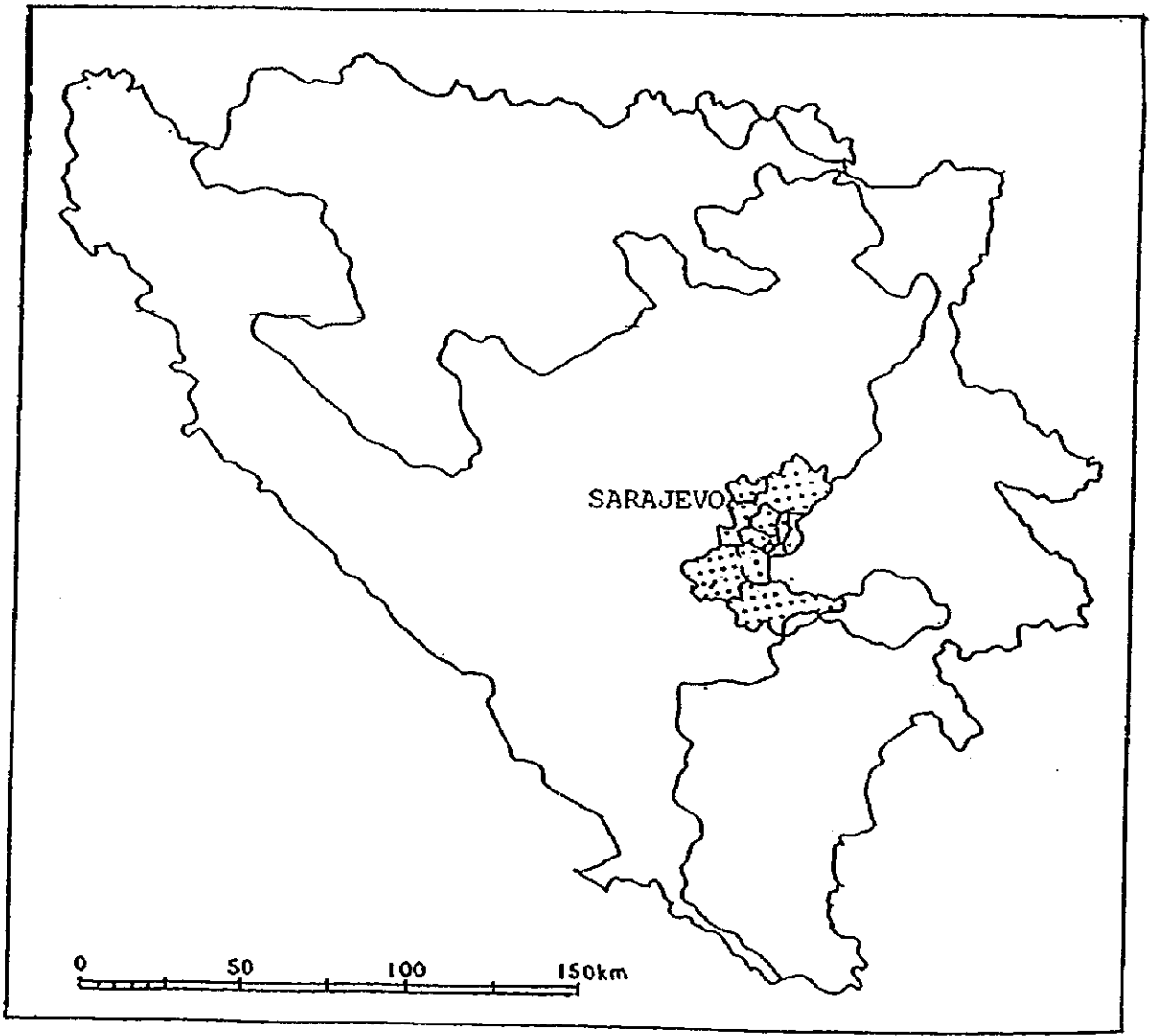
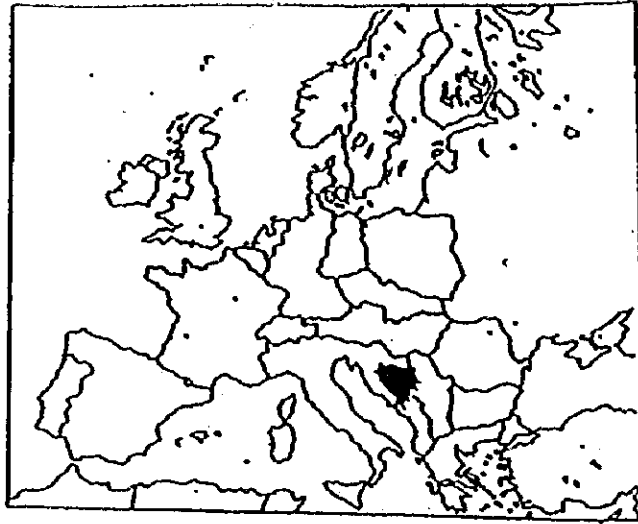
Japan International Cooperation Agency

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MAP OF BOSNIA AND HERZEGOVINA

Abbreviation

BH	Bosnia-Herzegovina
EU	Europe union
FD	Federation of Bosnia-Herzegovina
RS	Republic of Srpska
Euro-2	European emission standard
HP	Engine Horse Power

Chapter 1 Background of the Project

Bosnia-Herzegovina (to be referenced as "BH" hereafter) is located on the eastern part of the European Continent and surrounded by Croatia on the north and west, and by Serbia and Montenegro, which previously belonged to Yugoslavia, on the east. On the south, there is a Dinaric Alps constituting a mountain ridge of the national land. The weather is characterized by the Mediterranean climate, warm and humid weather, and the west coast climate from the west, but in the inland, the winter coldness is severe. Average temperature in a year ranges from maximum of 28-C to the minimum of -5-C.

The Gross Domestic Product (GDP) of BH was 4 billion dollar in 1990, before the civil war. Before 1991, there were five main Yugoslavian companies in BH. However, recently small companies have grown to a fairly large ones in place of large companies. Lands are not very suitable for agriculture, but they produced 460,000 tons of wheat, 730,000 tons of corn, and 340,000 tons of potatoes from the arable land of 1.58 million hectare in 1990. As for the mineral sources, 179.7 million tons of coal, 1.91 million tons of bauxite, and lime are buried in the ground.

In June 1991, with the declaration of independence of the Republics of Slovenia and Croatia as a chance, the Serbian force advanced to Bosnia area. They then really proceeded to intervene and the civil war was intensified. Racial disputes continued afterwards. The Muslim power unified the Bosnia area, declared the establishment of the United Republic of Bosnia-Herzegovina and controlled approximately 60% of the territory. The European Union (EU) and the U.S.A. criticized the Serbian power, the party concerned with the disputes, and calmed down the situation by pressing with economic sanctions and so on. The number of deaths by the civil war is said to have exceeded 200,000. About one million corporate employees had been fired and became unemployed by 1993. The economic activities were destroyed by this civil war. Thus enormous amount of investments are necessary for the reconstruction of the war damaged manufacturing infrastructure and industries.

This Project incorporates the equipment procurement projects among three road construction projects which have been separately requested including two requested by the Federation of Bosnia-Herzegovina (to be referenced as "FD" hereafter) and one by the Republic of Srpska (to be referenced as "RS" hereafter). Therefore, the number of Road Public Corporations (to be referenced as "Pudevi") hereafter) which will use the equipment to be procured by this Project is four and the Project sites are the following three.

1) A Sarajevo-Tuzla road

Tuzla is a main city located in the northern part of BH and constitutes a main base point in the FD following Sarajevo and Mostar. The road between Tuzla, Sarajevo, and Mostar is a main highway crossing the FD. Thus, this road is indispensable for the returning of refugees and reconstruction of the nation in the future.

2) Sarajevo canton

Sarajevo is a capital of BH and was the center of domestic and international transportation networks before the civil war. Although the prewar population was 416,000 (as of 1991), the present one is said to be 350,000 due to the effect of the civil war and the government of BH is emphasizing the returning of refugees. Sarajevo, which is now returning to the prewar active state, is positioned as the center of the economic activities of BH just like it was before the civil war.

3) Ukraine Highland

The Ukraine Highland, where Banja Luka, the new capital of the RS (previous capital was Pale in the eastern RS) and a main city of Mrkonjic exists, is the center of the western RS. However because the Ukraine Highland is surrounded by mountainous areas, it looks as if it were "an isolated island". Thus the distribution and the traffic with other areas are difficult. For promoting the postwar reconstruction and the economic development, construction of road networks inside the RS and the preparation of distribution infrastructure are urgently wanted.

As mentioned above, preparation of roads is indispensable in all three areas. Repair and maintenance of the existing paved roads are urgently needed for the FD, and repair of the existing roads, pavement of the unpaved roads, and construction of road extension are urgent for the RS. From these backgrounds, the governments of BH, FD, and RS requested the grant aid cooperation from Japan in 1997 for the smooth implementation of the repair and the construction of roads in three areas of BH.

Chapter 2 Contents of the Project

2-1 Objectives of the Project

The government of BH has the objectives to secure the stable living of the nation, awake the activated economical activities, and achieve the prompt postwar reconstruction by recovering the road maintenance and management ability, which was lowered because of the war damage and deterioration, and by recovering the traffic and transportation to the prewar level. The objectives of this Project include the procurement of road construction equipment, repair tools, and spare parts as well as the support of the achievement of the above mentioned objectives of the BH for the Sarajevo RAD in charge of the maintenance of the roads in the city of Sarajevo, the Sarajevo Pudevi in charge of repair and construction of Sarajevo-Tuzla road, and the Kozala Pudevi and Mrkonjic Pudevi which maintain the roads in the Ukraine Highland in the Republic of Srpska.

2-2 Basic Concept of the Project

In this Project, the road construction and repair equipment will be procured to each Pudevi and public roads will be constructed for the safe and comfortable transportation of people and vehicles, which is the most basic social capital to support the living of the nation for implementing the repair of roads and the pavement of unpaved roads as well

as to recover the road transportation network. Table-1 shows the planned Project sites and the outline of each Pudevi

Table-1 Planned Project sites and the outline of each Pudevi

Project name and sites	Name of Pudevi	Distance to be repaired	Project period	Entity
Construction and repair of Sarajevo-Tuzla road	Sarajevo Pudevi	120 km	July 1997 to June 2000	Federation of Bosnia-Herzegovina
Construction and repair of the roads and sidewalks in Sarajevo canton	RAD	32 km of road 20km of pavement 1 km of unpaved roads	July 1997 to July 2000	Federation of Bosnia-Herzegovina
Construction and repair of the roads in Ukraine Highland	Kozala Pudevi	379 km	July 1997 to June 2000	Srpska
	Mrkonjic Pudevi	178 km	July 1999 to June 2000	

① Basic concept of the grant aid cooperation

-For the safe and comfortable transportation of people and vehicles, the section of the roads having specially urgent necessity will be repaired.

-By procuring the new equipment, the repair period of roads will be reduced, and by supplying the materials of high quality, the durability of roads will be increased. As a result, the roads will be recovered to the prewar level.

-Although there may be a possibility of accepting trainees or some other forms of cooperation after this Project is implemented as a grant aid, this Project must have the contents that can expect the effects from the Project itself.

② Determination of project area and sites

-In the present Project sites, the necessary conditions for operating the equipment must be secured including the location to install the equipment, garages, and the staffs.

③ Determination of items

-In this Project, the equipment will be selected in accordance with the road repair technique of the recipient country.

④ Determination of the scale of the Project

-Because the existing equipment being operated at present will be used for this Project, excessive equipment will not be procured in this Project.

-The scale of this Project will be determined by examining the contents of the present construction.

⑤Determination of the specifications

-The equipment to be procured by this Project must be the one that has been used in the past, the one the same type of which is being used at present, or the one that should not have any problem if the instruction on the maintenance of which is provided to enable the operation of the equipment under the present operation and maintenance system after this Project is implemented as a rule.

⑥Determination of the examination method

As the method to determine the amount and the specifications of this Project, the following items were confirmed and examined for each Project site. As a result, the contents and the scale of the requested equipment were selected as follows.

-The specifications will be determined based on the total extension of the roads and the data on roads to be repaired by this Project.

-The number of necessary items will be determined from the work load or the working hour of each equipment.

-The number of existing equipment will be confirmed and the number of items to be procured will be determined by excluding the number of the existing equipment from the necessary number.

2-3 Basic Design

2-3-1 Design Concept

1) Concept regarding natural conditions

BH is located at 1,000 m above sea level and its suburbs are the hilly areas with lot of slopes. For this reason, the equipment that can securely obtain the engine performance, horse power, and working ability as those at low lands must be selected for the construction work at the high lands.

2) Concept regarding social conditions

The government of BH is examining the review of laws and standards related to the transportation, which has been destroyed after the civil war. Since the concentration of each component of exhaust gas (nitrogen oxide, black smoke, and so on) is one of the factors of global warming trend, acid rain, and carcinogenic substances, the government of BH restricts the exhaust gas very strictly. Therefore, the vehicles to be newly procured must conform to the EURO-2.

3) Concept regarding the utilization of local equipment or the third country equipment

In the recent BH market, the number of the equipment manufactured in Japan is

increasing and the local agencies are being fulfilled. On the other hand, in the BH, the equipment from Europe constitutes the main stream from the geological conditions and the historical background of BH. Considering the operation and maintenance of the equipment, the third country equipment can be considered as the one to be procured. For this reason, in this Project, the specifications will be determined by considering the specifications of European manufactures in addition to those of Japanese manufacturers. For the equipment procured from Japan, however, sufficient instruction must be provided on the operating method and maintenance.

2-3-2 Basic Design

(1) Overall design

1) Sarajevo Pudevi

For the smooth and constant preparation and maintenance of Sarajevo-Tuzla road, the damaged equipment or the equipment insufficient in number will be procured.

In addition, the asphalt plant and crushed stone plant will be relocated to three quarries in Misocha, Olovo, and Tuzla in combination with the proceeding of the construction and repair works of the Sarajevo-Tuzla road so that plants can be temporarily constructed at the quarries. The infrastructure at each quarry such as electricity and water supply will be prepared by the Sarajevo Pudevi.

2) RAD

The equipment necessary for the construction and repair of the roads in Sarajevo canton will be procured. Especially the asphalt mixture, which is being purchased at present, is sometimes difficult to purchase because of the purchasing funds or the supply amount. For this reason, asphalt plants will be introduced to improve the procuring environment of the materials for pavement.

3) Mrkonjic/Kozala Pudevi

Equipment will be procured in order to realize the pavement of the unpaved roads in the Ukraine Highland (117 km in Mrkonjic and 159 km in Kozala). Although there are an asphalt plant and a crushed stone plant in Kozala Pudevi at present, the plants in Mrkonjic Pudevi were destroyed by the civil war. Therefore, both plants must be procured in Mrkonjic Pudevi. The sites to construct these plants are the places where the previous ones had existed before the civil war (stone crushing site). Therefore, the infrastructure is already prepared.

(2) Equipment Plan

The main specifications and the purpose to use the equipment are shown in Table-2.

Table-2 Specifications and the purpose to use the equipment

No.	Equipment name	Specifications	Purpose	Amount
1	Asphalt plant, movable type, 60 t/h	With movable recycle, 60 t/h	Production of asphalt mixture and recycling materials	1
2	Asphalt plant, installed type, 60 t/h	Installed type, 60 t/h	Production of asphalt mixture	1
3	Asphalt plant, installed type, 50 t/h	Installed type, 50 t/h	Production of asphalt mixture	1
4	Stone crusher, plant type	Movable type, 70 - 80 t/h	Production of crushed stones	1
5	Stone crusher, installed plant type	Installed type, 30 - 40 t/h	Production of crushed stones	1
6	Bulldozer	220 - 240 HP	Leveling of natural ground at quarry	3
7	Vibration roller, 10 - 12 t	Approximately 10 - 12 t	Compaction of roadbed and base course	2
8	Vibration roller, 3 t	Approximately 3 t	Compaction of roadbed and base course	3
9	Vibration roller, 1.5 t	Approximately 1.5 t	Compaction of roadbed having the curve and the width of less than 3 m	4
10	Tire roller, 8 - 10 t	Approximately 8 - 10 t	Compaction of asphalt mixtures	2
11	Tire roller, 3 - 4 t	Approximately 3 - 4 t	Compaction of the asphalt mixtures having the width of less than 3 m	1
12	Wheel loader, 150 HP	150 HP	Loading of rocks and crushed stones at the quarry	4
13	Wheel loader, 140 HP	140 HP	Loading of crushed stones to plant and banking	2
14	Excavator, 10 t	10 t	Crushing and scraping of surface layer	1
15	Excavator, 20 t	20 t	Crushing and scraping of surface layer	3
16	Grader, 140 - 155 HP	140 - 155 HP	Molding of road surface and drain ditch	1
17	Grader, 155 HP	155 HP	Molding of road surface and drain ditch	1
18	Asphalt finisher	Width of 3.5 - 4.5 m	Laying and leveling of asphalt mixtures	3
19	Asphalt paver	30 L/min with the tank capacity of 200 L	Spaying of emulsion to cracks and small parts	5
20	Asphalt tanker	Tank capacity of 3,000 L	Spraying of emulsion before asphalt pavement	4
21	Plate compactor	Surface load of 508 kg/m ²	Compaction of the surface layer of pavement	7
22	Tamper	62 kg	Compaction of the surface layer of pavement	4
23	Road cutter	Approximately 2 m wide	Cutting overlay of asphalt surface layer	1
24	Concrete cutter	Approximately 40 kg	Compaction of roadbed and base course	7
25	Rock drill	Beled type, excavation width of 20 m	Crushing of raw ores	1
26	Pick hammer	Engine drive, portable type	Scraping of the surface layer of pavement	4
27	Line marker	Self-running type, one-man operation	Preparation of lanes and the boundary between road and sidewalk	1
28	Dump truck	Approximately 10 m ³	Loading of rocks and crushed stones at the quarry	17
29	Tank truck (for fuel)	8,000 L, with gauge	Transportation of fuel to the site	1

No.	Equipment name	Specifications	Purpose	Amount
30	Tank truck (for water)	8,000 l.	Transpiration of drinking water and the water for maintenance purpose	1
31	Equipment carrying vehicle	2 - 4 t	Transportation of the equipment	9
32	Repair vehicle	Container traction type, with repair tools	Maintenance at the work site	1
33	Air compressor	110 HP	Crushing and scraping of surface layer less than 2 m wide	1
34	Workshop tool, Mrkonjic/Kozala	-	For maintenance	2set
35	Workshop tool, RAD	-	For maintenance	1set
36	Test and research equipment	-	Manufacturing test of asphalt mixture	2set

Chapter 3 Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation Concept

The work schedule in accordance with the grant aid system of Japan is shown in Table-3.

Table-3 Implementation process

	1	2	3	4	5	6	7	8	9	10	11	12
Implementation design	(Site study)		(Tendering operation)					(Evaluation and contract)				
						(Manufacturing of equipment)					Total of 4.5 months	
study						(Transportation of equipment)						
	Total of 7.5 months										(Inspection of equipment)	

3-1-2 Implementation conditions

The items of this Project to be implemented by each party are shown below.

- ① Prompt unloading and customs clearance of the procured equipment
- ② Exempt measures for the customs and domestic taxes on the procured items and procurement operations
- ③ Provision of conveniences on the entry and the staying of the Japanese people related to this Project
- ④ Bearing of various expenses to be necessary other than the expenses covered by the grant aid
- ⑤ Laying of counterpart
- ⑥ Proper maintenance and use of the procured equipment
- ⑦ Conclusion of banking arrangements
- ⑧ Proper provision of staffs and maintenance cost necessary for implementing this Project

3-2 Operation and Maintenance Cost

(1) Operation and maintenance set-up

On the sites where the equipment will be installed, there are workshops to do the maintenance. However, the maintenance tools were destroyed or stolen because of the civil war and the number of maintenance tools is insufficient. For this reason, they can only provide simple maintenance of the equipment such as the daily inspection or the regular inspection. However, as shown in Table-4, there is no problem for the maintenance staffs because the total of forty-two staffs who are being laid off at present will be reemployed with the increase of the procured equipment. The purchasing cost of materials can be paid by the present budget. As for the technical level, there will be no problem since only the equipment that can be used under the present operation and maintenance system will be procured.

Table-4 Maintenance staffs at each Project site

Project name and site	Pudevi	Number of maintenance staffs	Number of staffs being laid off
Construction and repair of Sarajevo-Tuzla road	Sarajevo Pudevi	11	24
Construction and repair of the roads in Sarajevo canton	RAD	32	0
Construction and repair of the roads in Ukraine Highland	Kozala Pudevi	12	13
	Mrkonjic Pudevi	20	5

(2) Annual Operation and Maintenance Cost

The expenses of maintenance cost accompanying the procurement of equipment in this Project are shown in Table-5.

Table-5 Expenses accompanying the procurement of equipment at each Project site

Name of the Project site	Item	Amount (yen)	Ratio of the maintenance budget among the income (%)
Sarajevo Pudevi	Maintenance cost	24,355,059	-
	Personnel expenses	11,520,000	-
	Fuel and oil expenses	11,605,300	-
	Subtotal	47,480,359	37
RAD	Maintenance cost	268,200	-
	Personnel expenses	12,240,000	-
	Fuel and oil expenses	11,145,000	-
	Subtotal	23,653,200	11
Kozala Pudevi	Maintenance cost	1,373,875	-
	Personnel expenses	9,720,000	-
	Fuel and oil expenses	10,375,400	-
	Subtotal	21,469,275	22

Name of the Project site	Item	Amount (yen)	Ratio of the maintenance budget among the income (%)
Mrkonjic Pudevi	Maintenance cost	3,473,370	-
	Personnel expenses	10,080,000	-
	Fuel and oil expenses	8,788,600	-
	Subtotal	22,341,970	9

Note: The above mentioned are the expenses for the initial year of procurement only.

Approximately 70 to 80% of the present expenses for outside orders are used for the maintenance and inspection of the equipment. However, when the workshop equipment and repair vehicles are procured, self-repairing of the equipment becomes possible, which will lead to the reduction of the expenses paid to the outside orders. On the contrary, when the equipment is procured in this Project, new expenditures such as the maintenance cost become necessary. Since the expenses for outside orders will be reduced, Pudevi and RAD will have no problem in securing the maintenance cost. With regard to the personnel expenses, since the expenses paid to the employment being frozen at present will be provided again, the operational budget will have no problem. In addition, because the asphalt mixture will be produced by each Pudevi and used for the repair works, the expenses for purchasing the asphalt mixture can be reduced.

Chapter 4 Project Evaluation and Recommendation

4-1 Project Effect

With the procurement of the road repair equipment in this Project, the forty-two unemployed people will be reemployed in the initial year of procurement, as the direct effect, leading to enable the constant implementation of road maintenance, which is being stopped at present. As the amount of the annual construction work, repair of paved roads and pavement of unpaved roads of 90.0 km are planned for the Sarajevo Pudevi, 51.5 km for Mrkonjic Pudevi, and 70.8 km for Kozala Pudevi. As the indirect effect, activated economy can be expected from the effective road repair mainly for the residents around the project sites and approximately 300,000 refugees (UNHCR report) of the civil war.

4-2 Recommendation

The recipient country is considered to have high level of implementation ability of this Project and has no problem in the operation of the equipment. However if the following matters are taken into consideration, the effect of this Project could be further increased.

- ① To give operational instruction on the proper use of the equipment to the operators under the cooperation of the manufacturers and local agencies on regular basis
- ② To provide the technical instruction on the maintenance of equipment to the responsible person at site and the workshop staffs on regular basis by the manufacturers and the local agencies

- ③ To conduct the quality control of the asphalt mixtures because the maintenance costs can be reduced by using the stable asphalt materials and extending the maintenance period of the roads.

Appendice 1.Member List of the Survey Team

- | | | |
|--------------------------|--------------------|-----------------------------|
| 1. Leader | Mr.Masahiro ATSUMI | Ministry of Foreign Affairs |
| 2. Grant Aid Cooperation | Mr.Tetsuya TSUBOTA | Embassy of Japan in Austria |
| 3. Equipment Planner 1 | Mr.Takefumi MAYUMI | JICS* |
| 4. Equipment Planner 2 | Mr.Takeshi AJIOKA | JICS* |

*JAPAN INTERNATIONAL COOPERATION SYSTEM (JICS)

Appendice 2.Survey Schedule

No.	Date	Day	Member of The Team			Stay	
			1	2	3,4		
1	Jan 10	Sat	NARITA-VIENNA (NH285) (11:35) (16:15)		Same as 1	VIENNA	
2	Jan 11	Sun	VIENNA (OS827, 13:45) - ZAGREB (14:45)		Same as 1	ZAGREB	
3	Jan 12	Mon	ZAGREB (OU344, 14:35) - SARAJEVO (15:45)		Same as 1	SARAJEVO	
4	Jan 13	Tue	9:00~ Courtesy call and Discussion with Ministry of Foreign Affairs 11:00~ Courtesy call and Discussion with Ministry of Traffic and Communication of Federation of Bosnia and Herzegovina (MoTC of FBiH) 14:00~ Courtesy call and Discussion with Ministry of Transport and Communications of The Republic of Srpska(MoTCs of RS)	VIENNA(OS831,13:20)- SARAJEVO(14:45)	Same as 1	↓	
5	Jan 14	Wed	9:00~ Courtesy call and Discussion with Sarajevo Canton and Sarajevo RAD, Site Survey			↓	
6	Jan 15	Thu	9:00~ Discussion with Sarajevo Putevi, Site Survey			↓	
7	Jan 16	Fri	9:00~ Discussion on the Minutes with MoTC (Canton)	SARAJEVO(OS832,15:20)- VIENNA(16:40)	Same as 1	↓	
8	Jan 17	Sat	Site Survey			↓	
9	Jan 18	Sun	Internal meeting			↓	
10	Jan 19	Mon	(8:30 Move to Banja Luka) 14:00~ Discussion with Kozara Putevi, Site Survey		Same as 1	B.Luka	
11	Jan 20	Tue	10:00~ Discussion with Mrkonjic Putevi, Site Survey (Move to Sarajevo)		Same as 1	SARAJEVO	
12	Jan 21	Wed	9:00~ Discussion on the Minutes with MoTC(Federation and RS)			↓	
13	Jan 22	Thu	14:00~ Signing of the Minutes			↓	
14	Jan 23	Fri	SARAJEVO (OS832, 15:20) - VIENNA (16:40)			Site Survey	↓
15	Jan 24	Sat	Report to EOJ VIENNA(LH3693,14:50)- FRANKFURT(16:20) FRANKFURT(NH210,17:55)			↓	
16	Jan 25	Sun	NARITA(13:00)			↓	
17	Jan 26	Mon				↓	
18	Jan 27	Tue				SARAJEVO-VIENNA (OS832, 15:20-16:40) VIENNA (NH208, 20:35)	
19	Jan 28	Wed				NARITA (15:30)	

- 1 Mr.Masahiro ATSUMI (Ministry of foreign affairs)
- 2 Mr.Tetsuya TSUBOTA (Embassy of Japan in Austria)
- 3 Mr.Takefumi MAYUMI (JICS)
- 4 Mr.Takeshi AJIOKA (JICS)

Ministry of Foreign Affairs Bosnia and Herzegovina

Mr. AZIZ HADZIMURATOVIC (Head of Department for Reconstruction)

Ms. VILDANA BIJEDIC (Expert Associate for Japanese Aid to B H)

Ministry of Transport and Communications Federation of Bosnia and Herzegovina

Dr. RASIM GACANOVIC (Minister)

Mr. NASID HALIMIC (Secretary)

Mr. ZAIM HECO (Assistant Minister)

Mr. IZET BAJRAMBASIC (Director of Federal Road Directorate)

Sarajevo Kanton

Mr. BAKIR ZACIRAGIC (Minister)

Mr. FUAD DAMAZIC (Deputy Minister)

Putevi B & H

Mr. RIFAT HAMZIC (General Director)

Mr. KOJO JOVANOVIC (Technical Director)

Mr. CICO MUHAMED (Adviser)

Sarajevo Putevi

Mr. PASIC REMZHA (Director)

RAD

Mr. SINANOVIC SEJFUDIN (Director)

Mr. MIRSAĐ KEBO (Presiding of the Assembly)

Mr. BABIC SELIM (Technical Director)

Mr. FILIPOVIC ENES (Finance Director)

MISOCA d.o.o.Sarajevo

Mr. ALIC ESO (Technical Director)

Mr. BAKIC RAMO (Manager of Quarry)

Mr. BISIC BAJRO (Electric worker)

Mr. MLADEN LONCAR (Former Assistant Minister)

Ministry of Transport and Communications Republic of Srpska

Mr. NEDELJKO LAJIC (Former Minister)

Mr. BORISLAV RADOVIC (Former Deputy Minister)

Dr. DRAGAN MIHAJLOVIC (Deputy Director of PID Transport Directorate)

Mrkonjic Putevi

Mr. UDOVICIC SLOBODAN (Director)

Kozara Putevi

Mr. ALAGIC MILAN (Director)

**MINUTES OF DISCUSSIONS
ON
THE STUDY
ON
THE PROJECT FOR EQUIPMENT SUPPLY FOR ROAD REHABILITATION
IN
BOSNIA AND HERZEGOVINA**

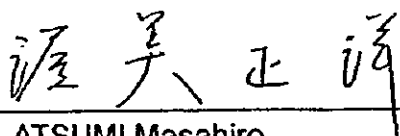
In response to the request from Bosnia and Herzegovina, the Government of Japan decided to conduct the Study on the project for equipment supply for road rehabilitation in Bosnia and Herzegovina (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Bosnia and Herzegovina (hereinafter referred to as "B&H") the Study Team (hereinafter referred to as "the Team"), which is headed by Mr. ATSUMI Masahiro, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, and the Team is scheduled to stay in the country from January 12 to January 27, 1998.

The Team held a series of discussions with the officials concerned of the Government of B&H, and conducted field surveys at the study areas.

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

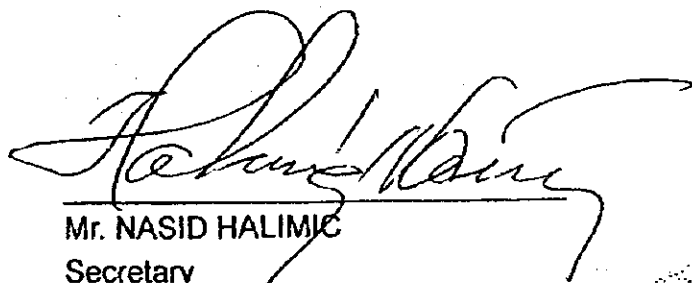
Sarajevo, January 22, 1998



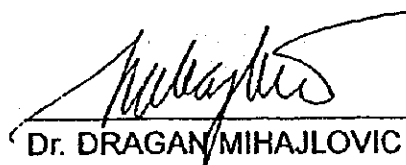
Mr. ATSUMI Masahiro
Team Leader,
Japan International Cooperation Agency



Mr. AZIZ HADZIMURATOVIC
Head of Department for Reconstruction
Ministry of Foreign Affairs
Bosnia and Herzegovina



Mr. NASID HALIMIC
Secretary
For the Minister
of Transport and Communications
The Federation of Bosnia and Herzegovina



Dr. DRAGAN MIHAJLOVIC
PID Transport Directorate
For the Minister
of Traffic and Communication
The Republic of Srpska

ATTACHMENT

1. Objective

The objective of the Project is to purchase equipment to recover public roads in Sarajevo and from Sarajevo to Tuzula, and the Central Workshop in Sarajevo (The Federation of Bosnia and Herzegovina) and public roads in High Krajina (The Republic of Srpska), which have been damaged by the War, and to sustain economic and social activities toward the reconstruction of the country.

2. Project site

The Project Sites are shown in ANNEX-1.

3. Responsible and Implementing Organizations

Supervising Ministry :

Ministry of Foreign Affairs of Bosnia and Herzegovina

Responsible and Implementing Ministries:

Ministry of Transport and Communications

of the Federation of Bosnia and Herzegovina

Ministry of Traffic and Communications, Sarajevo Canton

Responsible Ministry:

Ministry of Traffic and Communication of the Republic of Srpska

Implementing Agency :

Republic of Srpska Project Implementation Directorate for Transport

The organization charts of the above organizations are shown in ANNEX-2.

4. Items Requested by the Government of B&H

After discussions with the Team, the items listed in ANNEX-3 were finally requested by the Government of B&H.

However, the final components of the Project will be decided after further studies.

5. Japan's Grant Aid System

(1) The Government of B&H has understood the system of the Japan's Grant Aid explained by the Team as described in ANNEX-4.

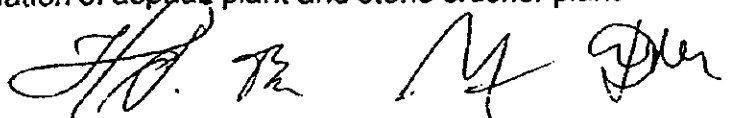
- (2) The Government of B&H will take the necessary measures described in ANNEX-5 for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

6. Schedule of the Study

- (1) The consultants will proceed to further studies in B&H until January 27.
- (2) Based on the Minutes of Discussions and technical examination for the study results, JICA will complete the final report and send it to the Government of B&H by April 1998.

7. Other Relevant Issues

- (1) The Government of B&H will allocate the necessary budget and personnel for execution of the Project.
- (2) The ownership of equipment to be provided by the Japan's Grant Aid belongs to Ministry of Transport and Communications of the Federation of Bosnia and Herzegovina, Ministry of Traffic and Communications, Sarajevo Canton, or Ministry of Traffic and Communication of the Republic of Srpska.
- (3) The end users shall be "Putevi B&H" Sarajevo, "RAD" Sarajevo, Mrkonjic Putevi and Kozara Putevi.
- (4) Undertakings of Putevi B&H, Sarajevo are as follows;
- 1) Putevi B&H, Sarajevo shall clear the land for asphalt plant and stone crusher plant.
 - 2) Putevi B&H, Sarajevo shall prepare electricity, water supply and drainage for asphalt plant and stone crusher plant.
 - 3) Equipment which are to be donated through the Project, especially stone crusher plant, shall be operated directly by Putevi B&H, Sarajevo for the purpose of road maintenance.
- (5) Undertakings of Sarajevo CANTON are as follows;
- 1) Sarajevo CANTON shall construct foundation of asphalt plant at installation site.
 - 2) Sarajevo CANTON shall prepare electricity, water supply and drainage for asphalt plant.
 - 3) Sarajevo CANTON shall built storagehouse for crushed stone and mixed asphalt.
- (6) Undertakings of Mrkonjic Putevi are as follows;
- 1) Mrkonjic Putevi shall construct foundation of asphalt plant and stone crusher plant



at installation site.

- 2) Mrkonjic Putevi shall prepare electricity, water supply and drainage for asphalt plant and stone crusher plant.

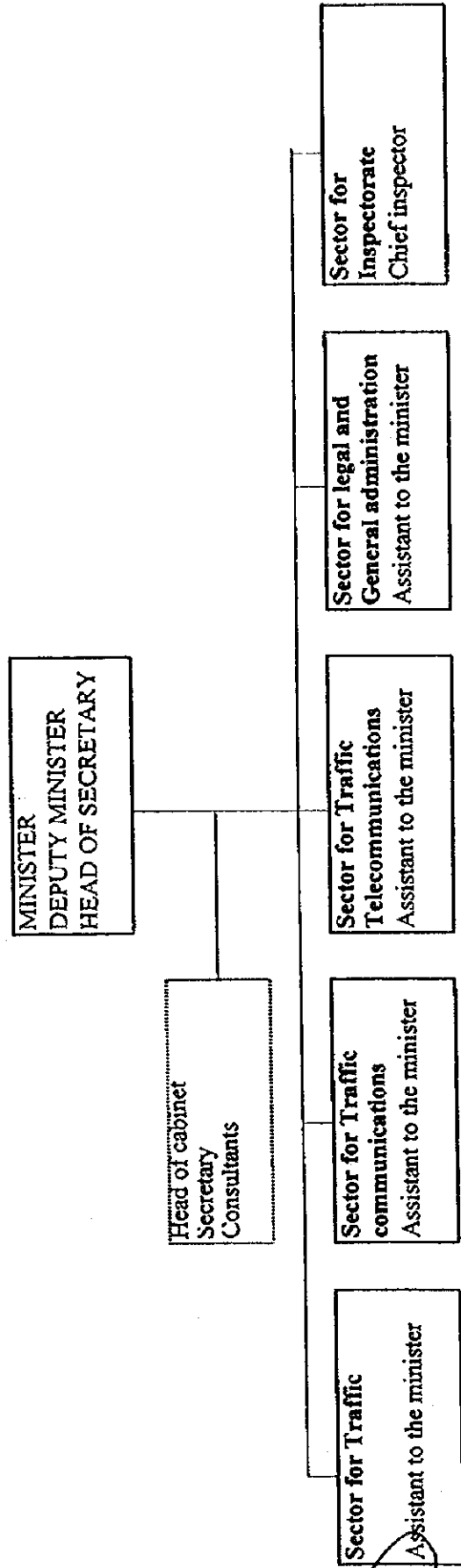
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ANNEX-1 PROJECT SITES



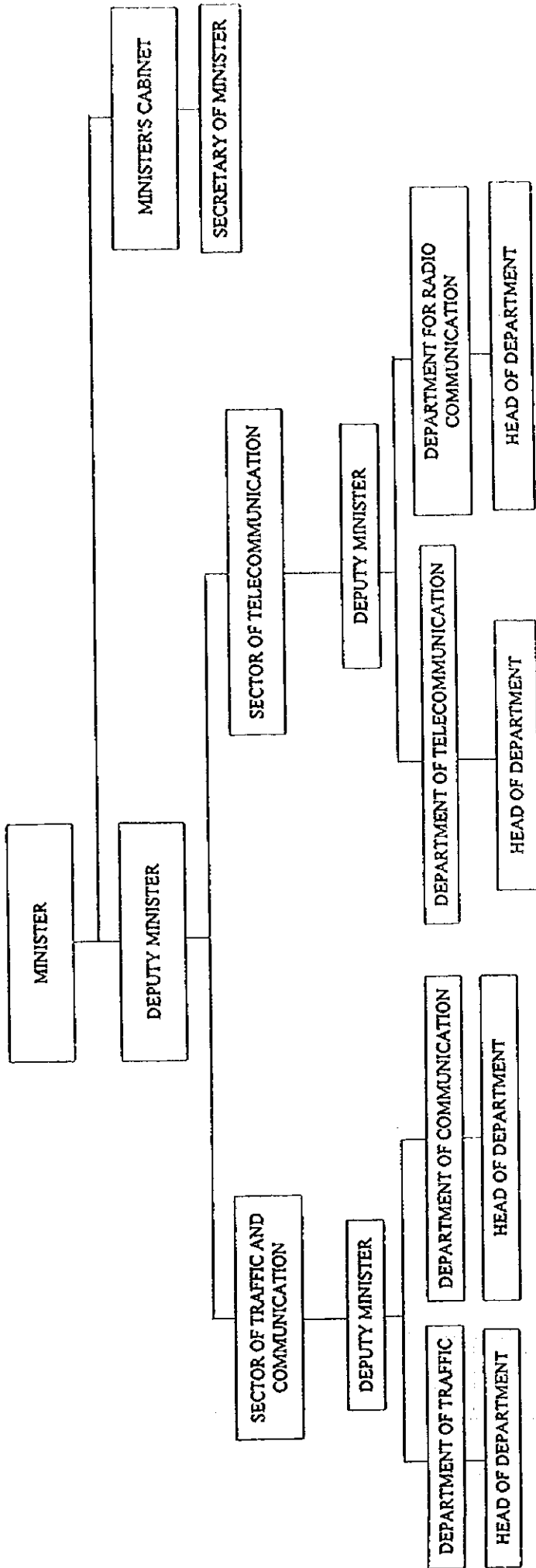
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MINISTRY OF TRANSPORT AND COMMUNICATIONS
OF THE FEDERATION OF BOSNIA AND HERZEGOVINA



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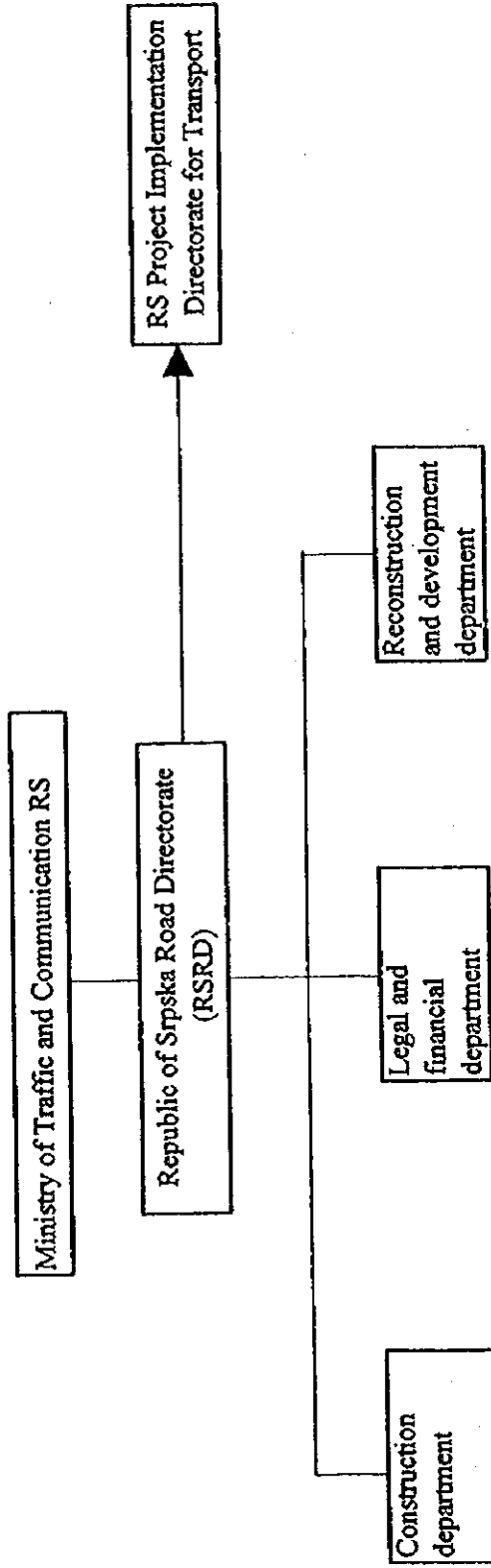
MINISTRY OF TRAFFIC AND COMMUNICATIONS, SARAJEVO CANTON



[Handwritten signatures]

MINISTRY OF TRAFFIC AND COMMUNICATION OF
THE REPUBLIC OF SRPSKA

REPUBLIC OF SRPSKA PROJECT IMPLEMENTATION DIRECTORATE



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ANNEX-3: ITEMS REQUESTED BY THE GOVERNMENT OF BOSNIA AND HERZEGOVINA

(1) Rehabilitation of the Main Roads from Sarajevo to Tuzla of Putevi B&H, Sarajevo

Classification	No.	Name of Equipment	Priority A	Priority B
			Q'ty	Q'ty
I Sub-Base	1	Dump Truck (Approx. 10m ³)	4	-
	2	Vibration Roller (large)	1	-
II Pavement Equipment	3	Asphalt Finisher (Paving Width Approx. 3.5~4.5m)	1	-
	4	Tire Roller (Approx. 8t)	1	-
	5	Road cutter (Cutting Width Approx. 2m)	-	1
	6	Vibratory Roller (small, Approx. 3t)	1	-
	7	Asphalt Sprayer	1	-
	8	Asphalt tanker	1	-
	9	Asphalt Recycle Plant (Approx. 60t/h)	1	-
III Asphalt Plant	10	Wheel Loader (Approx. 150HP)	1	-
	11	Portable Crushing Plant (Approx. 70~80t)	1	-
IV Crushing Plant	12	Wheel loader (Approx. 150HP)	1	-
	13	Tank Lorry (fuel) (Approx. 8,000L)	1	-
Backup Service	14	Tank Lorry (water) (Approx. 8,000L)	1	-
	15	Mobile workshop (Container Type)	1	-
	16	Hand tools	1	-
	17	Bulldozer (Approx. 225HP)	1	-
V Quarry Site	18	Wheel Loader (Approx. 150HP)	1	-
	19	Concrete Cutter (Approx. 40kg)	2	-
VI Road Maintenance	20	Hydraulic Excavator (Approx. 10t)	1	-
	21	Air compressor (Approx. 110HP)	1	-
VII Asphalt Laboratory	22	Laboratory equipment	-	1

Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

(2) Supplying Equipment for Maintenance and Repairing Roads of RAD, Sarajevo

No.	Name of Equipment	Priority A	Priority B
		Q'ty	Q'ty
1	Asphalt plant (Approx. 50t/h)	1	-
2	Roller (Weight Approx. 1,500kg, Width Approx. 900mm)	4	-
3	Roller (Weight Approx. 3,300 kg, Width Approx. 1,200mm)	2	-
4	Asphalt Sprayer	4	-
5	Tamper	4	-
6	Plate compactor	2	-
7	Pick hammer or equivalent	4	-
8	Wheel loader (Approx. 135~155HP)	1	-
9	Hydraulic Excavator (Approx. 130~140HP)	1	-
10	Dump truck (Payload Approx. 10~14t)	1	-
11	Equipment Transporting Truck (Payload Approx. 2~4t)	2	-
12	Asphalt Finisher (Paving Width MAX. Approx. 3.5~4.5m)	1	-
13	Workshop Tools	-	1
14	Laboratory equipment	-	1

Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

(3) The "High Krajina" Roads Rehabilitation Project

1) Mrkonjic Putevi

No.	Name of Equipment	Priority A Q'ty	Priority B Q'ty
1	Asphalt plant (Approx. 60t/h)	1	-
2	Crushing stone plant (Approx. 30~40t/h)	1	-
3	Grader (Approx. 140~155HP)	1	-
4	Large bulldozer (Approx. 220~240HP)	1	-
5	Loader (Approx. 140HP)	1	-
6	Asphalt finisher (Approx. Max. pavement 3.5~4.5m)	1	-
7	Steel Roller (Approx. 120~140HP)	1	-
8	Tire Roller (Approx. 3,000~4,000kg)	-	1
9	Tire Roller (Approx. 10t)	1	-
10	Hydraulic Excavator with braker (Approx. 20t)	1	-
11	Dump Trucks (Approx. 10m ³)	5	-
12	Equipment transporting truck (Approx. payload 2~4t)	3	-
13	Bitumen sprayer	1	-
14	Asphalt cutter	1	-
15	Compactor	1	-
16	Tools for Workshop	-	1

Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

2) Kozara Putevi

No.	Name of Equipment	Priority A Q'ty	Priority B Q'ty
1	Loader with chain and bucket (Approx. 150HP)	1	-
2	Bulldozer (Approx. 220HP)	1	-
3	Grader (Approx. 155HP)	1	-
4	Boring machine with compressor	1	-
5	Dump truck (Approx. 10m ³)	7	-
6	Equipment transportation truck	4	-
7	Bitumen sprayer	2	-
8	Asphalt cutter	4	-
9	Compactor	4	-
10	Line Marker	-	1
11	Excavator with Braker (Approx. 20t)	1	-
12	Tools for Workshop	-	1

Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.



Japan's Grant Aid System

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 Implementation	(The Notes exchanged between the Governments of Japan and 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

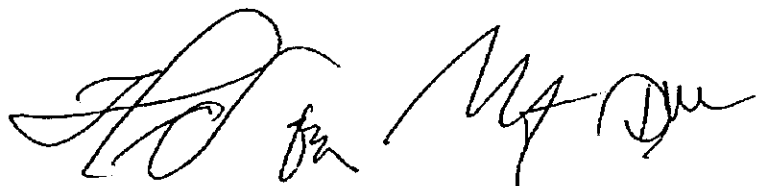
(1) Contents of the Study

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.
- 4) Preparation on 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 Projects. 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 selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study 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.

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 construction 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.)

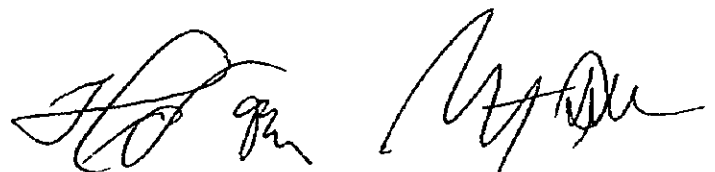
(5) Necessity of "Verification"

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 and 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.

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.

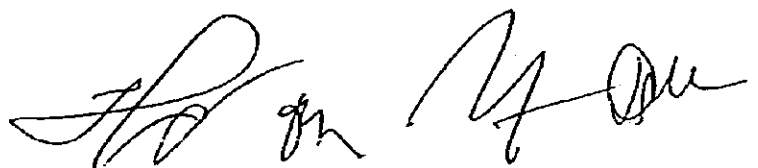
8) "Re-export"

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 an authorized foreign exchange 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.

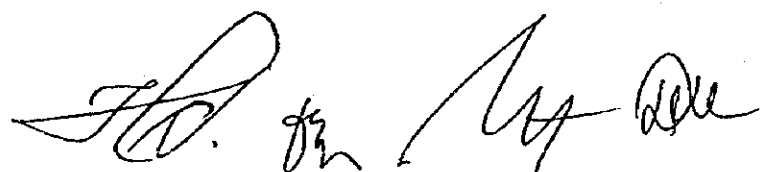
(b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

A handwritten signature in black ink, appearing to read "H. M. Y. O.", is located at the bottom right of the page.

ANNEX-5: 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 national 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 base 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.

A handwritten signature in black ink, appearing to be a stylized name or set of initials, located at the bottom right of the page.

MEMORANDUM OF AGREEMENT

Agreement of Japanese side and Putevi B&H, Sarajevo side for the Project concerned are as follows;

1. Agreed items and quantity for Putevi B&H, Sarajevo

Classification	No.	Name of Equipment	Priority A Q'ty	Priority B Q'ty
I Sub-Base	1	Dump Truck (Approx. 10m ³)	4	-
	2	Vibration Roller (large)	1	-
II Pavement Equipment	3	Asphalt Finisher (Paving Width Approx. 3.5~4.5m)	1	-
	4	Tire Roller (Approx. 8t)	1	-
	5	Road cutter (Cutting Width Approx. 2m)	-	1
	6	Vibratory Roller (small, Approx. 3t)	1	-
	7	Asphalt Sprayer	1	-
	8	Asphalt tanker	1	-
III Asphalt Plant	9	Asphalt Recycle Plant (Approx. 60t/h)	1	-
	10	Wheel Loader (Approx. 150HP)	1	-
IV Crushing Plant	11	Portable Crushing Plant (Approx. 70~80t)	1	-
	12	Wheel loader (Approx. 150HP)	1	-
Backup Service	13	Tank Lorry (fuel) (Approx. 8,000L)	1	-
	14	Tank Lorry (water) (Approx. 8,000L)	1	-
	15	Mobile workshop (Container Type)	1	-
	16	Hand tools	1	-
VI Quarry Site	17	Bulldozer (Approx. 225HP)	1	-
	18	Wheel Loader (Approx. 150HP)	1	-
VII Road Maintenance	19	Concrete Cutter (Approx. 40kg)	2	-
	20	Hydraulic Excavator (Approx. 10t)	1	-
	21	Air compressor (Approx. 110HP)	1	-
VIII Asphalt Laboratory	22	Laboratory equipment	-	1

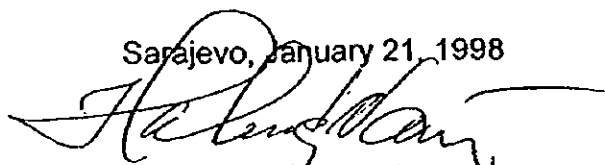
Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

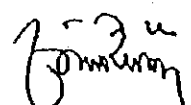
2. Undertakings of Putevi B&H, Sarajevo are as follows;

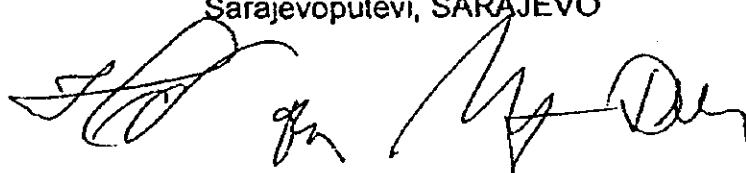
- (1) Putevi B&H, Sarajevo shall clear the land for asphalt plant and stone crusher plant.
- (2) Putevi B&H, Sarajevo shall prepare electricity, water supply and drainage for asphalt plant and stone crusher plant.
- (3) Equipment which are to be donated through the Project, especially stone crusher plant, shall be operated directly by Putevi B&H, Sarajevo for the purpose of road maintenance.

Sarajevo, January 21, 1998


 Mr. NASID HALIMIC
 Secretary of
 Federal Ministry of
 Transport and
 Communications
 Bosnia and Herzegovina


 Mr. ATSUMI Masahiro
 Team Leader,
 Japan International Cooperation Agency


 Mr. PASIC REMZIJA
 Director
 Sarajevoputevi, SARAJEVO



MEMORANDUM OF AGREEMENT

Agreement of Japanese side and Ministry of Traffic and Communications, Sarajevo CANTON and RAD side for the Project concerned are as follows;

1. Agreed items and quantity for Sarajevo RAD

No.	Name of Equipment	Priority A Q'ty	Priority B Q'ty
1	Asphalt plant (Approx. 50t/h)	1	-
2	Roller (Weight Approx. 1,500kg, Width Approx. 900mm)	4	-
3	Roller (Weight Approx. 3,300 kg, Width Approx. 1,200mm)	2	-
4	Asphalt Sprayer	4	-
5	Tamper	4	-
6	Plate compactor	2	-
7	Pick hammer or equivalent	4	-
8	Wheel loader (Approx. 135~155HP)	1	-
9	Hydraulic Excavator (Approx. 130~140HP)	1	-
10	Dump truck (Payload Approx. 10~14t)	1	-
11	Equipment Transporting Truck (Payload Approx. 2~4t)	2	-
12	Asphalt Finisher (Paving Width MAX. Approx. 3.5~4.5m)	1	-
13	Workshop Tools	-	1 set
14	Laboratory equipment	-	1 set

Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

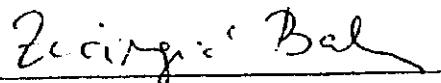
2. Undertakings of Sarajevo CANTON are as follows;

- (1) Sarajevo CANTON shall construct foundation of asphalt plant at installation site.
- (2) Sarajevo CANTON shall prepare electricity, water supply and drainage for asphalt plant.
- (3) Sarajevo CANTON shall built storagehouse for crushed stone and mixed asphalt.

Sarajevo, January 19, 1998



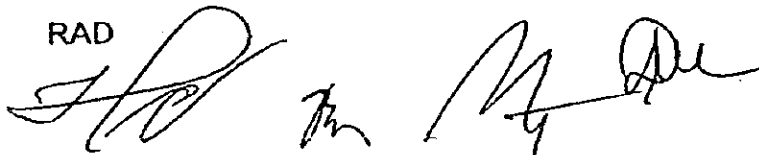
Mr. ATSUMI Masahiro
Team Leader,
Japan International Cooperation Agency



Mr. BAKIR ZACIRAGIC
Minister
Ministry of Traffic and Communications,
SARAJEVO CANTON



Mr. MIRSAD KEBO
General Director
RAD



MEMORANDUM OF AGREEMENT

Agreement of Japanese side and Mrkonjic Putevi side for the Project concerned are as follows;

1. Agreed items and quantity for Mrkonjic Putevi

No.	Name of Equipment	Priority A Q'ty	Priority B Q'ty
1	Asphalt plant (Approx. 60t/h)	1	-
2	Crushing stone plant (Approx. 30~40t/h)	1	-
3	Grader (Approx. 140~155HP)	1	-
4	Large bulldozer (Approx. 220~240HP)	1	-
5	Loader (Approx. 140HP)	1	-
6	Asphalt finisher (Approx. Max. pavement 3.5~4.5m)	1	-
7	Steel Roller (Approx. 120~140HP)	1	-
8	Tire Roller (Approx. 3,000~4,000kg)	-	1
9	Tire Roller (Approx. 10t)	1	-
10	Hydraulic Excavator with braker (Approx. 20t)	1	-
11	Dump Trucks (Approx. 10m ³)	5	-
12	Equipment transporting truck (Approx. payload 2~4t)	3	-
13	Bitumen sprayer	1	-
14	Asphalt cutter	1	-
15	Compactor	1	-
16	Tools for Workshop	-	1

Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

2. Undertakings of Mrkonjic Putevi are as follows;

- (1) Mrkonjic Putevi shall construct foundation of asphalt plant and stone crusher plant at installation site.
- (2) Mrkonjic Putevi shall prepare electricity, water supply and drainage for asphalt plant and stone crusher plant.

Mrkonjic Grad, January 20, 1998



Mr. ATSUMI Masahiro
Team Leader,
Japan International Cooperation Agency



Dr. DRAGAN MIHAJLOVIC
Deputy Director
Ministry of Transport
Republic Road Directorate
The Republic of Srpska



Mr. UDOVIC SLOBODAN
Director
Mrkonjic Putevi



MEMORANDUM OF AGREEMENT

Agreement of Japanese side and Kozara Putevi side for the Project concerned are as follows;

1. Agreed items and quantity for Kozara Putevi

No.	Name of Equipment	Priority A Q'ty	Priority B Q'ty
1	Loader with chain and bucket (Approx. 150HP)	1	
2	Bulldozer (Approx. 220HP)	1	
3	Grader (Approx. 155HP)	1	
4	Boring machine with compressor	1	
5	Dump truck (Approx. 10m ³)	7	
6	Equipment transportation truck	4	
7	Bitumen sprayer	2	
8	Asphalt cutter	4	
9	Compactor	4	
10	Line Marker		1
11	Excavator with Braker (Approx. 20t)	1	
12	Tools for Workshop		1


Priority A : Items to be procured through the Project.

Priority B : Items to be procured through the Project, if the budget allows.

Banja Luka, January 19 1998

阿部 正 祥

Mr. ATSUMI Masahiro
Team Leader,
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Dr. DRAGAN MIHAJLOVIC
Deputy Director
Ministry of Transport Republic
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Mr. ALAGIC MILAN
Director
Kozara Putevi



JICA

