STUDY REPORT ON

THE PROJECT FOR DISPOSITION OF THE PAVEMENT MAINTENANCE EQUIPMENT FOR TRUNK ROADS

THE UNITED REPUBLIC OF TANZANIA

February 1996



Japan International Cooperation Agency (JICA)

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STUDY REPORT

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THE PROJECT FOR DISPOSITION OF THE PAVEMENT MAINTENANCE EQUIPMENT FOR TRUNK ROADS

IN

THE UNITED REPUBLIC OF TANZANIA

FEBRUARY 1996

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

PREFACE

In response to a request from the Government of the United Republic of Tanzania, the Government of Japan decided to conduct a basic design study on the Project for Disposition of Pavement Maintenance Equipment for Trunk Roads and entrusted the Japan International Cooperation Agency (JICA) to conduct the study with the assistance of the Japan International Cooperation System (JICS).

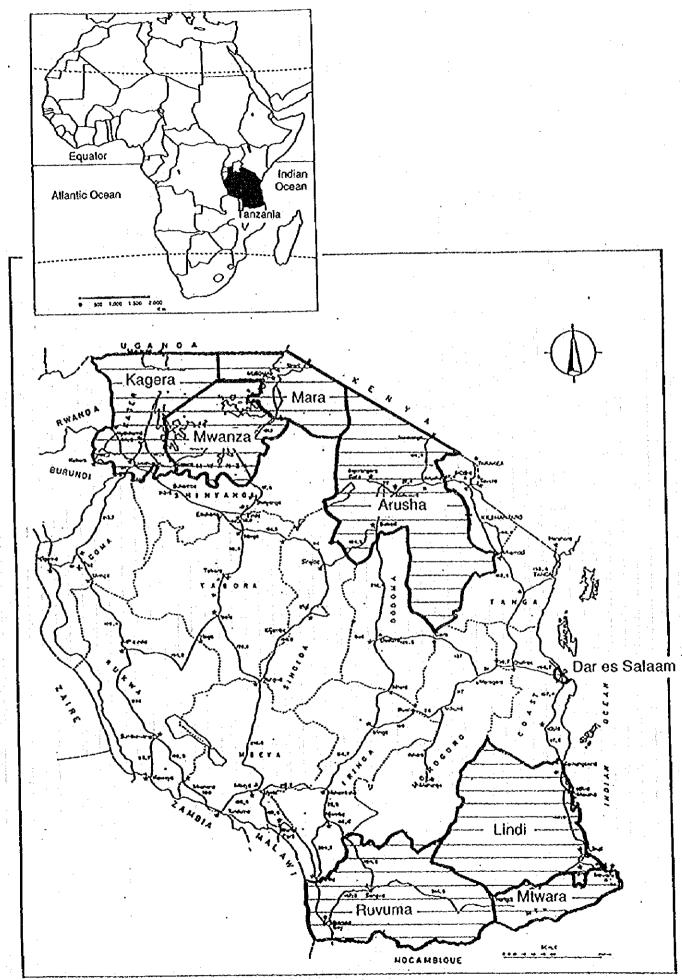
I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the United Republic of Tanzania for their close cooperation extended to the study.

February 1996

Kimio Fujita President

Japan International Cooperation Agency



LOCATION MAP

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Chapter 1 Background of the Project

The United Republic of Tanzania established Economic Recovery Program I (ERP I, 1987 to 1989) and Economic Recovery Program II (ERP II, 1989 to 1992), being supported by the World Bank and IMF, to recover and further develop their economy. The country has a large national land area of 945,000 km2 (about 2.5 times that of Japan), and in addition the people live densely in the periphery of the land. So, rehabilitating and maintaining the road network for enhancing the transport capacity is a very important problem for economic development. However, since the investment and maintenance of roads have not been sufficient since its independence, the roads are heavily damaged, as a large cause for inhibiting the promotion of the ERP.

In order to rehabilitate and maintain the domestic road network, Integrated Roads Project (IRP) has been established, to stepwise promote the rehabilitation of existing trunk roads and the rehabilitation and maintenance of major local roads.

The objective of the IRP is to restore the function of the network of trunk roads and local roads, and at the same time, it is also intended to improve the governmental administrative organization necessary for administration of the road network. The construction, rehabilitation and maintenance of roads have been directly conducted by the Ministry of Works, Communications and Transportation (MOWCT). It is now intended to commission private constructors to execute construction work, and to reorganize the MOWCT so that they function only as an administrative office to be engaged in the contracts and management of construction, for simplification and efficiency enhancement of the administrative

organization and for promotion of private constructors.

The adoption of contractors for construction and the privatization of construction equipment management and operation as concrete measures for the above policy are actually promoted through the increase of contracts of construction and the establishment of Plant Equipment Hire Co., Ltd. (PEHCOL). However, it is firmly recognized that the routine maintenance of pavements should be performed directly by respective Regional Engineer's Offices (REOs) using their own large equipment, since such maintenance is small in construction scale and does not require heavy equipment or large motor vehicles, making it difficult to rely on private contractors alone for road maintenance.

In this situation, the Tanzanian government requested the Government of Japan to provide a grant aid for stationing relatively small (5 tons or less in carrying capacity) routine pavement maintenance equipment, not owned by PEHCOL, at 16 REOs for successful accomplishment of the TRP. Of it, the aid for 8 offices with higher priority was granted in FY 1993, and the aid for the remaining 8 offices is going to be covered under the present project.

Chapter 2 Contents of the Project

2-1 Objectives of the Project

The road development of Tanzania has been being promoted according to the IRP for stepwise promoting the rehabilitation of existing trunk roads and the rehabilitation and maintenance of local major roads, since the establishment of the Economic Recovery Program I (ERPI for 1987 to 1989) in 1986 under the support of the World Bank and IMF.

adoption of contractors for construction and privatization of construction equipment management as concrete measures for the above policy are actually promoted through the increase of contracts of construction work and the establishment of PEHCOL. However, it is firmly recognized that the routine maintenance of pavements should be performed directly by respective REOs using their own large equipment, since such maintenance is small in construction scale and does not require heavy equipment or large motor vehicles, making it difficult to rely on private contractors alone for road maintenance. The object of the present project is to supply relatively small (5 tons or less in carrying capacity) appropriate routine pavement maintenance equipment, not owned by PEHCOL, to the 8 REOs listed in Table 1, for successful accomplishment of the IRP, after confirming the utilization conditions of the maintenance equipment supplied in FY 1993 to Tanga and Kilimanjaro REOs.

Table 1 Pavement rates of major trunk roads of 8 REOs

REO name	Pavement length (km)	Pavement rate (%)	
Arusha	262	49	
Dar es Salaam	256	100	
(DSM City only	148	100)	
Mwanza	159	40	
Mara	86	23	
Kagera	175	25	
Lindi	158	41	
Mtwara	103	48	
Ruvuma	312	33	

2-2 Basic Concept of the Project

Specific items of equipment to be selected should be examined, based on the equipment required for the working process necessary for routine rehabilitation work, and considering the utilization conditions of the previously supplied equipment, the situations peculiar to respective REOs, presently owned equipment, the equality among respective REOs desired to be maintained by the Tanzanian government, etc.

The flow of working process required for the routine maintenance and rehabilitation of pavements, and necessary equipment are shown in Table 2 and Fig. 1.

However, as described before, the REOs to be covered under the present project own only motor vehicles for transport of workers, and do not own the equipment necessary for the working process of pavement rehabilitation shown above, since manual work only is adopted. Therefore, to improve the present unsatisfactory working

preparedness and to carry out the required routine pavement maintenance and rehabilitation work, all the equipment listed in Table 2 are required to be supplied.

As a result of the above examination, the basic concept of the present project is to provide the equipment necessary for pavement maintenance and rehabilitation of trunk roads to 8 REOs, excluding 8 REOs already supplied with equipment under the "Project for the Improvement of the Pavement Maintenance Equipment for Trunk Roads" in FY 1993 and 4 REOs very short in pavement length, out of 20 REOs throughout the country.

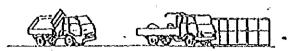
Table 2 Flow of working process and necessary equipment

	Flow of working process	Necessary equipment
1.	Transportation of equipment and workers	Cargo Truck, Cargo Truck with Crane, Dump Truck, Step Bridge
2.	Security of safety zone	Tools for Traffic Control
3.	Destruction of paved surface at the place to be repaired	Hydraulic Excavator, Air Compressor, Hand Braker, Pick Hammer
4.	Covering with pavement material	Asphalt Burner
5.	Compaction, spraying	Hand Roller, Plate Compactor, Asphalt Sprayer
6,	Repair of appurtenant structures (concrete structures)	Concrete Mixer, Concrete Vibrator
7	Cleaning of channels, water supply, drainage	Water Pump
8.	Auxiliary equipment	Generator, Electric Welder, Maintenance Tools, Storage Container Stone Crusher

1. Transportation of equipment and workers

Necessary Equipment

Cargo Truck
Cargo Truck with Crane
Dump Truck
Step Bridge



2. Security of safety zone

Necessary Equipment

Tools for Traffic Control



3. Destruction of paved surface at the place to be repaired

Necessary Equipment

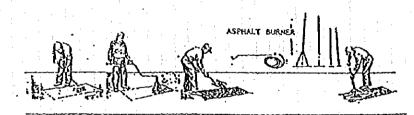
Hydraulic Excavator
Air Compressor
Hand Braker
Pick Hammer



4. Covering with pavement material

Necessary Equipment

Asphalt Burner (Stone Crusher)



5. Compaction, spraying

Necessary Equipment

Asphalt Sprayer Hand Roller Plate Compactor

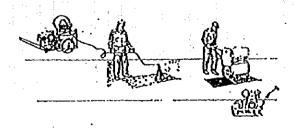


Figure 1 Flow of working process and necessary equipment

2-3 Basic Design

2-3-1 Design Concept

The equipment supplied under the present project are not for the purpose of implementing any specific construction project, but for the purpose of enhancing the working capacity of maintenance and rehabilitation conventionally manually carried out. Therefore, the specific items of equipment have been selected in reference to the list of previously supplied equipment and based on the working process established for the routine maintenance and rehabilitation of pavements, under the following policies.

1) Policy for natural conditions

The REOs to be covered are located in a range from the coastal area in the tropical climate zone to a cool inland area at an elevation of about 1,000 m, but the pavement maintenance equipment planned to be introduced can be of standard specifications.

2) Policy for maintenance of equipment by the competent offices

The maintenance of equipment is basically carried out by the respective competent REOs. In the 8 REOs similarly supplied with equipment under the "Project for the Improvement of the Pavement Maintenance Equipment for Trunk Roads" in FY 1993 from Japan, it was confirmed that the supplied equipment are well maintained and effectively utilized. So, it can be considered that there will be no problem either with the maintenance of the equipment to be supplied under the present project.

3) Policy for selection of equipment

The utilization conditions of equipment in the REOs supplied

with the equipment in FY 1993, the equality among the respective REOs, etc. should be taken into account.

Furthermore, for the REOs which do not own any equipment for stone production, it has been decided to additionally supply stone crushers to produce the stones necessary for repair of paved surface to be easily obtained at working sites.

4) Policy for the term of works

The respective REOs desire earlier arrival of the equipment, and plan to use all of the equipment in combination for maintaining and rehabilitating pavements. Therefore, all the equipment should be delivered early and simultaneously.

2-3-2 Basic Design

Based on the utilization conditions of the previously supplied equipment and the results of site survey of the 8 REOs to be covered under the present project, the requested contents have been examined to decide the items of equipment to be supplied.

(1) Present situations of 8 REOs

The situations of the respective REOs are as follows:

a. Arusha REO

The total length of pavements is 262 km, and at present, the pavement construction work according to the IRP is under way. The region is dotted with natural parks, and pavements are used by many motor vehicles for tourists and heavily damaged. So, there are many places required to be rehabilitated and maintained. As for the fund for maintenance, at present, routine maintenance

including rehabilitation is performed with the cooperation of GTZ. The presently owned equipment for rehabilitation are mostly for manual work, and mechanical equipment for rehabilitation are needed. Since there is no stone production equipment in this region, stones for construction are transported from another region. So, a stone crusher is additionally necessary.

b. Mwanza REO

The total length of pavements is 159 km. Mwanza is the third largest city in Tanzania, and only the urban area is paved. However, equipment for road rehabilitation are not sufficiently provided. At present, under the budget of IDA, new pavement construction work is being executed toward local areas according to the IRP.

c. Mara REO

The total length of pavements is 86 km. The pavements are damaged with many holes, and required to be rehabilitated at many places. At present, equipment for routine rehabilitation are not sufficiently provided. Furthermore, since there is no stone production equipment in this region, stones for construction are transported from another region. So, a sotone crusher is additionally necessary.

d. Kagera REO

The total length of pavements is 175 km. Pavement construction work is now being carried out at many places, and the sections requiring rehabilitation and maintenance are increasing. At present, equipment for routine rehabilitation are not sufficiently

provided. Furthermore, since there is no stone production equipment in this region, stones for construction are transported from another region. So, a sotone crusher is additionally necessary.

e. Lindi REO

The total length of pavements is 158 km. Pavement construction work is now being carried out at many places, and the traffic volume is increasing in relation with the market opening of Mozambique. So, the sections requiring rehabilitation and maintenance are increasing. At present, equipment for routine rehabilitation are not sufficiently provided. Furthermore, since there is no stone production equipment in this region, stones for construction are transported from another region. So, a stone crusher is additionally necessary.

f. Mtwara REO

The total length of pavements is 103 km. Pavement construction work according to the IRP is now being carried out at many places, and the traffic volume is increasing in relation with the market opening of Mozambique. So, the sections requiring rehabilitation and maintenance are increasing. At present, equipment for routine rehabilitation are not sufficiently provided. Furthermore, since there is no stone production equipment in this region, stones for construction are transported from another region. So, a stone crusher is additionally necessary.

g. Ruvuma REO

The total length of pavements is 312 km. Pavement construction

work is now being carried out at many places, and the traffic volume is increasing in relation with the market opening of Mozambique. So, the sections requiring rehabilitation and maintenance are increasing. At present, equipment for routine rehabilitation are not sufficiently provided. Furthermore, since there is no stone production equipment in this region, stones for construction are transported from another region. So, a stone crusher is additionally necessary.

h. Dar es Salaam REO

The total length of pavements is 256 km (including 148 km maintained in the metropolitan area), and the pavement rate is 100%. The REO which also maintains the busily used pavements in the metropolis maintains the pavements jointly with the road department of Dar es Salaam Municipal Office. However, the roads are heavily damaged, and the situation that the rehabilitation and maintenance activities do not catch up with the increasing damage continues chronically. All the presently available equipment for rehabilitation are hired from Dar es Salaam Municipal Office.

(2) Examination of requested contents

Based on the individual discussions with the 8 REOs, and official requests from them, the MOWCT revised an equipment procurement list, considering equality and we basically agreed with the MOWCT to supply the equipment listed in Table 3. As a result of discussion, it is necessary to bear in mind the following ten conditions:

¹⁾ Dump trucks should be of 4 tons only.

- 2) For installing the widely rotating light on each motor vehicle, sufficient care should be exercised lest the body should be cracked. To elevate the minimum ground clearance in preparation for running on poorly conditioned roads, the tire size should be larger than the standard size.
- 3) An asphalt cutter is heavily worn at the blade and requires frequent exchange of the blade. Furthermore, replacement blades are difficult to obtain locally. So, the conventional practice of manual work should be adopted, and the asphalt cutter should be excluded from the supply list.
- 4) Since such pavement tools as rakes and shovels are general tools locally easily available, they should be procured by the Tanzanian government and should be excluded from the supply list.
- 5) The service tools should be those for heavy machines, and furthermore, jacks and oiling and greasing tools should also be added, for effective routine maintenance of the supplied equipment.
- 6) For safety appliances, the following addition and change should be made in response to the demand of the Tanzanian side.

 Appliances to be added: Line markers, safety helmets and safety vests

Appliances to be changed: Color cones are rejected in view of strength and durability, and safety cones (made of rubber) only should be supplied.

- 7) For the 6 REOs without any stone production equipment in the respective regions, crushers should be added.
- 8) As barricades, reflectors only should be supplied, and the stands should be manufactured by the respective REOs, since they can be locally easily manufactured.
- 9) Spare parts should not include tires and other parts which can be locally easily procured, and should include maintenance parts and functional parts.
- 10) For delivery, parts and small equipment should be gathered for each REO and collectively contained in a storage container to be procured under the present Project

Table 3 Equipment planned to be procured (for each REO)

No.	Equipment name	Specifications	Q'ty	Purpose of Use
1	Cargo Truck	4 tons with crane	1	Transportation of equipment
2	Cargo Truck	Double cabin, 1 ton	2	Transportation of equipment
3	Dump Truck	4 tons	1	Transportation of earth and aggregate
4	Hydraulic Excavator	Bucket capacity 0.1m3	1	Excavation of pavement surface
5	Air Compressor	2.5m3/min	1	Air supply to breaker, etc.
6	Hand Braker	30kg	2	Removal of asphalt
7	Pick Hammer	8kg	2	Removal of asphalt
8	Asphalt Burner	Kerosene, 80mm	1	Warming of asphalt road surface
9	Asphalt Sprayer	Kerosene, 3.4HP	1	Asphalt spraying
10	Hand Roller	0.7ton, 6HP	1	Compaction of road surface
11	Plate Compactor	75kg, 2.6HP	1	Compaction of road surface
12	Concrete Mixer	5HP, 0.1m3	1	Concrete mixing
13	Concrete Vibrator	5HP, 28mm	2	Concrete injection
14	Water Pump	3.8HP, 50mm	2	Disposal of overflowing water
15	Step Bridge	3.7m × 0.5m	1	Loading and unloading of equipment and materials
16	Generator	12.5kVA	1	Power supply to welding machines
17	Electric Welder	8.3kVA	1	Welding
18	Maintenance Tools	Jack, etc.	1 set	Maintenance
19	Tools for Traffic Control	Reflectors, safety cones, cables, etc.	1 set	working safety
20	Storage Container	4.5m	1	Storage of equipment
21	Stoner Crusher*	Crushing capacity 5 tons/h	1	Aggregate production

^{*:} To be supplied to 6 REOs out of 8 REOs

Chapter 3 Implementation Plan

3-1 Implementation Plan

This project will be implemented after the Exchange of Notes (E/N) is concluded between the Government of Japan and the Government of Tanzania based on a decision in a cabinet meeting of the Government of Japan. Therefore, the project will be designed after conclusion of the E/N.

3-1-1 Implementation Schedule

The implementation schedule is shown in Figure 2.

Detailed Design Preparation for Tendering (5 months)

Tendering, Evaluation and Supply Contract

Manufacturing & Procurement (7 months)

Procurement (7 months)

Figure 2 Implementation schedule

3-1-2 Obligations of Recipient Country

Obligations of the recipient country in the implementation of the grant aid are as follows:

- a. Quick unloading and customs clearance of procured equipment
- b. Exemption of procured goods and procurement services from customs duties and domestic taxes
- c. Providing conveniences to Japanese staff concerned with this project for their entry into and residence in the recipient country
- d. Bearing the other necessary expenses than those granted under this project
- e. Attendance of counterparts
- f. Adequate maintenance and utilization of supplied equipment
- g. Conclusion of Banking Arrangement
- h. Security of operating expense and staff
- i. Expenses for customs clearance, bonded warehouse, and domestic transportation to the respective REOs

3-2 Operation and Maintenance Plan

The budgetary allocation of operation and maintenance expense for trunk roads and local roads to the respective REOs in FY 1994 and 1995 are as shown in Table 4.

Since the operation of equipment increased by the implementation of the present project is covered by existing workers, the personnel cost for additional works, etc. does not arise, and the operation and maintenance cost for the equipment is mainly fuel and oil & grease expenses. The fuel and oil & grease expenses required for operation based on the operation results of

the equipment supplied in FY 1993 and the future operation plan are anticipated to be about 7,280,000 Tanzanian shillings per REO.

Table 4 Road operation and maintenance budget in FY 1994 and 1995
Unit: One million Tanzanian shillings

and the second s	Routine oper maintenance		Periodical of and maintena		Total
•	Trunk roads	Rural roads	Trunk roads	Rural roads	
Arusha	90	121	230	170	611
Coast	75	125	70	275	545
DSM*	570	102	0	814	1,486
Dodoma	87	104	0	130	321
Iringa	128	130	0	o	258
Kagera	105	143	0	70	318
Kigoma	75	148	125	80	428
Kilimanjaro	93	213	0	67	373
Lindi	85	165	320	0.	570
Mara	85	123	0	83	291
Mbeya	147	191	155	251	744
Morogoro	248	277	O	72	597
Mtwara	79	120	200	145	544
Mwanza	110	176	, c	153	439
Rukwa	108	129	C	130	367
Ruvuma	109	118	270	124	621
Shinyanga	95	121	35	0	251
Shingida	84	140) (195	419
Tabora	82	180	85	175	522
Tanga	208	120	100	235	669
Total	2,663	2,95	1,590	3,168	10,37

Source: 1995 MOWCT

1\$: 634 Tanzanian shillings = Yen 94.0

^{*} Not including the metropolitan area

Chapter 4 Project Evaluation and Recommendation

4-1 Project Effects

1) Verification of warranty

The present project will contribute to more efficient maintenance and rehabilitation activities for trunk roads performed according to the presently promoted IRP and will be a part of the road rehabilitation and maintenance plans of the national level. Since small-scale road rehabilitation equipment are used, the rehabilitation of roads can be carried out efficiently at low cost, and since the respective REOs have their own equipment, roads can be flexibly and quickly rehabilitated even if the rehabilitation work is so small in scale as to make a contract with a private constructor difficult.

Since small-scale road rehabilitation work is carried out over the total pavement length of 1,511 km of the REOs covered under the present project, the roads will be more effectively maintained and rehabilitated, and this is expected to allow the increase of running motor vehicles and the shortening of physical distribution time, thereby decreasing the physical distribution cost, favorably affecting regional development, and improving people's livelihood. So, it can be confirmed that the implementation of the grant aid is warranted.

It could be confirmed in the recent survey, that the 8 REOs supplied with equipment before have effectively utilized the supplied equipment, and that the road conditions have been remarkably improved.

2) Beneficial effects

The implementation of the present project is expected to give the following effects.

[Benefited region and benefited population]

About 2,880,000 inhabitants near the roads to be covered by the present project will be directly benefited, and all the inhabitants of Tanzania will be indirectly benefited.

[Direct effects]

The use of small-scale road rehabilitation equipment will allow roads to be rehabilitated efficiently at low cost. Furthermore, since the respective REOs own their own equipment, small-scale rehabilitation of roads unsuitable for contracted work can be carried out quickly, to contribute to the decrease of the social and economic losses attributable to damaged roads, such as traffic accidents, motor vehicle damage, and running time loss.

[Indirect effects]

Since the maintenance and rehabilitation efficiency for trunk roads now being maintained and rehabilitated under the presently promoted the IRP is greatly enhanced, the road function will be maintained as planned, for contribution to the activation of long-term economic activities.

4-2 Recommendation

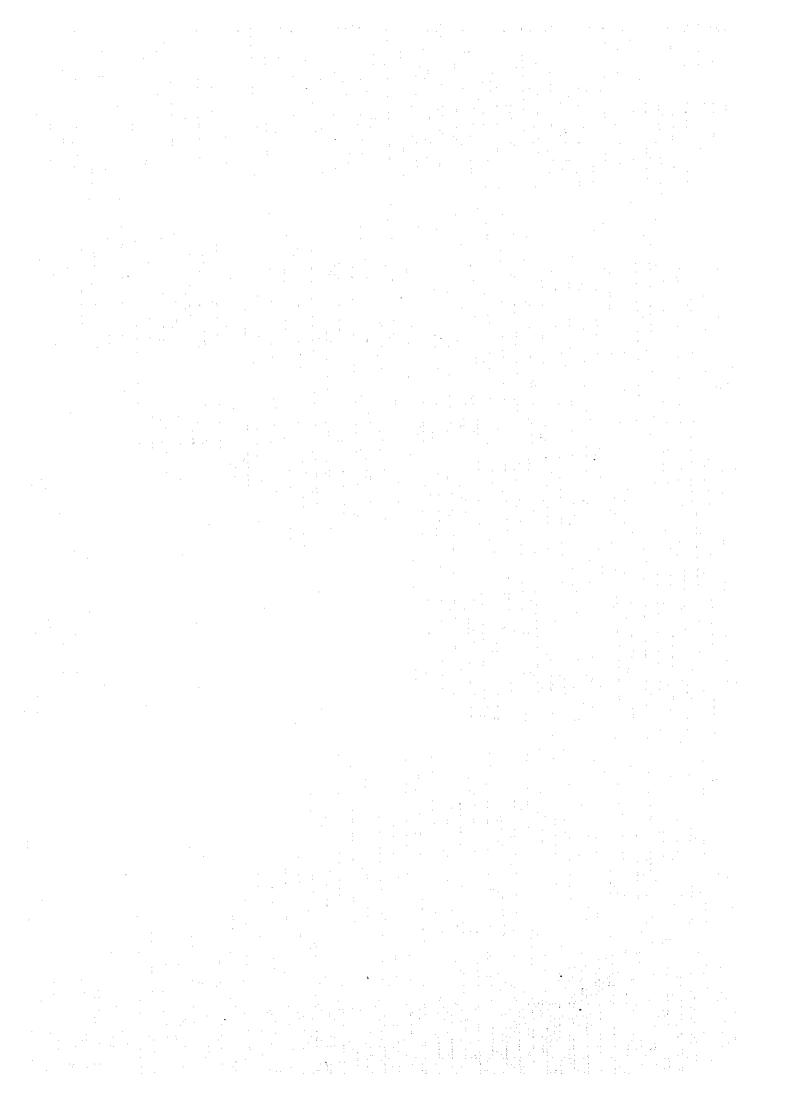
Since the present project is expected to give enormous effects as described above, and to contribute to the improvement of basic human needs of the inhabitants in general, it can be confirmed that the implementation of the present project under a grant aid is

warranted. In view of operation and management, the preparedness of the recipient country is considered to be insufficient both in staff and fund. However, if the following recommendations are respected, the present project will be more smoothly and effectively implemented.

- 1) Smooth implementation of the project is desired through quick customs clearance and transport of the supplied equipment.
- 2) Since equipment are supplied additionally to 8 REOs, to increase the quantity of equipment, the maintenance and training will be more important. Though there is no problem with the present staff in operation ability, it is desired to provide technical cooperation including the dispatch of an expert for further enhancing the ability and effects.

Appendices

- 1. Member List of the Survey Team
- 2. Survey Schedule
- 3. List of Party Concerned in the Recipient Country
- 4. Minutes of Discussion
- 5. References



1. Member List of the Survey Team

(1) Mr. Yoshikazu ITO Road Construction

Planning

Japan International Cooperation System

②Mr. Junji IKENAGA

Equipment Procurement

& Planning

Japan International Cooperation System

2. Survey Schedule

design and the second	Survey Schedule			Dlaga ba Chau
No.			Itinerary	Place to Stay
1	95/10/3	Tue	Tokyo → Zurich	Zurich
2	95/10/4	Wed	Zurich	On the Plane
3	95/10/5	Thu	→ Dar es Salaam (DSM)	
			Courtesy Call on Embassy of Japan	DSM
			Courtesy Call on JICA	
4	95/10/6	Fri	Courtesy Call on MOWCT	DSM
5	95/10/7	Sat	Site Survey (DSM Work Shop)	DSM
6	95/10/8	Sun	Roads Survey (DSM → Arusha)	Arusha
7	95/10/9	Mon	Site Survey (Arusha, Moshi REO)	Tanga
8	95/10/10	Tue	Site Survey (Tanga REO)	DSM
			Roads Survey (Tanga → DSM)	
9	95/10/11	Wed	DSM -> Mwanza	Mwanza
		٠	Site Survey (Mwanza REO)	_
10	95/10/12	Thu	Site Survey (Mara REO)	Mwanza
11	95/10/13	Fri	Roads Survey (Mwanza → Bukoba)	Bukoba
	· · · · · · · · · · · · · · · · · · ·		Site Survey (Kagera REO)	Mwanza
13	95/10/15	Sun	Site Survey (Mwanza REO)	DSM
			Mwanza → DSM	
14	95/10/16	Mon	Courtesy Call on Ministry of Finance	
		į	Courtesy Call on Planning Commission	1
. :			Visit on PEHCOL	
15	95/10/17	Tue	Discussion with Lindi, Mtwara and	
			Ruvuma REO	DSM
			Visit on World Bank	
16	95/10/18	Wed	Visit on MECCO	DSM
		· ·	Discussion with MOWCT	DSM
1			Market Research	
1.8	95/10/20	Fri	Market Research	DSM
-		·}	Market Research	DSM
20			Internal Discussion	DSM
21	·	· 		DSM
22			Report to Embassy of Japan and JICA	DSM
	95/10/25	- }		London
ļ	95/10/26	· <u>!</u> ———		On the Plane
	95/10/27	. <u>. </u>		-
[2]	1 33, 10, 27	1	I vy	

3. List of Party Concerned in the Recipient Country

1 Ministry of Works, Communications and Transport

1) Headquarters

Dr. George MLINWA

Mr. H. G.URIO Mr. A.S. MPORE

Mr. Peter P. C.KOMGA

Mr. F. T. MARUMO Mr. J. L. NG UMBULU

Mr.J.NDYAMUK AMA

Mr.C.M.MAMBOZE

Mr. M. IYOMBE

Mr. A.P. SENKORO

Principal Secretary

Director, Roads and Aerodromes

Director, Mechanical & Electrical

Chief Engineer, Rural Roads (Ag. Director of

Roads)

Chief Engineer, Programm

Chief Engineer, Trunk Roads

Senior Engineer, Trunk Roads

Maintenance Management Engineer, Trunk Roads

Maintenance Management Engineer

Excutive Engineers under Director of Mechanical

2) DAR ES SALAAM REO

Mr. THOMUS L. V. MOSO

Mr. SUNGURA

Mr. P. M. MK UDE

Mr. P. A. LISHELLA

Regional Engineer

Trunk Roads Engineer

Mechanical Engineer

Assistant Mechanical Engineer

3) ARUSHA REO

Mr. HARID Y. L. KIJANGWA

Mr. MBOKI

Mr.J.LWIZA

Mr. L. M.E. CHIMAGUL

Mr. ACHIM HOPP

Regional Engineer

Trunk Roads Engineer

Planning Engineer

Acting Rural Roads Engineer

TEAM LEADER/ADVISOR,

Zusammenarbeit(GTZ)GmbH

4) KILIMANJARO REO

Mr.B.H.P. NYITI

Mr. O. B. LAIZER

Mr.G.J.SHOMI

Regional Engineer

Trunk Roads Engineer

Mechanical Engineer

5) TANGA REO

Mr. G. N.E. L. MINJA

Mr. PAUL L.S.LYAKURWA

Mr. JAPHET J. MASELLE

Mr. W.S.DELE

Regional Engineer

Trunk Roads Engineer

Mechanical Engineer

Assistant Trunk Roads Engineer

6) MWANZA REO

Mr. G. H.M. LWENGE

Mr.N.M.CHABWI

Mr.D.P.M. NAKEI

Mr.E.P.KIRENGA

Mr. N. Y. HAMISI

Regional Engineer

Trunk Roads Engineer

PlanningEngineer

Rural Roads Engineer

Acting Mechanical Engineer

7) MARAREO

Mr. MICHAEL M. CHAMU

Mr. SALUM I. SASILLO

Mr. PRIMUS KWEYAMBA

Regional Engineer

Trunk Roads Engineer

Mechanical Engineer

8) KAGERA REO

Mr. VEN K. NDYAMUK AMA

Mr. GEORGE MUTABUZI

Mr. K. W. TIBAIMUK A

Mr. KENFAS J. MAHENGE

Mr. FAUSTINE MAYENGELA

Mr. E.S.B. NTAGWABIRA

Regional Engineer

Trunk Roads Engineer

Mechanical Engineer

Rural Roads Engineer

Resident Engineer-ATAP Works

Regional Engineer

9) MTWARA REO

Mr. B. V. KATABWA

Regional Engineer

10) LINDI REO

Mr. E.S.B. NTAGWABIRA

Regional Engineer

2 Ministry of Finance

Mr. PAUL A. MWAFONGO

Senior Finance Officer in charge of Japan

3 President's Office Planning Commission

Mr. M. T. KIBWANA

4 4

Commissioner, External Finance

Dr. JONAS P. KIPOKOLA

Duputy Principal Secretary & Duputy Secretary

Mr. T. E. KIMOKO

Director of Economic Services

4 World Bank

Mr. PETER P. W. MORRIS

Principal Transport Engineer-IRP

5 PEHCOL (Plant & Equipment Hire Co.Ltd.)

Mr. N. LEMUNGE

Director General

6 MECCO (Mwananchi Engineering Contracting Corporation)

Mr. F. BAROZI

Dr. E. SIMK OKO

Mr. A. W.O. LIK ILIJIYE

Director General

Chief Manager, Research & Planning

Workshop Manager

4. Minutes of Discussion

MINUTES OF DISCUSSIONS

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THE STUDY ON THE PROJECT

FOR

DISPOSITION OF THE PAVENENT MAINTENANCE EQUIPMENT FOR TRUNK ROADS

IN

THE UNITED REPUBLIC OF TANZANIA

In response to a request from the Government of the United Republic of Tanzania, the Government of Japan has decided to conduct a Study on the Project for Disposition of the Pavement Equipment for Trunk Roads (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Tanzania a study team which is scheduled to stay in the country from October 5 to 25, 1995.

The team held a series of discussions with the concerned officials of the Government of the United Republic of Tanzania, and conducted a field survey at the study area.

As a result of discussions and field survey, both sides agreed to recommend the main items described in the attached sheets to the respective Governments.

Dar es Salaam, October 23, 1995

Nr. Hiromasa KAWAZOE

on behalf of Mission Resident Representative JICA, Tanzania Office Dr. George MLINGWA

Principal Secretary

Ministry of Works, Communications and Transport

OR. G. MLINGWA

PRINCIPAL SECRETARY

PRINCIPAL SECRETARY
HINISTRY OF WORKS
OHMUNICATIONSETRANSPORT

Mr. H. T. KIBWANA

Commissioner for External Finance Ministry of Finance

ATTACHMENT

1. OBJECTIVE

The objective of the Project is to provide appropriate road maintenance equipment which are essential for paved road maintenance activities in order to sustain the road condition, hence to contribute to the Road Maintenance Program under the Second Economic Recovery Program.

2. PROJECT IMPLEMENTING AGENCY

Ministry of Works, Communications and Transport

3 PROJECT SITE

The proposed delivery sites of the equipment are shown in Annex-1

4. HAJOR ITEMS REQUESTED BY THE TANZANIA SIDE

As a result of the series of discussions, the items shown in Annex-2 are requested by the Tanzania side.

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

5. JAPANESE GRANT AID PROGRAMME

The Tanzania SIDE has understood the system of Japanese Grant Aid Programme explained in Annex-3.

6 FURTHER SCHEDULE OF THE STUDY

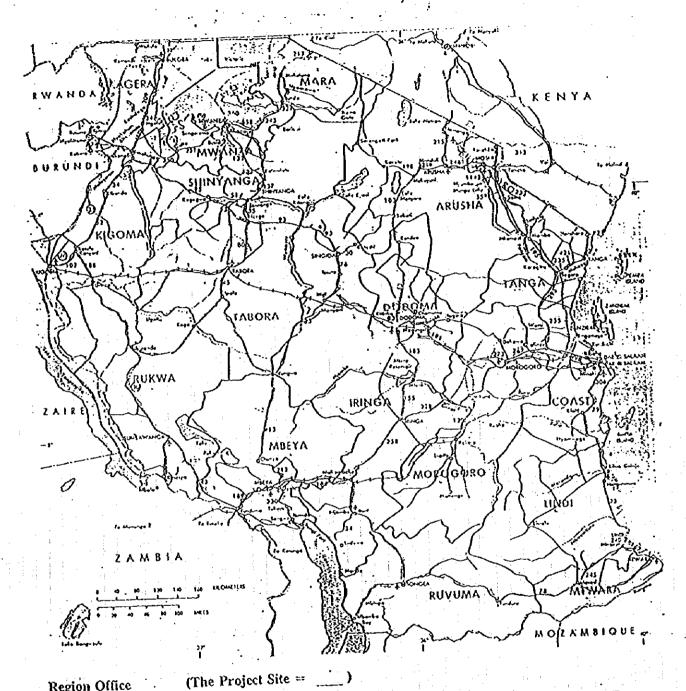
The team will proceed to further studies in Japan.

7. OTHER RELEVANTISSUES

- 1) The Tanzania side will allocate the necessary budget and personnel for execution of the Project.
- 2) The Tanzania side will maintain and use the equipment purchased under the Grant Aid properly and effectively, and to assign the necessary staff members for operation and maintenance of them as well as to bear all the expenses other than those to be borne by the Grant Aid.

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PROJECT AREA



Region Office (The P	roject site =/	
1. ARUSHA (Arusha)	2.COAST (Kibaha)	3. DAR ES SALAAM (DSM)
4. DODOMA (Dodoma)	5.IRINGA (iringa)	6. KAGERA (Bukoba)
7. KIGOMA (Kigoma)	8.KILIMANJARO (Moshi)	9. <u>LINDI (Lindi)</u>
10.MARA (Musoma)	11.MBEYA (Mbeya)	12. MOROGORO (Morogoro)
13.MTWARA (Mtwara)	14.MWANZA (Mwanza)	15. RUKWA (Rukwa)
16.RUVUMA (Songen)	17.SKINYANGA (Shinyanga) 18. SINGIDA (Singida)
19.TABORA (Tatora)	29.TANGA (Tanga)	

Equipments requested by each 8 Regions

Name of Equipments	ARUSHA	HWANZA	MARA	KAGERA	DSN	LINDI	NTWARA	RUVUMA	TOTAL.
1. Truck with crane	1	1	1	1	1	1	1	1	8
2. Cargo Truck	2.	2	2	2	2	2	2	2	16
3. Dump Truck	1	1	1	1	1	i	1	i	8
4. Dump Truck	1	1	-1	1	1	1	1:	1.	(39)
5. Mini Excavator	: 1	1	i	. 1	1	1	1:	1 [8
6. Air Compressor	- 1	1	1	1	1	1 :	-1	1	8
7. Hand Breaker	2	2	2	2	2	2	2	2	16
8. Pick Hammer	2	· 2	2	2	2	2	2	2	18
9. Asphalt Burner	. 1	1	1	1	2	1	1	1	9
10. Asphal Sprayer	- 1	1	1.	1	2	1.	1	1	9
11. Hand Roller	1	1	1	1	2	1	1.	1	9
12. Plate Compactor	1	1	1	1	2	1	1	1	9
13. Concrete Mixer	. • 1	1 %	1	1	Í	1	1	1	8
14. Concrete Vibrator	2	2	2	2	2	2	2	2	16
15. Water Pump	2	2	2	2	2	2	2	2	16
16. Step Bridge	1	1	1	1	11	1	1	1	8
17. Maitenance Tools-H	eavy Dut	y for Co	nstruc	tion Had	hine			· · · · · · · · · · · · · · · · · · ·	
with Trolly Jack,	1 1	1	1	1	1 :	1	1	1	8
Grease & Oil Bucke	t 2	2	2	2.	2	2	2	2	16
18. Generator	1	1	1	1	1.1	1	1	1	8
19. Electric Welder	1	111	1	1	1	1	1	1	8
20. Tools for Traffic	Control								
Reflect Plate	8	8	8	8	8	8	8	8	64
Safety Cone	40	40	40	40	40	40	40	40	320
Safety Lamp	2	2	2	2	- 4	2	2	2	18
Flood Light	2	2	2	2	4	2	2	2	18
Cable Drum	2	2	2	2	4	2	2	2	18
Line Warker	1	1	1	1	1	1	1	1	8
⊀ Holmet	12	12	12	12	12	12	12	12	96
Safty Vest	6	6	6	6	6	6	6	6 .	48
21. Movable Container	1	1	1	1	. 1	.1	· 1	1	8
* 22. Novable Crusher	1	ζ	- 1	. 1	.()	, 1	1	, . 1	6
23. Spare Parts	20X	20X	20	K 20X	20X	20X	20X	20%	20X
	-								

* New Rognastical

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Flow Chart of Japan's Grant Aid Procedures

s	stage	Flow & Works	Recipient	Japanese	JICA	Consultant	Contractor	Others
	Application	Screening Cystuation of Project Screening Of Tiff Survey (T/A: Terms of Reference)						
Study	(Project Formulation & Prapriation) Prate Dasign Prelimi-	Field Survey Home Office Work Reporting						
	(Projector)	Explana Son of Orah Final Report Appraisal of Project						
	Appraisal & Approval	Inter Maisterial Consulation Presentation of Oraft Notes	NAME OF THE PERSON OF THE PERS	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
	q	Approval (E/N: Exchange of Notes)	Z 12/2/25	A MANAGEMENT OF THE STATE OF TH	00 00 00 00 00 00 00 00 00 00 00 00 00		-	
		Consultant Contract Contract Octobed A recorded A recorded A recorded Propagation	THE STATE STATE	000 150 150 000 000 000 000 000 000 000	200 XX (200 XX	2000	SAN KENDARKA	
	וסוובותפתפוקמו	Design Breamand Design Breamand Recipient Government Tendering Endustrian Construct Co	31374 WAY 4137				20 14 90 0 14 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	: 13P
	•	Construct AP	STATE OF STA					
:	Evaluatio & Follow u	Study (A/P: Authorization to Pa	y) 5			を記録		

Japan's Grant Aid Scheme

1. Grant Aid Procedures

1) Japan's Grant Aid Program 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 Cabinet)

Determination of

(The Notes exchanged between the Governments

Implementation

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 Hinistry 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 (Basic Design 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. 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:
 - a) 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.
 - by Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
 - c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
 - d) Preparation of a basic design of the Project
 - e) Estimation of costs of the Project

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

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

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firms(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 and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

- 1) What is Grant Aid?
 The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.
- 2) Exchange of Notes (3/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 fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Hotes, 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.

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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, contracting 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) Recessity 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 case the installation of the equipment.
 - (4) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
 - (5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
 - (6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts. such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.



- 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

 multiplication of the first staff and the grant and the Grant Aid.
- 8) "Re-export"
 The products purchased under the Grant Aid should not be re-exported from the recipient country.
- 9) Hanking 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 of the recipient country or its designated authority under the Verified Contracts.
 - the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

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14. Road Maintenance Management System - 1995

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- 17. Road Network Management, Presentation Material for IRP Doners
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- 18. Estimate of Heavy Plant needs for maintenance summary and recommendations -May 1995
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- 20. IRP Projects Excuted by MECCO-18 October 1995
- A Report on the utilization and performance of Pavement Maintenance Equipment for F/Y 1994/95

Data on Regional Engineer's Office

- 22. DSM-REO (from RE-Mr. THOMUS)
- 23. Arusha-REO (from GTZOMr. HOPP)
- 24. Mwanza-REO (from RE-Mr. LWENGE)
- 25. Mara-REO (from RE-Mr. CHAMU)
- 26. Kagera-REO (from RE-Mr. NDYAMUKAMA)
- 27. Lindi-REO (from RE-Mr. NTAGWABIRA)
- 28. Kilimanjaro-REO (from RE-MR. NYITI)
- 29. Tanga-REO (from RE-Mr. MINJA)

