

No.

**THE STATE DEPARTMENT OF ROADS
GEORGIA**

**BASIC DESIGN STUDY
ON
THE PROJECT FOR TRUNK ROUTE REHABILITATION
IN
GEORGIA**

DECEMBER, 2000

**JAPAN INTERNATIONAL COOPERATION AGENCY
CONSTRUCTION PROJECT CONSULTANTS, INC.**

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PREFACE

In response to a request from the Government of Georgia the Government of Japan decided to conduct a basic design study on the Project for Trunk Route Rehabilitation and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Georgia a study team from July 4th to July 30th, 2000.

The team held discussions with the officials concerned of the Government of Georgia, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Georgia in order to discuss a draft basic design, and as this result, the present report was finalized.

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 Georgia for their close cooperation extended to the teams.

December, 2000



Kunihiko Saito

President

Japan International Cooperation Agency

December, 2000

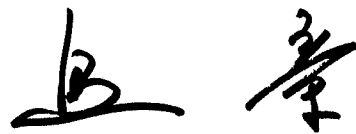
Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Trunk Route Rehabilitation in Georgia.

This study was conducted by Construction Project Consultants, Inc., under a contract to JICA, during the period from June 28th to December 1st, 2000. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Georgia and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,



Akira Shima
Project Manager,
Basic design study team on
the Project for Trunk Route
Rehabilitation
Construction Project Consultants, Inc.

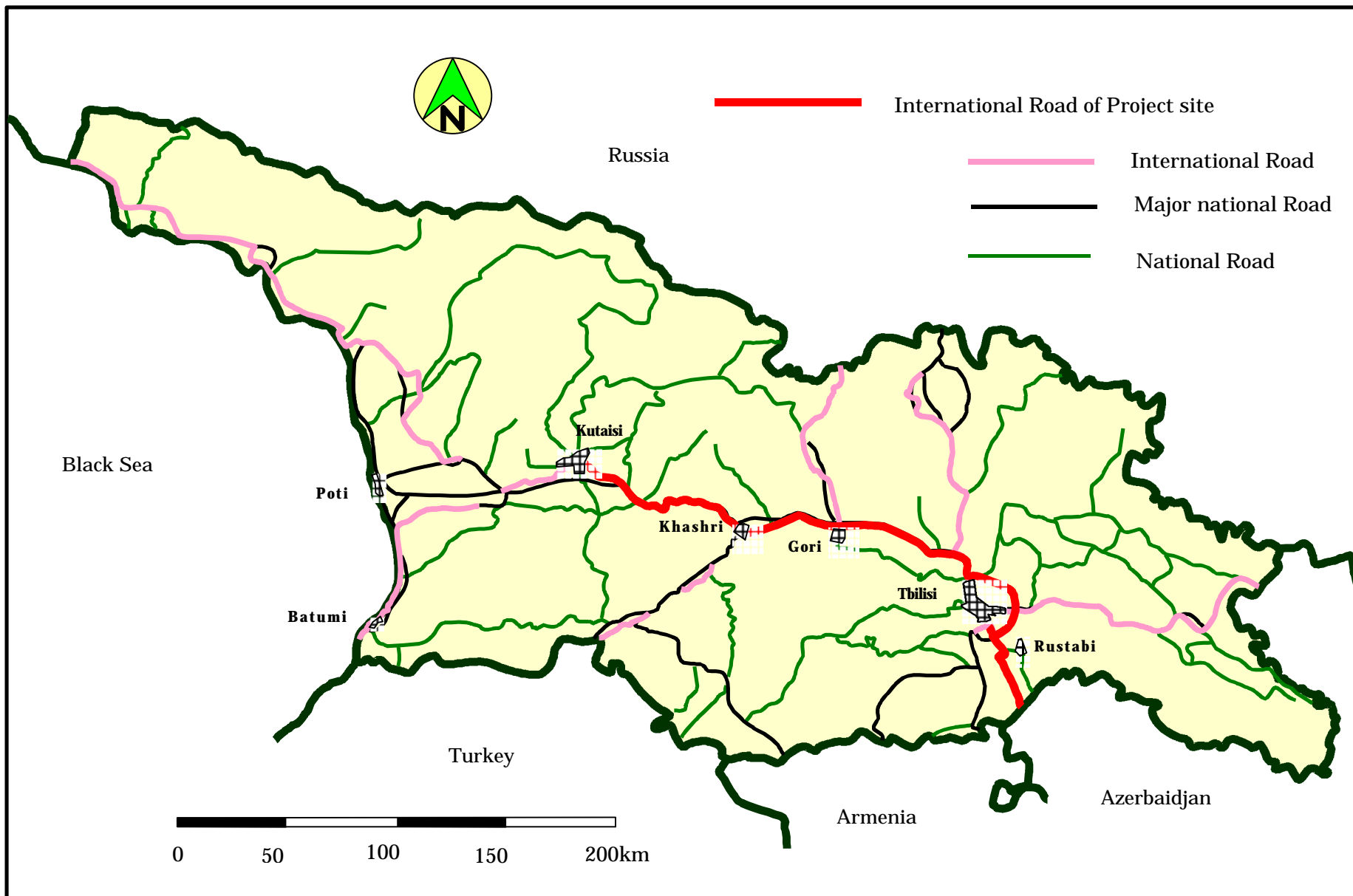


Fig. Area Map of the Project site

ABBREVIATIONS

EBRD	European Bank for Reconstruction and Development
EU	European Union
GDP	Gross Domestic Product
IDA	International Development Association
SDR	State Department of Roads
TACIS	Technical Assistance for Commonwealth of Independent States
TRACECA	Transport Corridor Europe Caucasus Asia

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CHAPTER 1

BACKGROUND OF THE PROJECT

Chapter 1. Background of the Project

Georgia geographically occupies a strategic position being situated at the point where Europe meets Asia, in the west-central part of Transcaucasia. Its boundaries are, in the north with the Russian Federation, in the south east with Azerbaijan, in the south with Armenia and in the south west with Turkey.

Transit traffic is important to Georgia in view of its strategic location as a link in the east-west corridor that forms part of the Silk Road. This traffic will increase, and will be an important source of income, if it can be provided with a convenient and reliable freight route from Central Asia to the Middle East and Europe. There has been a shift in emphasis from trade with Russia to increased trade from the Caucasus and Central Asia to the Black Sea ports. Recognizing the constraints of the road network on economic development, the Government has decided to improve the capacity and quality of its international highways. It has identified the major roads for the transit traffic and the development strategy as the roads from the Azeri border to the Black Sea, the road from Tbilisi to Armenia, and from Tbilisi to Russia. These important roads are in poor condition due to a combination of deferred maintenance and increased traffic.

The contribution of the road transportation in the whole freight is 62% (as of 1997y) on ton bases. And the daily traffic volume on the most important road between Poti-Tbilisi-Azerbaijan border is 4,300 ~ 9,700 units cars and trucks (as of 1997y).

The rate of increase in the traffic for 1999 - 2000y is 9% per year, and for 2000 - 2002 is 3 - 4%.

In December 1996, Georgian Government was given a Presidential order which is referred as “the Presidential Programme of Rehabilitation and Modernization of Georgian Motorroads”.

In accordance with the Presidential order, the priority of the main roads is as follows;

1. Poti-Tbilisi-Azerbaijan border (400 km)
2. Mtskheta-Kazbeki-Larsi (Russian border) (139 km)
3. Sarpi-Batumi-Ureki-Samtredia (127 km)
4. Khashuri-Akhaltikhe-Turkish border (98 km)
5. Tbilisi-Marneuli-Guguti (Armenia border) (97 km)

The State Department of Roads (SDR) controls road rehabilitation and maintenance for wholly domestic roads which include international roads and local roads.

SDR has many types of machines for road maintenance, but these pieces of construction machinery were almost all manufactured during the Soviet Union period.

Therefore, it has not been possible to accomplish the road rehabilitation and maintenance plan was not accomplished.

In order to improve the road rehabilitation and maintenance, the government of Georgia has applied to the Japanese Government for a grant aid for the procurement of road maintenance equipment.

The main items of the requested equipment is listed in Table 1-1.

Table 1-1

	Equipment	Specification	Unit
1	Bulldozer	230HP	1
2	Wheel Loader	2 m ³	4
3	Motor Grader	W = 3m	4
4	Vibrating Roller	7 ton	2
5	Tyre Roller	10 ton	2
6	Asphalt Finisher	W = 3 m	1
7	Passenger Car	4WD	4

CHAPTER 2

CONTENTS OF THE PROJECT

Chapter 2. Content of the Project

2-1 Objectives of the Project

Road rehabilitation and maintenance in Georgia is the responsibility of the State Department of Roads (hereinafter called SDR). SDR is equipped with road construction machinery which are from the Soviet Union era and a central workshop (Floor space about 3,000 m²) for stock and the maintenance of these machinery. The necessary machinery for road rehabilitation and maintenance, and the road control local office for these machinery are at 19 points along the Trunk Route. There are 61 points on the National and Local road.

Each road control office is staffed with necessary engineers and technicians but they do not operate efficiently as the rehabilitation of machinery, replacement of maintenance equipment and procurement of spare parts are not effected timely due to the shortage of funds.

As a result, almost all of SDR's 140 units of road construction machines and vehicles are waiting for maintenance service and repair: about 20 percents of the total units are awaiting periodic maintenance or light repair and 80 percents of the total units are awaiting heavy repair including overhaul. Furthermore, due to insufficient periodic maintenance and lack of spare parts construction machines are being scrapped or left out of order. The working efficiency of these machines is around 20 percents that of the normal machines.

The government of Georgia has decided to carry out the rehabilitation and maintenance of the trunk road between Kutaisi and Azerbaijan. To meet its objectives and to acquire necessary machinery for road rehabilitation and maintenance, the government of Georgia has applied to the Japanese government for a grant aid for the procurement of construction equipment.

The object of the present project is to assist the SDR in setting up its rehabilitation and maintenance structure for the trunk road through the supply of construction machinery.

The road construction and maintenance machinery and vehicles presently owned by the SDR is listed up in Table 2-1.

Table 2-1 Machinery List of SDR (Local Office)

Machinery	Road control local office No.									Total
	11	20	3	5	6	26	7	13	7	
	Rilo	Tbilisi	Gori	Khashori	Zestaponi	Kutaisi	Samtredia	Poti	Batumi	
Bulldozer	3	2		3	2	2	2	1	6	21
Hyd. Excavator	1	2	1	2	2		1	1	4	14
Wheel Loader	1	1	1	1	1	1			3	9
Motor Grader	2	2	2	1	2		2	1	2	14
Roller	2	4	3	2	2		2	2	5	22
Motor Scraper				1					1	2
Asphalt Finisher	1	1		1	1		1		2	7
Asphalt Distributor									3	3
Asphalt Kettle									1	1
Water Sprinkle Car				1						1
Oil Tanker	1	4	2		1				2	10
Semi Tractor	2									2
Compressor	1	1	1	1	1		1		2	8
Trailer			1	1		1			2	5
Asphalt Plant	1	3		1		1	1		3	10
Crasher Plant		4		2					5	11
Total	15	24	11	17	12	5	10	5	41	140

Georgia SDR 2000

2-2 Basic Concept of the Project

2-2-1 National Transport Policy

Georgia is situated in a zone linking the Black sea and the Caspian sea of Azerbaijan, and its transport sector plays an important role not only for the development of the national economy but also for the regional trade. The Georgian government is striving, therefore, to develop its transport sector for further promoting its integration into the regional economy, taking advantage of its geographical location. The transport sector of Georgia engaged 29.7 percent of the GDP against as of 1997 is 11.3 percent of the GDP average.

The road transport plays a dominant role in the transport sector. It accounted for about 63 percent of foreign trade cargo in 1999. The rehabilitation and maintenance of the transport infrastructure is also important for the promotion of International Road control. In addition to the trunk roads as the basic infrastructure for industry and trade, the development of rural roads supporting the economic and social activities of the agricultural zone, is also important from the view point of raising the regional revenue standard and of alleviating the regional disparity. Therefore, the rehabilitation and

maintenance of trunk roads constitutes a central theme for the development of the Georgian economy. SDR's operating budget is separate from the national budget.

2-2-2 Road Network and SDR's Function

The main road network in Georgia is classified into three categories: International Road functioning as a trunk road, National Roads connecting the primary roads, and Local Roads (branches from International and National Road serving town and villages). The total road length as of 1999 was 20,215 km and of which 8,815 km were paved. Besides the classified roads, there was 1,474 km of International Road and 3,326 km of National roads. These roads were almost all paved.

In 1995, SDR was organizationally was restructured. The organization of road construction department, bridge construction department and machine repairing workshop were privatized.

Currently, the remaining organizations under SDR are International, National and Local road control offices, Abhazia organization, Adzharia organization. Regarding road construction department, the work ordering section is still under the SDR; however, 13 local road control offices were privatized.

There are 19 road control offices on the International Road, and 61 road control offices on the National and Local road.

2-2-3 Road Maintenance Plan

(1) Road Construction

Since independence from the former Soviet Union in 1991, there has not been construction of a new road because Georgia has been faced with hard economic times. In addition, there are no plans for the construction of a new road. The Government's first priority is the road rehabilitation and maintenance of present roads.

(2) Road Maintenance

The road maintenance achieved in the past three years are shown in Table 2-2.

Table 2-2 Road Maintenance Records

(unit: km)

Road	1997	1998	1999
International	19.02	21.79	26.83
National	6.80	12.81	-
Local	-	3.25	1.2
Total	25.82	37.85	28.03

SDR

According to the road rehabilitation and maintenance planned by the Presidential Programme for Rehabilitation, Modernization work and Maintenance of Georgian Motorroads in 1996 are showing in Table 2-3.

Table 2-3 Mass Diagram of Run Off of the Georgian Public Roads Rehabilitation, Modernization Works and Maintenance

Million lari

No.	Measures for Georgian Roads Rehabilitation and Improvement	Length (km)	Cost million lari	Rough Estimation and Terms													
				1997	1998	1999	2000	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10
1	Rehabilitation of prior routes	833	214	19.6	29.4	42.6	57.8	64.6	-	-	-	-	-	-	-	-	-
2	Modernization of prior routes	625.6	1,100	8.5	9.7	10	13.9	18.8	79.9	86	96.5	106.3	116.1	125.1	135.4	145.7	148.1
3	Partial rehabilitation of the rest main highways and national roads	5,180	459	7.8	10.2	10.6	13.1	14	27.7	32	33.4	37.1	42.7	48.8	53.3	60.7	67.6
4	Annual maintenance of main highways and national roads	6,013	285.7	11	12	12	13	14	16	20	22	23	24	25	28	31.7	34
5	Annual maintenance of local roads	-	133.9	3.7	5.5	6.1	6.9	7.7	8.4	8.5	9.5	10.3	11.2	12.3	13.1	14.6	16.1
6	Scientific-technical progress	-	56.8	1.2	1.6	2.1	2.7	3.1	3.4	3.8	4.2	4.6	5.1	5.5	6	6.5	7
7	Design and survey works	-	88.4	1.6	2.3	3.2	4.1	4.9	5.4	5.9	6.5	7.2	7.9	8.6	9.3	10.3	11.2
8	Obtaining of necessary facilities	-	102.9	2.3	2.8	3.8	4.7	5.6	6.1	6.9	7.7	8.3	9.1	10	10.8	11.9	12.9
SUM			2,440.7	55.7	73.5	90.4	116.2	132.7	146.9	163.1	179.8	196.8	216.1	235.3	255.9	281.4	296.9

President Programme

The Georgian government announced a 14 year all roads rehabilitation and modernization plan starting in 1997. It has this for achieved only 10 percent of its plan, this is due to lack of funds (budget), and old and limited number of equipment and machineries.

In this Presidential Programme are the planned rehabilitation and maintenance of the International road between Kutaisi and Azerbaijani border which Japanese government are planning to support.

The Presidential Programme between Poti and Azerbaijani border plan are shown in Table 2-4.

**Table 2-4 Poti-Senaki-Tbilisi-Tsiteli Khidi/Azerbaijani Border/
The List of Rehabilitation Works and Rough Estimation**

No.	Indicators	Measurement	Quantity	Cost in million lari
1	Route Length	km	400	
2	Road Category I	km	7	
	Road Category II	km	329	
	Road Category III	km	64	
3	The removal from the route of falling earth stone	m ³	150,000	0.52
4	Surfacing of the road way taking into account the leveling layer	km	162	4.05
5	Construction of the one course asphalt-concrete pavement taking into account the leveling layer and surfacing	km	140	16.19
6	Construction of the double course asphalt-concrete pavement taking into account the surfacing	km	80	12.30
7	Waysides rehabilitation and strengthening	km	250	3.29
8	Completion of Agaiani by-pass road construction	km	8	3.24
9	Rehabilitation of retaining walls	m ³	6,650	1.58
10	Rehabilitation of bridges	each	9	3.66
11	Completion of bridges construction (across the rivers Khrami and Dzirula near Goshesha)	each	3	10.70
12	Tunnel's repair	m	1,800	3.90
13	Completion of the tunnel's construction (near the rivers Khrami and Dzirula near Goshesha)	m	380	1.75
14	Construction of pockets	each	60	4.38
15	Carrying out works to lock out metal bridges further corrosion	m	2,200	0.48
16	Guards construction	km	12	0.39
17	Setting the orientation poles	each	3,000	0.08
18	Road signs Standard	each	1,900	0.34
	Individual	each	200	0.08
19	Horizontal marking	km	1,000	0.30
20	Vertical marking	m ²	450,000	0.77
Total Cost				68.00

President Programme

In the above plan, the Japanese Government will donate road maintenance equipment to support the Georgian Government in the rehabilitation of their International Road 144 km between Kutaisi - Azerbaijani border, and Tbilisi By-pass road for keeping the Georgian life line and to also contribute to Basic Human Needs.

On the other hand, the World Bank will provide funds to the Georgian Government by credit loan for the reconstruction and the rehabilitation of the most damaged section on the International Road between Poti - Tbilisi - Azerbaijani border 65 km of Total length 400 km.

Difference between the working condition of Japan's Grant Aid and World Bank Loan Credit are showing in Table 2-5. And also each working detail for the objective sections are showing in Table 2-6.

Table 2-5 Working Detail of Japan's Grant Aid and World Bank Credit Loan

	Japan's Grant Aid	World Bank Loan Credit
Working Purpose	<ul style="list-style-type: none"> Contribute to Basic Human Needs based on keeping the Georgian life line 	<ul style="list-style-type: none"> The transportation activity based on the maintenance of International Road between Asia and Europe.
Working Scale	<ul style="list-style-type: none"> Little scale maintenance (Overlay) Middle scale maintenance (Surface course, reconstruction of base course) 	<ul style="list-style-type: none"> Big scale rehabilitation Grade up the category, Subgrade improvement Reinforcing the road structure
Maintenance Section	<ul style="list-style-type: none"> Sections that can't be driven normally 11 sections - 144 km 	<ul style="list-style-type: none"> Most heavily damaged road sections (between Poti - Azerbaijani border, 30 sections - 65 km)
Implementing Organization	SDR	<ul style="list-style-type: none"> Private contractor (Domestic or foreign company)
Using Equipment	<ul style="list-style-type: none"> Japan's donated equipment and old Soviet equipment which belongs to SDR 	<ul style="list-style-type: none"> Maybe foreign contractor will bring the equipment
Working Period	2002 ~ 2004 (3 years)	2001 ~ 2004 (4 years)

Table 2-6 Road Maintenance Plan (1/2)

Azerbaijan Border - Kutaisi (1)

Location	Distance	Maintenance Section			World Bank	Others	
		Overlay	Surface course	Rehabilitation			
Azerbaijan Border	57						
	56						
	55						
	54						
	53						
	52						
	51						
	50						
(Alghete River)	49						
	48						
	47						
Irumatio	46						
	45						
	44						
	43						
	42						
	41						
	40						
Kabanakahi	39						
	38						
	37						
	36						
	35						
	34						
Kemaro	33						
	32						
	31						
	30						
	29						
	28						
	27						
	26						
	25						
	24						
	23					1999 maintained	
	22						
Rustabi	21						
	20						
	19						
	18						
	17						
	16						
	15						
	14						
	13						
	12						
	11						
	10						
	9						
	8						
	7						
	6						
	5						
	4						
	3						
	2						
	1						
Liberty Square	0						
	1						
	2						
	3						
	4						
SDR Office	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
(Mutwari River)	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
Sub Total (km)	59	24	11	0	13	6	29

Azerbaijan Border - Kutaisi (2)

Location	Distance	Maintenance Section			World Bank	Others	
		Overlay	Surface course	Rehabilitation			
Natakhtari	28						
	29						
	30						
	31						
	32						
	33						
	34						
	35						
	36						
	37						
(Ksani River)	38						
	39						
	40						
	41						
	42						
	43						
	44						
	45						
	46						
	47						
	48						
	49						
	50						
	51						
	52						
	53						
	54						
	55						
Igoeti	56						
	57						
	58						
	59						
	60						
	61						
	62						
	63						
	64						
	65						
	66						
	67						
	68						
	69						
	70						
	71						
	72						
	73						
	74						
	75						
	76						
	77						
	78						
	79						
	80						
Gori	81						
	82						
	83						
	84						
	85						
	86						
	87						
	88						
	89						
	90						
	91						
	92						
	93						
	94						
	95						
Rusi	96						
	97						
	98						
	99						
	100						
	101						
	102						
	103						
	104						
	105						
Azara	106						
	107						
	108						
	109						
	110						
	111						
	112						
Sub Total (km)	85	55	0	34	21	11	19

Table 2-6 Road Maintenance Plan (2/2)

Azerbaijan Border - Kutaisi (3)

Location	Distance	Maintenance Section			World Bank	Others	
		Overlay	Surface course	Rehabilitation			
	113						
	114						
	115						
	116						
	117						
	118						
	119						
	120					Maintained	
	121						
	122						
	123						
	124						
	125					Maintained	
	126						
	127						
Khashuri	128						
	129						
	130						
	131						
	132					Maintained	
	133						
Surami	134						
	135						
	136						
	137						
	138						
	139						
	140						
	141						
	142						
(Tunnel)	143						
	144						
	145						
	146						
	147						
	148						
	149						
	150						
Khevi (Rikutura river)	151						
	152						
	153						
	154						
	155						
	156						
	157						
	158						
	159					Maintained	
Grigarati	160						
	161						
	162						
	163						
Boriti	164						
	165						
	166						
	167						
Ubisa	168						
	169						
	170						
	171						
	172						
	173						
	174						
	175						
	176						
	177						
	178						
	179						
	180						
	181						
	182						
	183						
	184						
	185						
	186						
	187						
	188						
	189						
Sorabani	190						
	191						
	192						
	193						
Zestaponi	194						
	195						
	196						
	197						
Sub Total (km)	85	31	0	12	19	21	33

Azerbaijan Border - Kutaisi (4)

Location	Distance	Maintenance Section			World Bank	Others	
		Overlay	Surface course	Rehabilitation			
	198						
	199						
	200						
	201						
	202						
	203						
	204						
	205						
Terulora	206						
	207						
Simoneti	208						
	209						
	210						
	211						
	212						
	213						
	214						
	215						
	216						
	217						
	218						
	219						
	220						
	221						
	222						
	223						
	224						
	225						
	226						
Kutaisi Municipality	227						
Sub Total (km)	30	0	0	0	0	17	13
Tbilisi Bypass							
Zero Point	0						
(North)	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23					Maintained	
	24						
	25						
	26						
	27						
	28						
	29						
	30						
	31						
	32						
	33						
	34						
	35						
	36						
	37						
	38					1999 maintained	
	39						
	40						
	41						
	42						
	43						
	44						
	45						
	46						
	47						
Finish Point (South)	48						
Sub Total (km)	49	34	0	16	18	0	15
Total (km)	308	144	11	62	71	55	109

If the Japanese Government does donate the road rehabilitation and maintenance machinery to the Georgian Government, these machinery will start operation from the beginning of 2002.

The detail of the road rehabilitation and maintenance plan during the 3 years are shown in Table 2-7.

Table 2-7 Road Maintenance and Rehabilitation Plan

Sec. = Section

	Contents	2002	2003	2004	Total
1	Overlay	1 Sec. - 11 km	-	-	1 Sec. - 11 km
2	Surface course	-	2 Sec. - 34 km	3 Sec. - 28 km	5 Sec. - 62 km
3	Rehabilitation	2 Sec. - 34 km	2 Sec. - 19 km	1 Sec. - 18 km	5 Sec. - 71 km
	Total	3 Sec. - 45 km	4 Sec. - 53 km	4 Sec. - 46 km	11 Sec. - 144 km

Especially, the International Road is the most important road it is the Georgian life line from Baku on Caspian sea side to Poti, Batumi on Black sea side. These roads should maintained based on International Road standards.

But these rehabilitation and maintenance work is delayed due to the economical hardship faced by the Georgian Government.

2-2-4 Examination of the Contents of the Plan

In the examination of the contents of the plan, we confirmed the following items that are in the consideration.

- (1) Based on the requested machinery that were confirmed in discussion and described in the minutes of JICA's pre-study, we studied the content of the grant aid and we want to make it possible for the implementing organization to be able to manage the machinery autonomously.
- (2) A detailed investigation was carried out to determine weather a budget for the management and the maintenance of the requested machinery was secured.
- (3) We discussed the contents of the technical cooperation about (dispatching experts on the management of road maintenance and rehabilitation, and acceptance of trainees for the maintenance and repair of construction machinery training program) with the Georgian side.

- (4) We examined the contents of training program and recommended the establishment of examinations to be taken by the trainees to gauge the effectiveness of the.
- (5) We investigated the specification details of the machinery and compiled it so as to be able to use it in the tender.

The above-mentioned summary of the conference examination result is in Table 2-8.

Table 2-8 Conference confirmation result concerning request machine parts

Item	Request machine before confers	Qty.	Request machine after confers	Qty.	Note		
1.	Bulldozer	230 HP	1	Bulldozer Angle-Dozer	Min. 225 HP Ripper ROPS Cab	1	For the removal of the pavement version (peeling) and the grading road board material. To do the peeling on the asphalt pavement side, a high power bulldozer of 200HP or more with an assistant (*ripper*) is selected. The Georgian side strongly requested for a 230 HP bulldozer. However, the Japanese side wants to do with a 225 HP or more bulldozer, which two or more manufacturing companies are able to service. ROPS Cab is selected for protection from the falling rock and dust.
2.	Wheel Loader	2 m ³	4	Wheel Loader	Min. 2 m ³ Min. 145 HP ROPS Cab	4	For the loading work of removed pavement version and the upper layer road board. 145HP or more with 2 m3 bucket is selected in consideration of the need for it to correspond (pile up 2.5-3 times) with the dump track for transportation.
3.	Motor Grader	3 m	4	Motor Grader	Blade 3.7 m Min. 135 HP Articulate type Rear Ripper ROPS Cab (w/o Scarifire)	4	For the removal of the pavement version (peeling) and the digging and grading road board material. A medium motor grader of 135HP or more with Ripper is selected. We recommend a motor grader with 3.7 m blade because it is the most common standard in Japan and the world and there are 2 or more manufactures. ROPS Cab is selected for protection from the falling rock and dust.
4.	Vibrating Roller	7 ton	2	Vibrating Roller Tandem Drum	Min. 7 ton Min.70 HP Vibrate and Smooth Drum	2	For compaction of upper layer road board and base-course, the middle layer, and surface asphalt. In order to use efficiently, the road board, compaction on the asphalt surface, and to work widely, a tandem smooth roller of seven-ton class 70HP or more was selected.
5.	Tire Roller	10 ton	2	Tire Roller	10ton class Min. 90HP	2	For compaction of base-course, the middle layer, and surface asphalt We selected a tire roller of 90HP or more; 15 tons with full ballasts and 8.5 tons without the ballast in consideration of the correspondence and generality with the vibration inker.

Item	Request machine before confers	Qty.	Request machine after confers	Qty.	Note	
6.	Asphalt Finisher	3 m	1	Asphalt Finisher Paving Width Wheel Type 2.5 ~ 4.5m Min. 90HP	1	For base-course, the middle layer, and surface asphalt pavement construction We selected an asphalt finisher of 90HP or more wheel type with a paving width of 2.5-4.5 meter. This is because the width of one side of the targeted road is less than four meters and also slopes in mountain areas and mobility.
7.	Passenger Car	4 WD	4	Patrol Car for the Road Maintenance Pick-up Truck 4WD Min. 95HP G.V.W. Min. 2,600Kg Double Cab	1	For the urgent reporting to the construction site and to transport the capital machine parts and a number of men. Because the project site is located in a mountain pass with a sharp slope and is spread into 11 construction sites. Total length of sites is 144Km among international roads of 308Km. A pick-up truck with the loading ability of 600Kg or more with gasoline engine 4WD of 95HP or more was selected in consideration of mobility.
8.				Truck Trailer (Semi Trailer) Loading Cap. Min. 30 ton Low bed type 6 × 4	1	For the machine transportation between construction site and workshop. A low bed semi-trailer with a loading ability of 30 tons or more was selected in consideration of the weight of the granting schedule machine.

2-3 Basic Design

2-3-1 Design Concept

(1) Natural conditions

The road (Azerbaijani border-Tbilisi-Kutaisi) in this plan that is to be maintained runs between a large Caucasus and a small Caucasus, and the Rihi mountain range 1,500m high, connects these two Caucasus and runs south north almost right through the center of the road. Surrounding the road on the west side are low wetlands which have been created by the mouth of a river developing on the boundary of this Rihi mountain range. The plain zone stretches around the east side of the road and has an altitude of 400~1,000m above sea level.

The tunnel (143km point from Tbilisi) runs through the Rikoti pass in the Rihi mountain range. With 25km on the east of the range and about 10km on the west of the mountain range in this section of the road for the planned maintenance is the

steepest and the highest altitude. Therefore, the landslides occur between March - June and avalanches occur between January- February.

Landslide are caused by the snow in mountain in the winter. The snow melts in the daytime and soaks into the soil and rock and it freezes in the night. This is repeated every day and causes the deterioration of the cohesion of the soil. As a result of this phenomenon, it becomes very easy for landslides to occur in the spring rainy season.

Also the snow on the road around here in winter has to be removed, motor graders have to remove snow every day especially in January and February.

Table 2-9 Geographical features of the Azerbaijani border-Tbilisi-Kutaisi

Area	Point Km	Length (km)	Geographic	Note
Azerbaijani Border	57	57 km	Hill	A gentle wide plain runs right and left of the road.
Tbilisi	0	135 km	Plain & Hill	Continental climate region where thick bush grow along the north side of Kura river.
Surami	135	34 km	Mountain	Hilly-forested areas promote frequent occurrence of landslides and avalanches.
Usavi	169	26 km	Hill	Alluvial fan which stretches to the foot of a mountain in Rihi mountain range
Zestaponi	195	32 km	Plain	Farming zone with an altitude of 90~140m
Kutaisi	227			
Tbilisi Bypass	0~49	49 km	Hill & Mountain	Agricultural areas run on the right and left of the road.
Total		333 km	(25km on the Tbilisi City management road is contained.)	

It is necessary to select the model, the type, and the attachment of machinery carefully noting the natural conditions for the project.

(2) Social condition

Georgian has distinct language with distinct writing. The education level is high, and worker's technical level is also high.

Specification of machinery should be decided in consideration of this Georgian situation.

(3) Maintenance and management ability of the executing organization

It seems that the engineer (those who pass the Georgian skill certificate examination) are assigned to various road Management Offices, the operator (a person with experience, and who passes the driver examination for the operation of the construction machinery), and the mechanic (a person with experience, and who passes the engineering examination) are carrying out the job with a technical skills acquired in the old Soviet area and there are no problem. However, due to the aging of the staff, including the engineer, training for the staff on Japanese machinery should target the staff.

(4) Range and selection of machinery

1) Range of machinery

Range of machinery is construction machinery, pavement machinery, road well-set hardening machine, a transportation vehicle, and a patrol car which the Road Bureau needs for the road maintenance.

2) The selection of the machinery was based on the following standard.

- In the selection of the machinery, the capacity of each machinery should be match each other for efficient works. The different sized machinery will reduce the performance of the job in the construction site. Therefore, the selection of the type, quantity and specification of machinery will be done based on the consideration of the coordinate-ability as a whole.

(5) Machine procurement

There are several construction machinery dealerships in Tbilisi, but since there is a small demand (sale) of machinery, dealerships do not have their own workshop. For the repair of machinery, brought by foreign constructors, a partner-ship contract is set up with a private factory that has the facilities to repair the machinery. The dealerships do not have enough spare parts. Spare parts are ordered from the country of origin of the machinery or European depot.

Considering quality and the speed with which spare parts can be received we basically would like to procure construction machinery from Japan. Also, as for the other machinery, machinery and spare parts we would like to procure from Japan too.

In addition to this, the Georgian side is strongly seeking this arrangement (Japanese products).

(6) The term of the project

The procurement plan will be completed in one Japanese fiscal year.

(7) The surrender of the machinery

The handover of the machinery will be done at Poti harbor where the machinery is unloaded.

The Georgian State Department of Roads (SDR) will take part in the transportation of the machinery 355 km between Poti and Tbilisi. No problem is anticipated in the transportation of the machinery via this route (the International National Highway) because SDR has vast experience in handling machinery along this route.

2-3-2 Basic Design

(1) Overall design of machinery

Machinery grouping, amount of construction work by section and the necessary number of machinery of each construction type by using the planned machinery are calculated in table 2-10.

(2) Machinery planning

Work amount and the necessary number of machinery for the arrangement machinery of each construction work type calculated in the previous section is listed below.

Table 2-11 The work and the number of necessary machinery by machine model

(Unit)

Model	Qty. of work	Month	Qty. of machine	Existing machine (available)	Japanese Grant
Bulldozer (pavement removal)	326,000 m ²	14	1	0	1
Bulldozer (production of gravel)	470,818 m ³	26	1	1	0
Motor grader (pavement removal)	735,340 m ²	33	2	0	2
Motor grader (laying average)	865,600 m ²	15	1	0	1
Motor grader (obstacle removal)	6,000,000 m ²	33	2	1	1
Wheel Loader (roadbed loading)	217,140 m ³	30	1.5	0	1.5
Wheel Loader (production of gravel)	781,558 m ³	133	2.5	0	2.5
Vibrating Roller	3,787,600 m ²	56	2	0	2
Pneumatic Tired Roller	2,922,000 m ²	43	2	0	2
Asphalt Finisher	2,922,000 m ²	43	2	1	1
Dump Truck	409,020 m ²	227	10	10	0
Distributor	418,600 m ²	15	1	1	0
Clasher Plant	470,818 m ²	87	3	3	0
Mixing Plant	310,740 m ²	58	2	2	0
Water Truck	555,600 lit.	8	1	1	0
Truck Trailer					
Patrol Car					

CHAPTER 3

IMPLEMENTATION PLAN

Chapter 3. Implementation plan

3-1 Equipment Procurement Plan

3-1-1 Implementation Concept

(1) Project implementation Agency

In case of implementation of the project under Japan's Grant Aid, the organizations concerned will function following the mechanism illustrated in Fig. 3-1.

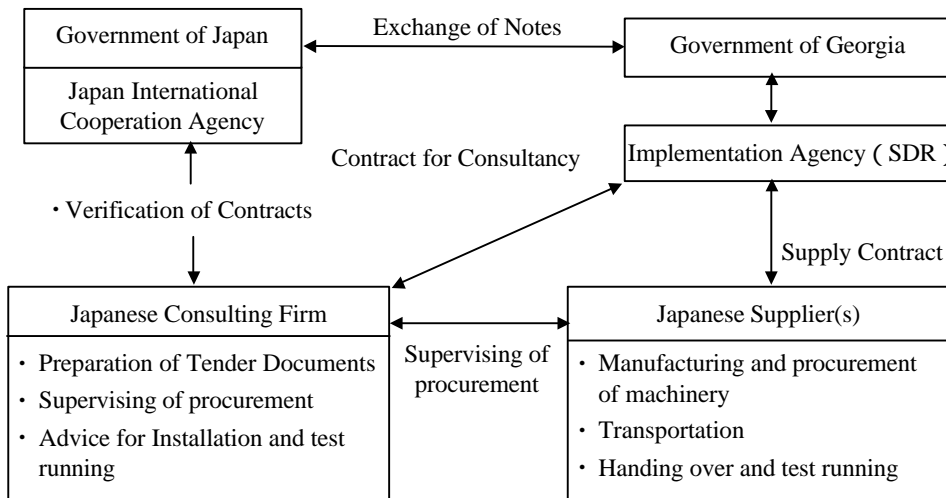


Fig. 3-1 Mechanism of Project implementation

The project implementing agency in Georgia is the State Department of Road (SDR).

In accordance with Japan's Grant Aid System, a Japanese consulting firm will undertake the detailed design and supervising of the Project, and Japanese trading firm(s) will undertake the supply of equipment under the project.

(2) Consultant

In accordance with Japan's Grant Aid System, a Japanese consulting firm will be employed for engineering services for the Project.

After the signing of Exchange of Notes (E/N) between the Government of Japan and the Government of Georgia, SDR will conclude speedily a contract with a Japanese consulting firm for the procurement of consultancy services.

The said firm will provide engineering services for the procurement of equipment including detailed design, preparation of tender documents, assistance for tender(s) and contract(s), and supervision of procurement, in accordance with the contract until the completion of delivery of the equipment under the Project.

(3) Supplier(s)

SDR will conclude contract(s) for the supply of the equipment under the project with the Japanese trading firm(s) who has(have) been awarded the tender(s) after having passed successfully the examination as to the specified quality at the open tender with conditional admission.

The said firm(s) has (have) the obligation to deliver the equipment requested by SDR and carry out its initial operation diligently within the delay stipulated in the contract.

3-1-2 Implementation Conditions

The equipment to be procured in Japan shall be unloaded at Poti port and shall clear customs there under the responsibility of SDR. After customs clearance, the equipment shall be transported by road to the SDR's workshop at Tbilisi.

The equipment transported shall be brought in the workshop by the SDR and shall be handed over to the SDR after the suppliers have carried the initial running of the equipment and have provided instructions for the operation and maintenance of equipment.

After the transport of the equipment to Tbilisi workshop, the SDR will undertake the storage of that equipment and will be responsible for it until it's handing over.

3-1-3 Scope of Work

The procurement cost of the equipment including its transportation up to Poti port is to be borne by Japan side. Further handling of the equipment is on the account and the responsibility of the Georgian side. All procedures necessary for the exemption of import duties /other taxes and transportation fee will be taken by Japan side.

3-1-4 Consultant Supervision

(1) Principles of Procurement Supervision

In case of implementation of the project under the grant aid scheme of the Japanese government, the consultant shall carry out the preparation of tender document and the supervision of procurement with thorough understanding of the following.

- Background of the implementation program
- Contents of the basic design report
- System of Japan's grant aid
- Contents of the Exchange of Notes between the two governments

Based on the above understanding, the contents, division of responsibilities, and special notes for the detailed design and supervision of procurement are explained below.

(2) Scope of Consulting Services

After the signing of Exchanges of Notes (E/N), the consultant concludes contract for consulting services with the implementing agency within the scope of services specified in the Exchange of Notes (E/N).

The scope of services are summarized below,

Detailed Design

- Consultancy agreement (in Georgia) and verification (in Japan)
- Prompting the procedures for issuance of the Authorization to Pay (A/P) (Georgia)
- Preparation and discussion of tender documents (Japan, Georgia)
- Obtaining approval for tender documents from the Georgian side (Georgia)
- Announcement of tender and distribution of tender documents (Japan)
- Execution of tender(s), evaluation of tenders, preparation of evaluation report, approval for the report (Georgia/Japan)
- Witness of the contract(s) for equipment supply (Georgia/Japan), and verification of the contract(s) (Japan)
- Confirmation of the obligations of the Georgian side (Georgia/Japan)

Supervision of the Procurement of Equipment

- Confirmation of the manufacturing order
- Follow-up of the procurement
- Ex-factory inspection
- Attendance to the delivery inspection
- Progress report
- Witness of final hand-over
- Preparation of completion note and final report

Initial Operation of the Equipment

It is necessary that instructions for initial running and for preventive and routine maintenances are provided by the supplier's (suppliers') engineer(s) under the supervision of the consultant.

(3) Special Points to Note

The equipment and its specifications identified at the basic design should be confirmed, and the content of the design should be reviewed after the signing of Exchange of Notes, in order to ensure that the specifications are in accordance with the objectives of Japan's Grant Aid for equipment procurement project and to prepare the tender documents accordingly.

3-1-5 Procurement Plan

Procurement of equipment from Japan and the third countries shall be done according to the following plan.

(1) Items to be procured from Japan

Japanese products are of excellent quality. The branch offices of Japanese makers and third country makers are shown in table 2.1. We investigated the option of either utilizing the branch offices and a partner factory; we decided to take the best from both; such as the technical level of the maintenance management and repair of the machinery and materials. Japanese products have the possibility of an early delivery of parts, which is standing demanded by the Georgian side and in addition the price is satisfactory.

- (2) Items which can be procured in Georgia

Georgia doesn't manufacture the machinery that are to be procured.

- (3) Items which can be procured from the third countries

As for the procurement machinery and materials, the Japanese product and also third country's product are not sold so many in Georgia. At the dealer shop, the spare part, the service system and so on the European product do not have good responsibility. So basically, we want to make it the procurement in Japan

As the result of investigation we did, we would like to make the procurement plan on condition that the machinery are procured in Japan, because of their advantage in quality, spare parts supply and dealers network.

Table 3-1 Substitutes of the machinery in Georgia

Substitute	Location	Treatment product
BORUSAN MAKINA	Tbilisi	Caterpillar Construction Machinery & Generator
TEMSA	Tbilisi	Komatsu Construction Machinery & Generator
TOYOTA	Tbilisi	Toyota Automobiles
NITBI	Tbilisi	Nissan Automobiles

3-1-6 Surrender place

The unloading of machinery procured from Japan will be at Poti harbor. The surrender place of the procurement machinery is Poti harbor (paying a landing expense on Japan side). The customs clearance of machinery is done at Poti port after unloading. SDR takes a part of transportation of machinery from Poti to the central workshop of SDR in Tbilisi

3-1-7 Implementation Schedule

The project shall be implemented according to the schedule shown in Fig. 3-2.

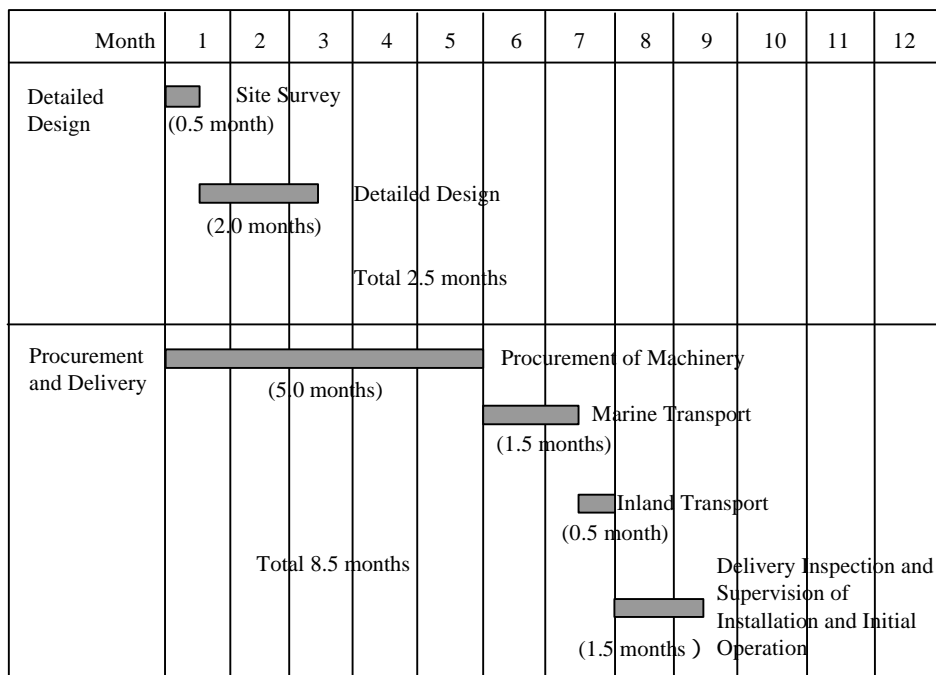


Fig. 3-2 Implementation Schedule

3-1-8 Obligations of Recipient Country

In case the Project is implemented under Japan’s Grant Aid Scheme, the following obligations are to be fulfilled by the Georgian side.

- (1) Payment of commissions to the foreign exchange banks according to the banking arrangement (B/A).
- (2) Assistance to the Japanese personnel engaged in the project for entering and staying in Georgia and for visiting government organizations and officials.
- (3) Exemption from customs duties and taxes in Georgia for the Japanese firm(s) and personnel engaged in the project.
- (4) Tax exemption and preparation of documents necessary for smooth customs clearance of the equipment at Poti port and inland transportation from Poti to Tbilisi.
- (5) Appropriate use and maintenance of the equipment to be procured.
- (6) Payment of all expenses other than those paid under the Grant Aid.

3-2 Project Cost Estimation

Project cost related to the Transportation of equipment and preparation of machine and tools for the maintenance of equipment is about 172,400 Lari. It will be born by the Georgian State Department of Roads (SDR) that has responsibility implementing the Project.

The detail of the cost

(1) Transportation cost of equipment from Poti to Tbilisi	28,400 Lari
(2) Preparation cost of machine and tools for the maintenance of equipment	144,000 Lari

3-3 Operation and Maintenance Costs

(1) Operation and Maintenance Plan

1) Routine Maintenance

The operator of construction machinery and vehicle at each work site does routine maintenance. The operating condition of equipment is reported through the director of each governor to the Roads Maintenance Division of SDR.

2) Periodic Maintenance

According to the indication of the road machinery section, the mechanic and an assistant will implement a periodic maintenance at the construction site.

They also submit the periodic maintenance report to Roads Maintenance Division through the road machinery section.

3) Repair

The repairs of construction machinery can be classified into three categories: light repair, medium repair and heavy repair. Mechanics will repair the damaged construction machine at the construction site in case of light repairing work.

Medium and large repairs, such as the repair of major components and the overhaul, will hardly occur within the term of the project (three years). On the other hand, manufactures of equipment have given a warranty and will repair any damage within one year after the date of delivery and also a regular maintenance work for these equipment will prevent their breakdown and reduce the maintenance cost as a result.

(2) Operation and Maintenance Costs

The consumption quantity of fuel and the oil, which the equipment need will increase with the implementation of the Project by SDR but the annual necessary budget that included these necessary expenses is as in table 3-3.

SDR has prepared equipment and tools for the maintenance of machinery during 2002 and 2003 when granted machinery starts the project.

Table 3-3 Yearly Budget of SDR for the Project

unit : Lari

Breakdown of budget	2002	2003	2004
(1) Inland Transportation Fee (Poti ~ Tbilisi)	28,400	-	-
(2) Material cost for road maintenance	4,473,800	4,473,800	4,473,800
(3) Fuel and Oil	233,800	233,800	233,800
(4) Equipment & tools cost for machine maintenance	90,000	54,000	-
(5) Labor cost	140,900	140,900	140,900
Total	4,966,900	4,902,500	4,848,500
The rate to account for to the results in 1999	13.8%	13.6%	13.4%

CHAPTER 4

PROJECT EVALUATION AND RECOMMENDATION

Chapter 4. Project Evaluation and Recommendation

4-1 Project Effect

4-1-1 Justification and verification of the project

The SDR undertakes the routine maintenance of the international road and local road network using its own road construction machinery. But almost all of these piece of construction machinery were manufactured during Soviet Union period.

In consequence, the operating efficiency of construction machinery has been lowered, resulting in the reduced capacity of road rehabilitation and maintenance. Furthermore, incomplete repair works have been shortening the life of construction machinery.

Under the circumstances, the content of the project, the implementation of which shall produce the following effects, is considered appropriate.

(1) Economic Effects

The capability of daily maintenance for international main road Poti - Kutaisi - Tbilisi - Azerbaijan border shall be improved and the goods flow capacity shall increase.

These improvements will bring about the following economic effects.

1) Improvement of Road Maintenance Capacity

Improvement of routine maintenance of the international main road undertaken by SDR on force account shall bring about the following economic effects:

- 2) Improvement of Traffic Volume**
- 3) Shortening of traveling time**
- 4) Reduction of the closure period of the international road in the winter season.**

(2) Financial Effects

With the implementation of the project for rehabilitation of international main road, it shall become possible to carry out repair works which are not possible currently or not carried out timely, with SDR resources.

Consequently, period of no maintenance on the roads shall increase and thus reduce the road maintenance cost.

As a result, the annual expenditure for parts replacement and repair of equipment of the old construction machinery, for which the budget was 3.8 million Lari in 1999, is expected to be reduced by about 50%, to about 2 million Lari.

4-2 Recommendation

In order to improve the effects of this project, SDR should undertake the following;

(1) Completion of the stockyard and maintenance facility

With the current condition of the stockyard, the roof, wall and floor shall be renovated. Also the maintenance tool and facilities for construction machinery shall be in place before the arrival of the equipment of the end of year 2001.

The implementation of the project shall improve substantially the road maintenance capacity by construction machinery and will consequently reduce the cost of road maintenance operation. Therefore, the SDR should provide this maintenance facility in order to strengthen the maintenance capacity.

(2) Training in the machinery maintenance

The road rehabilitation period is three years.

During this period, in order to keeping the machinery in good condition, the consultant plans that training be completely provided by manufacturers.

Training content will include the training in machine structure and function, daily and periodic maintenance, machine operation, and trouble shooting etc.

Therefore, it is necessary for SDR to provide the qualified mechanics and engineers for the training.

Timely execution of the periodic maintenance and the light repairs shall minimize requests for heavy repairs, which shall reduce the overall expenditure for repair, and extend the machine life.

APPENDICES

APPENDICES

- Appendix 1. Member List of the Survey Team**
- Appendix 2. Survey Schedule**
- Appendix 3. List of Party Concerned in Georgia**
- Appendix 4 Minutes of Discussion**
- Appendix 5 Cost Estimation Borne by the Georgian Side**

Appendix 1. Member List of the Survey Team

Mr. NAKANO Satoshi	Team Leader	Deputy Director, Grant Aid Management Dept., JICA
Mr. SHIMA Akira	Chief Consultant / Road Maintenance Planner	Construction Project Consultants, Inc.
Mr. KAMACHI Kazuhiko	Machinery Planner	Construction Project Consultants, Inc.
Mr. OKUBO Yasuhiro	Cost Estimator / Procurement Planner	Construction Project Consultants, Inc.
Ms. WATANABE Hiromi	Interpreter (Russian – Japanese)	Construction Project Consultants, Inc.

Japan International Cooperation Agency (JICA)

Shinjuku Maynds Tower Building
1-1, Yoyogi 2-chome, Shibuya-ku, Tokyo 151, Japan
Fax: (+81) 3-5352-5381
Phone: (+81) 3-5352-5515

Construction Project Consultants, Inc. (CPC)

YSK Bldg.
3-23-1, Takadanobaba, Shinjuku-ku, Tokyo 169-0075, Japan
Fax: (+81) 3-5337-4092
Phone: (+81) 3-5337-4062

Appendix 2. Survey Schedule

No.	Date	Schedule		Stay
		Mr. S. Nakano (Team Leader)	Mr. A. Shima (Chief Consultant) Mr. K. Kamachi (Machinery Planner) Mr. Y. Okubo (Cost Estimator/Procurement Planner) Ms. H. Watanabe (Interpreter)	
1	Jul. 2 (Sun)		Tokyo 10:55 → Moscow 16:00	Moscow
2	3 (Mon)		Courtesy Call to Embassy of Japan 11:00	Moscow
3	4 (Tue)		Moscow 10:00 (SU195) → Tbilisi 13:35	Tbilisi
4	5 (Wed)		Courtesy Call to Ministry of Foreign Affairs, Ministry of Transportation and SDR Discussion on the schedule, explanation and confirmation of Inception Report.	Tbilisi
5	6 (Thu)		Explanation and confirmation of Inception Report.	Tbilisi
6	7 (Fri)		"	Tbilisi
7	8 (Sat)		" and workshop	Tbilisi
8	9 (Sun)	→ Tbilisi 03:35 (SR3494)	Internal Meeting	Tbilisi
9	10 (Mon)	Coutesy Call to SDR, discussion with SDR and World Bank		Tbilisi
10	11 (Tue)	Discussion on the Minutes with SDR		Tbilisi
11	12 (Wed)	Discussion and Signing on the Minutes with SDR		Tbilisi
12	13 (Thu)	Tbilisi 10:25 (BA6722) → London 11:45、 19:45 (JL402) →	Survey on the road and Asphalt Plant (Tbilisi - Gori)	Tbilisi
13	14 (Fri)	Tokyo 15:20	Survey on the workshop	Tbilisi
14	15 (Sat)		Survey on the road condition and Workshop	Gori
15	16 (Sun)		Internal Meeting	Gori
16	17 (Mon)		Survey on the road condition & Workshop (Gori - Khashuri)	Khashuri
17	18 (Tue)		Survey on the road condition & Workshop (Khashuri - Kutaisi)	Kutaisi
18	19 (Wed)		Survey on the road condition & Workshop (Khashuri - Kutaisi)	Kutaisi
19	20 (Thu)		Survey on the road condition & Workshop, A. Plant (Kutaisi - Poti - Batumi)	Batumi
20	21 (Fri)		Survey on the Ports (Poti, Batumi)	Batumi
21	22 (Sat)		Survey on the road condition	
22	23 (Sun)		Internal Meeting	Tbilisi
23	24 (Mon)		Discussion with World Bank, EU-TACIS	Tbilisi
24	25 (Tue)		Survey of Distributor, private repair shop	Tbilisi
25	26 (Wed)		Survey of Distributor, private repair shop	Tbilisi
26	27 (Thu)		Survey of Distributor, private repair shop	Tbilisi
27	28 (Fri)		Final Meeting with SDR	Tbilisi
28	29 (Sat)		Final Meeting with SDR	Tbilisi
29	30 (Sun)		Tbilisi 04:55 (SR3495) → Zurich 06:15、 14:00 (SR168) →	
30	31 (Mon)		Tokyo 08:40	

Appendix3 . List of Party Concerned in Georgia

Georgian State Department of Roads

Name	Title
Boris SARALIDZE	Chairman
Tamaz SHAISHMELASHVILI	Vice-Chairman
Longinoz KORKIYA	Chief Director Road Construction and Rehabilitation Department
Gogi TSERETELI	Chief Director Road Maintenance Department
Shakro KHALVASHI	Chief Director Financial Department
Nugzar GASVIANI	Deputy Director Road Maintenance Department

Local Road Maintenance Office

Rezo CHAKHVASHVILI	President GZAMSHENI-4 Ltd
Grisya PEPEMLISHAVILI	Chief Engineer GZAMSHENI-4 Ltd
Iosiv MAKRAKHIDZE	Director GORI Road Maintenance Office
Armiko MARKIRIDZE	Chief Engineer for asphalt plant GORI Road Maintenance Office
Aleqsandre QADJAIA	Director No.26 road-remedial building controls
Lezo VARATSKHELI	Director POTI Road Maintenance Office
Irina PATSIYA	Chief Engineer POTI Road Maintenance Office
Beglar ABUSERIDZE	Director BATUMI Road Maintenance Office

Joint Stock Company "GRAALI92"

Akaki LOLUA	Board of Directors
Vladimir DZHEBIRASHVILI	Member of Board

Research Institute “Sakgzametsnierfba”

Name	Title
Tamaz SHIRAKADZE	General Director
Grami CHIKOGIDZE	Chief Engineer

Production Society “AJARAUROAD”

Murman DUNDUA	Chief
Nugzar MIKELADZE	Deputy Chief

Ministry of Foreign Affairs of Georgia

Tamara BERUCHASHVILI	Deputy Minister
Kakha KALMAKHELIDZE	Deputy Director Department of Coordination of International Aid
Joseph CHAKHVASHVILI	Acting Head of Department of Asia, Africa, Australia and Pacific Countries
David NOZADZE	3rd. Secretary Department of Asia, Australia and the Pacific Rim
Levan CHORGOLASHVILI	Second Secretary Diplomatic Protocol Department

Ministry of State Property Management Georgia

Merab GABUNIA	Deputy Minister
George TODUA	Chief Director Road Department

International Organization

Zurab JAVAKHISHVIRI	Project Officer The World Bank Resident Mission Georgia
George TSAGARELI	Director of The World Bank Group Transport Reform and Rehabilitation Center Georgia
Irakli GILAURO	Financial Analyst European Bank for Reconstruction and Development
Mark GRAILLE	Coordinator of TRACECA PROGRAMME EU-TASIS

Appendix 4 Minutes of Discussions

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY ON THE PROJECT FOR TRUNK ROUTE REHABILITATION IN GEORGIA

Based on the results of the Preparatory Study, the Government of Japan decided to conduct a Basic Design Study on the Project for Trunk Route Rehabilitation (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Georgia the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Satoshi Nakano, Deputy Director, Third Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from July 4, 2000 to July 29, 2000.

The Team held discussions with the officials concerned of the Government of Georgia and conducted a field survey at the study area.

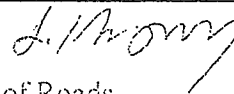
In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Tbilisi, July 12, 2000

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Satoshi Nakano
Leader
Basic Design Study Team
JICA

Boris Saralidze
Chairman
State Department of Roads
Georgia



ATTACHMENT

1. Objective of the Project

The objective of the Project is that the Trunk Route between Poti, Tbilisi and Azerbaijan border will be rehabilitated and properly maintained through consolidating construction machinery of the State Department of Roads of Georgia (hereinafter referred to as "SDR").

2. Project site

The Project site is shown in Annex 1 (After the proceeding study by the JICA's consultants, there might be some change about the Project site.)

However, the sectors of the Project site shall be avoided from any duplication with those of the Roads Project that will be implemented by the World Bank.

3. Responsible and Implementing Organization

The Responsible and Implementing Organization is the SDR. Its organization chart is shown in Annex-2.

The SDR itself will carry out the rehabilitation and maintenance work of the Project site, using the equipment procured under the Japan's Grant Aid (hereinafter referred to as "Equipment").

4. Items requested by the Government of Georgia

After discussions with the Team, the items of the Equipment described in Annex-3 were finally requested by the Georgian side (After the proceeding study by the consultants, there might be some change about the items.). JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

The Georgian side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Georgia as explained by the Team and described in Annex-4 and Annex-5, which were already included in the Minutes of Discussions dated February 17, 2000, signed by both sides.

6. Schedule of the Study

The consultants will proceed to further studies in Georgia until July 29, 2000.

JICA will prepare the draft report in English and its executive summary in Russian, and dispatch a mission in order to explain its contents around October 2000.

In case that the contents of the report are accepted in principle by the Government of Georgia, JICA will complete the final report and send it to the Government of Georgia by January 2001.

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7. Other Relevant Issues

7-1. Privatization of the Implementing Organization

The Georgian side confirmed that the SDR shall not be privatized based on the Georgian Law, i.e. Article 4 of the State Property Privatization Law. The Equipment will belong to the SDR and also be maintained by the SDR as state property. Its leasing and/or transfer to other organizations/companies shall not be allowed from the viewpoint of "Proper Use".

7-2. Maintenance and Operation of the Equipment

The Georgian side confirmed that the SDR shall allocate all the necessary budget as well as personnel for executing the Project, not limited to the maintenance and operation cost of the Equipment.

The Equipment will be disposed at the SDR controlled road maintenance center located at Tbilisi, and the SDR shall renovate the facilities of the center before the arrival of the Equipment to Georgia, purchasing tools necessary for daily inspection and periodic maintenance by the SDR's own budget.

Also, the Equipment will be used only for the purpose of executing the Project (not for the World Bank's Project).

7-3. Necessity of Technical Cooperation

For the sake of technology transfer on sustainable maintenance and operation, the Team confirmed that the engineers from the manufacturing companies of the Equipment will be dispatched to Georgia when delivered and the technical training of counterpart personnel will also be held in Japan, which expenses will be owned by the Japanese side.

7-4. Tax Exemption

The Georgian side confirmed that the SDR should take all the necessary measures necessary for tax exemption and customs clearance.

7-5. Internal Transportation

The Georgian side confirmed that the SDR shall bear all the costs for internal transportation of the Equipment from the port of disembarkation to the center.

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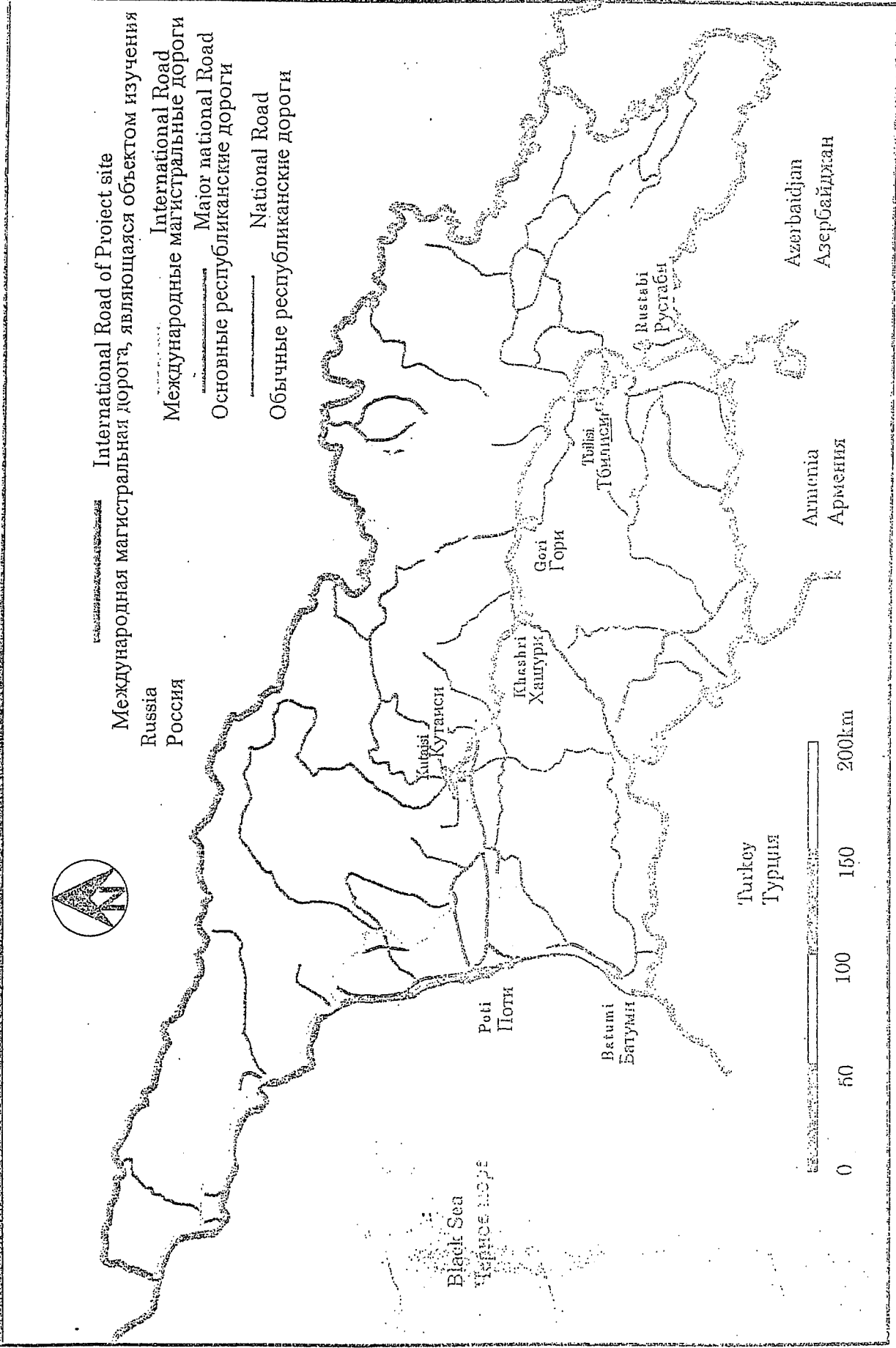


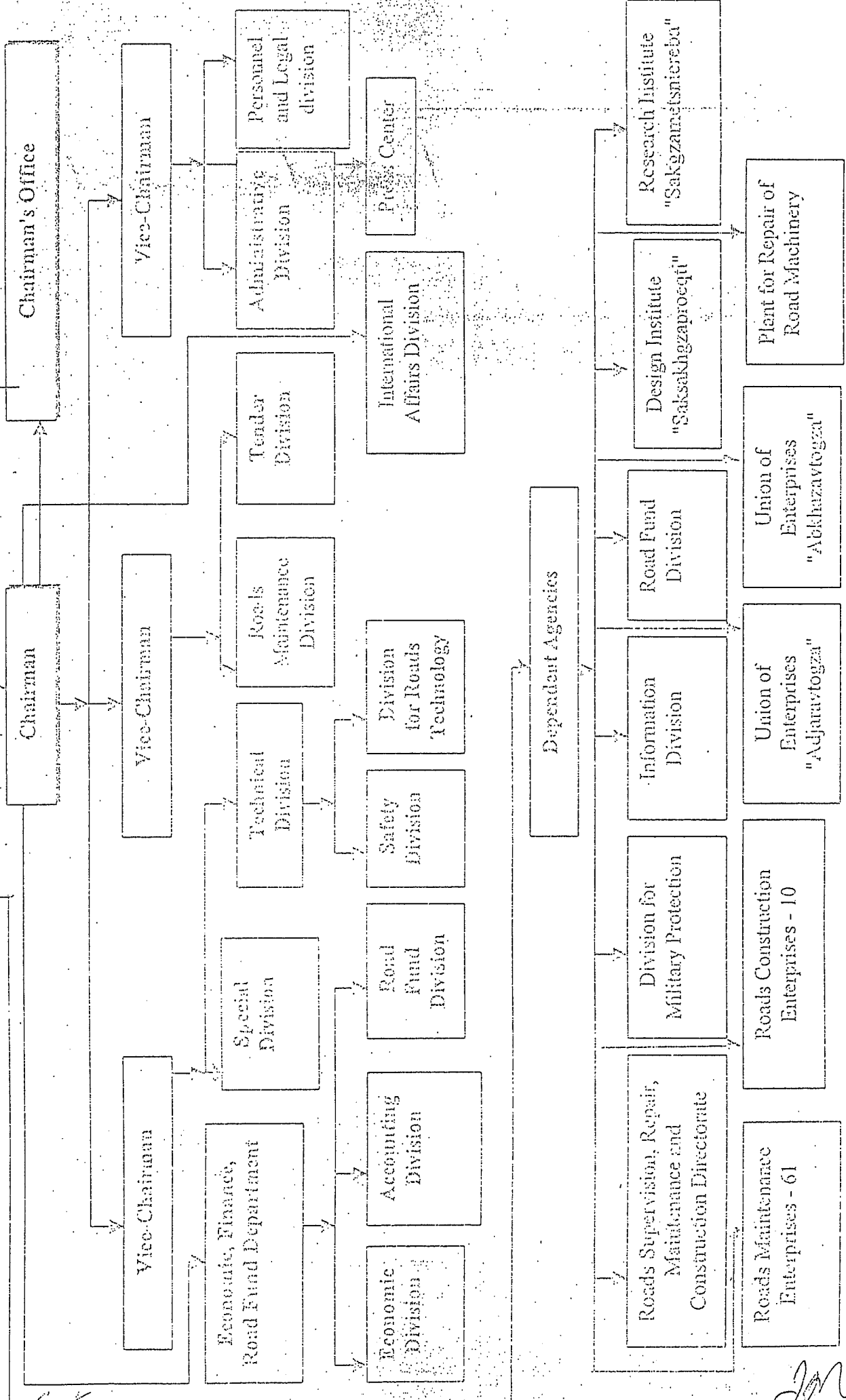
Fig. Area Map of the Project site
Карта дорог региона изучения

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State Chancellery of Georgia

State Department of Roads of Georgia



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Equipment List for Road Maintenance in Georgia

Items	Specification	Q'ty
1. Bulldozer	230 h/p	1
2. Motor Grader	W = 3.7 m class	4
3. Wheel Loader	2.0 m ³	4
4. Vibration Roller	10 ton class	2
5. Tire Roller	10 ton class	2
6. Asphalt Finisher	W = 2.5 - 4.5 m class	1
7. Off Road Car	4 WD	4
Total		18

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Japan's Grant Aid

1. Grant Aid Procedures

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

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and approval by the 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.
- (3) Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).
- (4) Thirdly, the Government of Japan appraises the Project to see whether or not it is suitable for Japan's Grant Aid scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.
- (5) 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.
- (6) Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

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2. Basic Design Study

(1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter 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 the agencies concerned in 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 of a basic design of the Project,
- 5) Estimation of costs of the Project.

The contents of the original requests are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed following 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 the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is to be 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 uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on the 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.

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The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to 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 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 the Grant Aid" means the one Japanese fiscal year that the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultanting 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 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 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.)

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(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) Undertakings 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 the 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 the case of installation of the equipment.
- 4) To ensure all the expenses for and prompt execution of unloading, customs clearance at the port of disembarkation and inland transportation of the goods 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 Contract.
- 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 expenses other than those covered by the Grant Aid.

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8) "Re-export"

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

9) Banking Arrangement (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 a 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 of 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 (A/P) issued by the Government of the recipient country or its designated authority.

10) To bear an advising commission of an Authorization to Pay (A/P) and payment commissions to the Bank, with which the Government of the recipient country opens an account for the Project.

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Major Undertakings to be Taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Country
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		☉
	2) Payment commission		☉
2	To ensure prompt unloading and customs clearance at port of disembarkation in the Recipient Country.		
	1) Marine (Air) transportation of the products from Japan or third country to the Recipient Country.	☉	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		☉
	3) Internal transportation from the place of disembarkation to the project site		☉
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the Recipient Country and stay therein for the performance of their work.		☉
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient Country with respect to the supply of the products and services under the verified contracts.		☉
5	To maintain and use properly and effectively the equipment provided under the Grant Aid.		☉
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment including the operation and maintenance costs.		☉

(B/A: Banking Arrangement, A/P: Authorization to Pay)

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MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY
ON THE PROJECT FOR TRUNK ROUTE REHABILITATION
IN GEORGIA
(Explanation on Draft Report)

In July 2000, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Trunk Route Rehabilitation (hereinafter referred to as "the Project") to Georgia, and through discussion with the Georgian side, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

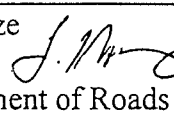
In order to explain and to consult the Georgian side on the components of the draft report, JICA sent to Georgia the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed Mr. Tomoyuki Naito, staff, Third Project Management Division, Grant Aid Management Department, JICA, from October 22 to October 29, 2000.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Tbilisi, October 25, 2000.



Tomoyuki Naito
Leader
Basic Design Study Team
Japan International Cooperation Agency



Boris Saralidze
Chairman
State Department of Roads
Georgia

ATTACHMENT

1. Components of the Draft Report

The Georgian side agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

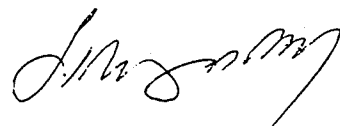
The Georgian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by Georgia as explained by the Team and described in Annex-4 and Annex-5 of the Minutes of Discussions signed by both parties on July 12, 2000.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed item and send it to Georgia by the end of January 2001.

4. Other relevant issues

- (1) Both sides confirmed that the SDR should bear all the costs for internal transportation of the Equipment from the port of disembarkation to the center.
- (2) The Georgian side will ensure the tax exemption including VAT according to the procurement schedule presented by the Team.
- (3) The Georgian side will allocate the budget for the implementation of the trunk road rehabilitation in conformity with the overall schedule which was suggested by the Team.
- (4) The Georgian side will take necessary measures for the safety and security of the Project in order to secure smooth implementation of the Project.
- (5) The team confirmed that the specification of bulldozer should be only more than 220 horsepower based on the Georgian side's request.
- (6) Both sides confirmed and agreed that the equipment and material procured under the Project will be maintained as state property by SDR, and will not be either leased or transfer to other organization/companies.



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Appendix 5. Cost Estimation Born by the Georgian Side

Project cost related to the Transportation of equipment and preparation of machine and tools for the maintenance of equipment is about 172,400 Lari. It will be born by the Georgian State Department of Roads (SDR) that has responsibility implementing the Project.

The detail of the cost is as follows.

(1) Transportation

Transportation of equipment from Poti to Tbilisi will be done by SDR on their response. Transportation cost of equipment is 28,400 Lari that was estimated by the local transportation trader in Tbilisi.

(2) Machine and tools for the maintenance of equipment

SDR does not have enough machine and tools for the maintenance of equipment in the Workshop at Tbilisi. SDR will get budget for these machine and tools on year 2002 2003. And SDR will prepare enough machine and tools for the maintenance of equipment until end of 2003. Total cost for these machine and tools is estimated about 144,000 Lari.

Table1 Machine and tool for the maintenance

unit : Lari

Year	Name	Unit cost	Qty	Cost
2002	Tool set for mechanic	6,500	4	26,000
	Lifting devices	6,300	1	6,300
	Parts washer	4,800	1	4,800
	Jet washer for the equipment	18,500	1	18,500
	Work table with vise	2,000	4	8,000
	Air impact wrench	1,800	4	7,200
	Gas welder set	5,600	2	11,200
	Supports	4,000	2	8,000
Sub total				90,000
2003	Hydraulic press	28,000	1	28,000
	Service press	9,000	1	9,000
	Hydraulic pressure gauge	6,600	1	6,600
	Vertical Drill	5,600	1	5,600
	Compressor	4,800	1	4,800
Sub total				54,000
Grand total				144,000