

6. 第2次短期調査団ミニッツ

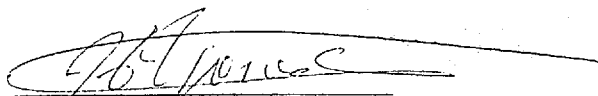
THE MINUTES OF MEETING
BETWEEN
THE PROJECT PREPARATORY STUDY TEAM
AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ON
THE JICA TECHNICAL COOPERATION
FOR
THE PROJECT FOR CAPACITY BUILDING
OF
THE ALEMGENA TRAINING AND TESTING CENTER OF ERA

The Project Preparatory Study Team (Team) organized by the Japan International Cooperation Agency (JICA), headed by Mr. Hiroshi YONEDA, visited the Federal Democratic Republic of Ethiopia from July 9 to July 17, 2001, for the purpose of preparing a detailed plan of the Project for Capacity Building of ALEMGENA Training and Testing Center of ERA (Project).

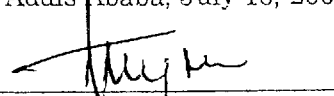
During its stay, the Team exchanged views and had discussions with the Ethiopian authorities concerned, headed by General Manager of the Ethiopia Road Authority, Mr. Tesfamichael Nahusenay.

As a result of the discussions, the Team and the Ethiopian authorities concerned agreed to recommend to their respective Governments the matters referred to in the document attached hereto. This document will be finalized with corrections and changes, if any, as the Record of Discussion at the time when a Project Design Team is dispatched in due time.

Addis Ababa, July 16, 2001



Mr. Hiroshi YONEDA
Leader,
Project Preparatory Study Team
Japan International Cooperation Agency
Japan



Mr. Tesfamichael NAHUSENAY
General Manager,
Ethiopian Roads Authority
The Federal Democratic Republic of
Ethiopia

THE ATTACHED DOCUMENT

The discussions between the Team and Ethiopian authorities concerned were held in Addis Ababa with participants shown in the list of participants in Annex 1.

I. Project Design Matrix (PDM)

The Team and Ethiopian side discussed the tentative Project Design Matrix (PDM) which had been made in the preliminary study (March 14 to March 23, 2000). The revised PDM is shown in the Annex 2.

Outline of the Project is as follows:

1. Title of the Project

The Project for Capacity Building of the Alemgena Training and Testing Center of ERA.

2. Ultimate goal

The ultimate goal of the Project is to facilitate Ethiopian Government's Road Sector Development Plan (RSDP) made in cooperation with IDA in 1998 that aims to improve bad roads.

3. Overall goal

The overall goal of the Project is that Ethiopian human capacity of road construction and maintenance is strengthened for its quality and quantity in terms of mechanized construction method (MCM).

4. Project purpose

The Project purpose is that the Alemgena Training and Testing Center of ERA (AT&TC) enables to provide the target group (operators, mechanics, and supervisors) with proper training of MCM.

5. Outputs

The Project Outputs are:

- (1) Training management becomes effective
- (2) Efficient training course program is prepared
- (3) Levels of the technical skills and teaching capacity of instructors are improved
- (4) Training equipment and materials are properly arranged and managed
- (5) A method of training-needs analysis is developed and the training plan is prepared through the training needs analysis.

6. Activities

The Project Activities are to:

- (1-1) Collect training needs (road conditions, needs, skill levels of C/Ps, instructors, trainees, the private and ERA)
- (1-2) Establish management know-how
- (1-3) Conduct monitoring and evaluation

- (2-1) Organize a system to formulate curriculum
- (2-2) Prepare teaching materials

- (3) Train instructors

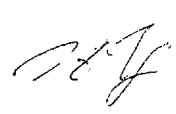
- (4) Maintain equipment properly

II. Duration of the Project

The duration of the Project will be four years. The Project is expected to start in April 2002 and end in March 2006.

III. Project Site

The Project site will be at AT&TC.



IV. Measures to be taken by the Government of Japan

4.1 Dispatch of long-term Experts as follows (Dispatch plan is shown in Tentative Plan of Operation at Annex 7):

- (1) Chief advisor
- (2) Coordinator
- (3) Road equipment management and operation expert
- (4) Road equipment mechanics expert
- (5) Road construction and maintenance supervision of MCM expert

4.2 Dispatch of Short-term Experts

Short-term experts will be dispatched from time to time as the necessity arises for the effective implementation of the Project.

4.3 Counterparts Training in Japan

Counterpart training in Japan will be provided during the Project. Such trainees will be decided both by the Japanese experts and ERA from nominated counterparts and instructors within AT&TC.

4.4 Provision of Equipment

The equipment necessary for the effective implementation of the Project will be provided within the budget to be allocated for the Project. The proposed list of major machinery and equipment is shown in the Tentative List at Annex 3.

V. Measures to be taken by the Government of Ethiopia

5.1 Personnel

- (1) Project Director and Project Manager

ERA, the responsible agency as well as the counterpart agency of the Japanese experts team, will assign the Project Director from the level of top management, who will chair



the Joint Coordinating Committee (JCC) (para.7.1). Head of ERA's Alemgena Training and Testing Branch (ALTTB) will act as the Project Manager and assign the necessary counterpart and instructional staff upon approval by the General Manager of ERA. The Project Manager will chair monthly the Project Executing Committees (EC) (para.7.2) at AT&TC.

(2) Counterparts

ERA will provide the counterparts and instructors for the project implementation as shown in the List of Counterparts and Administration Staff at Annex 4.

(3) Supporting Staff

The supporting staff will be provided: (1) two secretaries, (2) two drivers, (3) other staff to be required for the training requirement (Annex 4).

5.2 Financial Input

(1) Financial and Budgetary Arrangement

The Ethiopian side will allocate the necessary annual budget throughout the Project for running costs. These include salaries and allowances for the Ethiopian counterpart and support service staff, fuels, oils and lubricant, stationary and office supplies, janitorial supplies, medical supplies, contractual services such as water supply, electric light and communication, and maintenance materials and supplies. By doing this Ethiopian side will also bear the operating costs of constructing roads at on-the-job training site near Alemgena.

(2) Financial Management System

The Project Manager will establish financial and account management system to prepare a balance sheet and a cash flow sheet of AT&TC in collaboration of the Japanese experts. The balance sheet and the cash flow sheet will be presented and approved at the Joint Coordinating Committee (para.7.1).



5.3 Land, Buildings, and Facilities

- (1) Ethiopian side will prepare necessary buildings and facilities for the implementation of the Project.
- (2) Ethiopian side will also provide offices and other necessary facilities for the Japanese experts in the Project site. AT&TC will also provide training and administration facilities for Japanese experts: (a) training spaces in the AT&TC and on-the-job training site; and (b) an expert's office having the adequate size of three rooms and (c) a meeting room at the proper location.

5.4 Taxes and Duties

In accordance with laws and regulations in force, the Ethiopian side will take necessary measures to meet customs duties, internal taxes, and any other charges imposed in the Federal Democratic Republic of Ethiopia on equipment, machinery, and other materials brought into Ethiopia for the purpose of the Project.

VI. Training Courses

Training plan is proposed to introduce the three major courses. Tentative Planned Training Courses are shown in Annex 5.

- (1) Road equipment management and operation
- (2) Road equipment mechanics
- (3) Road construction and maintenance supervision of MCM

VII. Administration of the Project

7.1 Joint Coordinating Committee

Both sides will establish a Joint Coordinating Committee (JCC) for the effective and successful implementation of the Project. JCC will be hold at least once a year or whenever the necessity arises. A Tentative Organization Chart is shown in Annex 6.



The functions of JCC are: (a) to formulate annual work plan of the Project; (b) to review the progress of the annual work plan; (c) to review and exchange opinions on major issues that may arise during the implementation of the Project; and (d) to discuss any other issues pertinent to smooth implementation of the Project.

7.2. Executing Committee

An Executing Committee (EC) will be established under JCC at AT&TC with ALTTB Chief, the experts and the counterparts, and additional members if necessary, and held monthly and whenever necessity arises in order to facilitate smooth implementation of the Project.

VIII. Tentative Schedule of Implementation (TSI)

8.1 Implementation of the Project

The TSI is shown in the Annex 8.

8.2. Project Design Study

When the Project is found feasible, the JICA Project Design Study Team will be dispatched to finalize the content of the technical cooperation and record it in the form of the Record of Discussion, hopefully in September 2001.

my

HY

Annex 1	List of Participants
Annex 2	Tentative Project Design Matrix (revised)
Annex 3	Tentative List of Equipment
Annex 4	Assignment Plan of C/P and Supporting Administrative Personnel
Annex 5	Tentative Planned Training Courses
Annex 6	Tentative Organization Chart of the Project
Annex 7	Tentative Plan of Operation
Annex 8	Tentative Schedule of Implementation

M

H4

Annex 1: List of Participants

Ethiopian Side	
Ethiopian Roads Authority (hereinafter referred to as "ERA")	
Tesfamichael Nahusenay	General Manager
Gelaso Bore	Deputy General Manager, Human Resource Development and Financial Department
Tibebu Eshete	Deputy General Manager, Operations Department
Semaegzier Berhane	Deputy General Manager, Engineering & Regulation Department
Alemu Kebebe	Manager, Human Resource Development Division
Zaid Wolde Gebriel	Manager, Planning & Programming Division
Girma Wl Gebriel	Chief, Manpower Planning and Training Coordination Branch
ERA Training and Testing Center Alemgena	
Hailu Chekun	Chief of Alemgena Training and Testing Branch
Japanese Side	
The Team	
Hiroshi Yoneda	Leader: Director, Planning Division, Social Development Cooperation Dept, JICA
Masashi Nomura	Training Planning: Chief Researcher, First Research Department Construction Information Research Institute, Japan Construction Information Center (JACIC)
Satoshi Amano	Cooperation Planning: 2nd Technical Cooperation Division, Social Development Cooperation Dept, JICA
Futoshi Horikoshi	Equipment Planning: Technical Support Division, Technical Cooperation Management Department, Japan Intentional Cooperation System (JICS)
Toshinori Toda	Analysis of Project Efficiency: International Division, Construction Project Consultant, INC
JICA Office in Addis Ababa	
Yoshinori Ebata	Resident Representative
Yujirou Yabe	Assistant Resident Representative
Yeshitila Amare	Head of Technical Cooperation Division

Annex 2 Project Design Matrix

276

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal :</p> <ul style="list-style-type: none"> Road sector's human capacity of road construction and maintenance is strengthened for its quality and quantity in terms of mechanized construction method (MCM). 	<ul style="list-style-type: none"> promote or change occupation titles of the graduates fulfill the skilled labor requirement 	<ul style="list-style-type: none"> ERA's employment records interview of the superiors firm's employment records interview of the employer 	
<p>Project purpose :</p> <p>Almugena Training and Testing Center (AT&TC) enables to provide the target group (operators, mechanics, and supervisors) with proper training of mechanized construction method (MCM).</p>	<p>(for 4 years in 2006)</p> <p>1,020 certificates of operators 440 certificates of mechanics 230 certificates of road supervisors</p>	<ul style="list-style-type: none"> certificate 	<ol style="list-style-type: none"> Domestic Construction Industry Development is progressed. The graduates join road construction and maintenance works. AT&TC continues the training and testing after the project.
<p>Outputs :</p> <ol style="list-style-type: none"> Training management is more effective. Efficient training course program is prepared. Levels of the technical skills and teaching capacity of instructors are improved Training equipment and materials are properly arranged and managed. A method of training needs analysis (TNA) for the public and private sectors' business needs is developed and the training plan is prepared by the TNA. 	<ol style="list-style-type: none"> Necessary teaching materials are prepared. Improved curricula are designed. Instructors attain required technical and teaching levels. <ol style="list-style-type: none"> Trainees attain the sufficient levels of skills and demonstrate good performance. Provided equipment is used efficiently for the improved training. <ol style="list-style-type: none"> Instructors enable to use the training equipment properly. Requirement of training in AT&TC are increased. <ol style="list-style-type: none"> Job specifications (JOS) required for business needs are reviewed by TNA periodically. The present training specifications and the training plan are reviewed and revised by JOS promptly. 	<ol style="list-style-type: none"> Evaluation by trainees, AT&TC manager, and JICA experts Evaluation by trainees, AT&TC manager, and JICA experts <ol style="list-style-type: none"> Evaluation by trainees, AT&TC manager and JICA experts. Test of AT&TC Evaluation by instructors, AT&TC manager, and JICA experts <ol style="list-style-type: none"> Operation records of equipment Request numbers and registration record Evaluation by the Joint coordinating committee (ERA, AT&TC, the private sector, JICA experts) Evaluation by the executing committee (AT&TC, Inspectors, JICA experts) 	
<p>Activities :</p> <ol style="list-style-type: none"> Collect training needs (road conditions, needs, skill levels of CAPs, instructors, trainees, the private and ERA staff) using TNA. Establish management know-how Conduct monitoring and evaluation Organize a system to formulate <ol style="list-style-type: none"> Prepare teaching materials Train instructors Maintain equipment properly 	<p>Inputs :</p> <p>Japanese side</p> <ul style="list-style-type: none"> Experts: (Long-termed experts) Chief advisor (4 years) Coordinator (4 years) Expert of road construction equipment management and operation (2 years) Expert of road construction equipment mechanics (4 years) Expert of road construction and maintenance supervision of MCM (2 years) (Short-termed experts) (to be requested) Equipment: Road construction equipment, training machines and tools, and teaching aid materials Counterpart training in Japan (to be requested) 	<p>Ethiopian sides</p> <ul style="list-style-type: none"> Counterparts: Project manager (Head of AT&TC) Counterparts personnel (Chief instructors) Administrative and supporting staff Facilities: All the facilities required for the project implementation including offices and facilities for Japanese experts Running expenses: All the project expenses except those mentioned in the "Japanese side" Tax and any government charges for the input from the Japanese side 	<ol style="list-style-type: none"> AT&TC has sufficient facilities. Trainees achieved level of basic education AT&TC has enough training budgets AT&TC recognizes policies of the privatization of road construction. <p>Pre-condition</p> <ol style="list-style-type: none"> ERA continue the adoption of MCM in road construction and maintenance. Road sector budget and Road fund is maintained. RSDP is progressed. ERA progresses to introduce contract-out in road construction and maintenance.

277

Annex 3: Tentative List of Equipment

Tentative List of Equipment (Heavy Equipment)

Type	Specification	Q'ty	Availability (Refer to Footnote)	If to be procured, by Japan or Ethiopia
Bulldozer	20t 200PS	1	P	Japan
	(Cat. :D7G)	1	U	Etiopia
Motor Grader	Blade Length 3.7m	2	P	Japan
	(KOMATSU:GD611A)	1	U	Etiopia
Wheel Loader	Bucket Capacity: 1.8~2.5m ³	1	P	Japan
	Bucket Capacity: 2.7~3.1m ³	1	P	Japan
Excavator (Wheel Type)	Bucket Capacity: 0.3~0.4m ³	1	P	Japan
Excavator (Crawler Type)	Bucket Capacity: 0.7~0.8m ³	1	P	Japan
Vibration Roller	(BOMAG: BW161)	1	U	Etiopia
Tire Roller	Operating Weight: 8~10t	1	P	Japan
Dump Truck	Payload: 9~10t	1	P	Japan
	(Nissan: CW450)	2	U	Etiopia
Water Tanker	Tunk Capacity: 10000lit	1	P	Japan
	(Nissan: Tunk Capacity: 30000lit)	1	U	Etiopia
Aspfait Distributor	Tunk Capacity: 6000lit	1	P	Japan
Tip Spreader	For 10t Truck	1	P	Japan
Crane Truck	Max. Load: 20~25t	1	P	Japan
Car	4 Wheel Drive	2	P	Japan

(NOTE) P: To be procured U: Existing and to be used.

Tentative List of Equipment (Equipment for Maintenance, Laboratory and Training)

No.	Description	Main Specifications	Qty
1. WORKSHOP EQUIPMENT			
1-1 CLASSIS WORKSHOP			
1	Sling Chain Kit with Cart.		1
2	Sling Wire Rope Kit		1
3	Portable Hydraulic Jack	Capacity : 30 Ton	2
4	Portable Hydraulic Jack	Capacity : 50 Ton	1
5	Parts Rack	Dimensions: 1850x500x1800mm	2
6	Parts Wagon	with caster and 4 shelves	1
7	Tool Tray, with Handles	405x250mm	2
8	Tool Tray	600x450mm	2
9	Tray Hanger		2
10	Mechanic Tool Set	For Construction Machine	2
11	Tool Cabinet	Dimensions: 740x400x840mm	2
12	Hydraulic Garage Jack	Capacity : 10 Ton	2
13	Hydraulic Garage Jack	Capacity : 5 Ton	1
14	Portable Lubricator	Air Operated for hydraulic oil	1
15	Portable Lubricator	Air Operated for grease	1
16	Transmission Jack (standard)	Capacity: 1800kg	1
17	Brake Honing Head	16-36mm (dia.)	1
18	Transmission Jack (standard)	Capacity: 1,200kg	1
19	Differential Gear Jack	Capacity: 600kg	1
20	Clutch Aligner	Bearing guide: 15-30mm (6pcs)	1
21	Transmission Bearing Puller	Used for truck	1
22	Wheel Bearing Puller for Truck	Capacity: 140-170mm	1
23	Rigid Rack	Capacity: 10 Ton	4
24	Mobile Work Bench (Wood Cover)	1,000x600x700mm	2
25	Engineers Vise	Jaw width: 127 mm	2
26	Portable Gantry Crane	NT-0701 : H 4052mm	1
1-2 ENGINE WORKSHOP			
1	Hydraulic Shop Press	Capacity: 50 ton w/hydraulic hand pump	1
2	Work Bench with Cabinet and Locker	1800 x 800 x 700 mm.	1
3	Machinists Vise, Swivel Type	Jaw width: 128mm	1
4	Bench Electric Grinder	Wheel size: 205 mm	1
5	Grinding Wheel (#36)	205 x 19 x 15.88 mm	2
6	Grinding Wheel (#60)	205 x 19 x 15.88 mm	2
7	Hand Truck	Load capacity: 300 kg	1
8	Bench Drill Press	Capacity: 13 mm	1
9	Straight Shank Twist Drill Set	1-13 mm	1
10	Drill Chuck & Handle	Capacity: 13 mm dia.	1
11	Drill Drift		1
12	Drill Press Vise	Jaw width: 110 mm	1
13	Engine Positioner, Electric Type	Service capacity: 3,000 kg	1
14	Bracket for Diesel Engine	For 200ps class diesel engine	1
15	Bracket for Diesel Engine	For 200ps class diesel engine	1
16	Cylinder Gauge (Bore Gauge)	Range: 35 - 80 mm	2
17	Cylinder Gauge (Bore Gauge)	Range: 50 - 150 mm	2
18	Outside Micrometer Caliper Set	Range: 0 - 150 mm (0.01mm)	1
19	Piston Feeler Gauge	0.05 - 0.38 mm (8 leaves)	2
20	Piston Ring tool	83 - 135 mm	2
21	Piston Ring Compressor	Capacity: 50 - 125 mm	2
22	Piston Heater (Bearing Heater)	Power: AC 1ph. 3 kW	1
23	Connecting Rod Aligner	Connecting rod bearing: 30 - 75 mm	1
24	Tool Cabinet	Dimensions: 740x400x840mm	1
25	Mechanic Tool Set	For Construction Equipment	7
26	Cylinder Head Hydraulic Test Stand	Pump: 5-10kg/cm ²	1
27	Dial Indicator	Range: 0-5 mm	2
28	Magnetic Base (Standard type)	Holding Power: 800N	2
29	Parts Washer	Heater: 6 kW, Motor: 0.75kW	1
30	Valve Spring Tools	Length: 390 mm	1
31	Connecting Rod Aligner	Connencting rod bearing dia. : 80-120mm	1
32	Diesel Compression Gauge	Gauge: 70kg/cm ²	1
33	Cylinder Liner Puller	Cap. : 82-150mm	1
34	Piston Ring Compressor	Capacity: 75-175mm	1
35	Mobile Floor Crane	Capacity: 1 ton	1
36	Diesel Fuel Pump Injection Tester	Pump applicatins : 8	1
1-3 HYDRAULIC SYSTEM WORKSHOP			
1	Mechanic Tool Set	For Construction Machine	4
2	Tool Cabinet	Dimensions: 740x400x840mm	4
3	Hydraulic Test Gauge Set		4

7

704

No.	Description	Main Specifications	Qty
1-4 TRANSMISSION WORKSHOP			
1	Engine Positioner	Service capacity: 2000kg	1
2	Bracket For Torque Flow	For construction equipment	1
3	Bracket for Direct		1
4	Bracket for Torque Converter	For construction equipment	1
5	Bracket for Torque Flow	For construction equipment	1
6	Bracket for Control Valve	For construction equipment	1
7	Bracket for Steering Control	For construction equipment	1
8	Bracket for Hyd. Pump	For construction equipment	1
9	Mechanic Tool Set	For Construction Machine	2
10	Tool Cabinet	Dimensions: 740x400x840mm	1
11	Parts Rack	Dimensions: 1850x500x1800mm	1
12	Parts Wagon	Heavy duty type, 1500x800x1500 mm	1
13	Tool Tray, with Handles	415x250x90mm	2
14	Tool Tray, 600 x 450 x 150 mm	600x450x150mm	2
15	Tray Hanger	900x350x1290mm	1
16	Work Bench	LxWxH: 1800x750x740	1
17	Surface Plate	500x750x100mm	1
18	Air Hose Reel	Hose size: 9.0mm (I.D) x 10m	1
19	Air Blow Gun		1
20	Mobile Floor Crane	NT-0762: 1.5t~2 t	1
1-5 UNDERCARRIAGE WORKSHOP			
1	Roller & Idler Press	Capacity: 100 ton	1
2	Sizing Disc	3 kinds/set	1
3	Bushing Assembly Tool	For 200ps class Bulldozer	1
4	Snap Ring Remover		1
5	Floating Seal Tester	Air pressure type	1
6	Volume Pump	Capacity: 15 liter	1
7	Lubricating Nozzle	3 kinds/set	1
8	Roller Hanger	For track rollers	1
9	Front Idler Hanger	For front idlers	1
10	Conveyor Stand for Roller Line	3 Conveyors	1
1-6 TIRE WORKSHOP			
1	Hydraulic Tire Removing Tool	Tire size:OR Tire 24.00-35.00	1
2	Thermopress	For passenger car to truck	1
3	Tire Pressure Gauge, Bar Type	Capacity: 11kg/cm ²	2
4	Air Chuck	Overall length: 180mm	2
5	Air Chuck (Jumbo)	For Jumbo Valve	2
6	Tire Lever, L=760mm Forcing iron	For OR Tire	2
7	Tire Lever, L=760mm Swan neck iron	For OR Tire	2
8	Tire Lever, L=760mm Lock ring iron	For OR Tire	2
9	Tire Service Tool Set	Set contents of 14 pcs. Tire tools	2
10	Tire Bead Remover, length 1.6m	Length 1.6m	2
11	Tube Vulcanizer Set	Capacity: 500W	1
12	Cold Patch for Tube Repair	Patch size: 37mm dia.	2
13	Cold Patch for Tube Repair	Patch size: 45mm dia.	2
14	Cold Patch for Tube Repair	Patch size: 54mm dia.	2
15	Tool Locker	1100x450x800mm	1
16	Air Compressor	2.2kW, Single stage	1
1-7 WELDING AND FABRICATION WORKSHOP			
1	AC Arc Welder	Secondary current range: 40-400A	2
2	Welding Shield	Hand holding type	2
3	Secondary Cord 10 m	Section 60mm ² , Electrode ϕ 3.2~8mm	1
4	Safety Holder	Capacity: 500 A	1
5	Earth Clip	Capacity: 500 A	1
6	Double-End Chipping Hammer	Capacity: 500 A	1
7	Leather Glove	Long type	1
8	Grounding Cable	10m	1
9	Gas Welder Set	Including welding, cutting torches, etc.	4
10	Tip for Cutting	50 pcs./set, capacity, 3-13mm	1
11	Tip for Welding	50 pcs./set, capacity, 3-13mm	1
12	Cast Iron Swage Block	Dimensions: 315x315x115mm	1
13	Screw Clamp (C Type)	100mm	2
14	Double-Face Sledge Hammer	Weight: 4.5kg (10LB)	1
15	Double-Face Sledge Hammer	Weight: 1.3kg (3LB)	1
16	Air Hose Reel	Hose size: 9.0mm (I.D) x 10m	1
17	Air Blow Gun	Overall Length 234mm	1
18	DC Arc Welder	Welding current range: 50~600A or 15~500A	1
19	Spot Welding Machine	Capability: Single sided:1.6m, Double sided:8	1
20	Portable Grinder	Power input: 570W	2
21	Electric Impact Drill	Power input: 380W	2
22	Welding&Cutting Outfit	RJ-1402	2
23	Bench Drill Press	Power input: 200W	1
24	Hand Lever Shear	SC-1805	1
25	Hand Bending Machine	SC-1818	1
26	Hand Riveter	Overall Length: 330mm	1

764

24

No.	Description	Main Specifications	Q'ty
1-8 ELECTRICAL SYSTEM WORKSHOP			
1	Starter Generator Test Bench	Motor: 3.7kw	1
2	Circuit Tester	Sensitivity: 40 μ A, 20k Ω /V DC, 8k Ω /V AC	2
3	Armature Tester	No-load: 3.5A, Load: 1.4A	2
4	Regulator Tester	Ampere: -6 - 0.60 A	2
5	Insulation Tester	Capacity (DC): 500V/1000 m Ohm	2
6	Motor Puller Set	Including bearing	2
7	Work Bench	LxWxH : 1800x750x740	1
8	Engineers Vise	Jaw Width: 127 mm	2
9	Tool Cabinet	3 drawers and 1 shelf	2
10	Electric Soldering Iron, 200W	200W	5
11	Electric Soldering Iron 100 W	100W	5
12	Thread Type Solder with Flux	1kg, 1.6mm dia.	10
13	Thread Type Solder with Flux	1kg/can, 1.0mm dia.	10
14	Electric Cord Reel	Cord Length: 30 m	2
15	Solderless Terminal Kit		2
16	Head Light Tester	Max. scale: 40,000 Candela	1
1-9 BATTERY ROOM			
1	Hand Truck	Dimensions: 900x600mm(LxW)	2
2	Silicon Quick Charger	AC Input: 3PH, 6.5kva	2
3	Battery Tester	Applicable: 12V/18-200Ah	2
4	Battery Filler, 4 liter	4 liter	2
5	Battery Syringe	Size: 275x75mm, Mass: 100g	4
6	Combination Wrench, 30mm	30mm	3
7	Battery Charging Cable, 50A	50 A	2
8	Booster Cable, Capacity 200A	Capacity: 200A	5
9	Battery Hydrometer Set		3
10	Parts Rack		1
11	Water Purifier	Normal flow rate: 25 liter/h	1
12	Booster Cable	Capacity: 100A	4
13	Polyethylene Funnel, 175mm dia.	175mm dia.	4
14	Polyethylene Measure, 2 liter	2 liter	4
15	Battery Caddy	Output voltage: 12&24	2
1-10 CLEANING AREA			
1	Hot Water High Pressure Washer	Water Discharge: 1600 Lit./h	1
2	Steam Cleaner	Water Consumption: 800 Lit./h	1
3	Water Hose Reel	Hose Length: 10 m	1
1-11 PAINTING			
1	Air Compressor	Motor Output: 1.5 Kw(3-Phase)	1
2	Spray Gun, Suction Type	Nozzle dia.: 1.3mm	3
3	Suction Type Container, 1000cc	1,000cc	1
4	Air Hose (Rubber)	Size: 6mm dia. x 28x10M	1
5	Spray Mask	Mass: 200g	1
1-12 COMPRESSOR			
1	Air Compressor	Motor capacity: 0.75kW, Single-stage, air cooled, pressure switch type	2
1-13 FORK LIFT AND PORTABLE SUBRICA			
1	Portable Greasing Unit	Including air pump, nozzle, hose reel and etc	1
2	Diesel Engine Forklift	Capacity: 2 ton	1
1-14 TOOL ROOM			
1	Torque Multiplier	Power Ratio : 1 : 16	1
2	Torque Wrench	100-1200 kgf.cm	2
3	Torque Wrench	600-3200 kgf.cm	2
4	Torque Wrench	1000-7000 kgf.cm	2
5	Torque Wrench	1000-8500 kgf.cm	2
6	Vernier Caliper	200mm	2
7	Vernier Caliper	300mm	2
8	Dial Indicator	0-50-0/0.01mm, 0-10mm	1
9	Magnetic Base (Standard type)	Holding Power: 800N	1
10	Firm Joint Caliper For Inside	Range: 0-150mm	1
11	Firm Joint Caliper For Inside	Range: 0-300mm	1
12	Firm Joint Caliper For Outside	Range: 0-150mm	1
13	Firm Joint Caliper For Outside	Range: 0-300mm	1
14	Compression Gauge for Gasoline	Graduation (Max.): 25 kg/cm ²	1
15	Diesel Timing and Tacho	Measuring range: 120 - 9990 rpm	1
16	Diesel Engine Vacuum Tester	Max. Scale: 1000 mm/Aq	1
17	Dye Penetrant Metal Crack	Detector set	2
18	Thermometer	-20 - 0 - 200 C	1
19	Hand Tachometer	Measuring Range: 0-1000 10000rpm	1
20	D.C. Volt Ampere Meter	DCV: 0to20/50V, DCA: -6to+60A	1
21	Hydraulic Test Gauge Set	25, 60, 400, 600 (Each 1 Pc)	1
22	Double Offset Box Wrench (15)	32x36mm	2
23	Double Offset Box Wrench (45)	35x41mm	2
24	Open End Wrench, Double Head	27x30mm	2

74

74

No.	Description	Main Specifications	Q'ty
25	Open End Wrench, Double Head	32x36mm	2
26	Open End Wrench, Double Head	41x46mm	2
27	Open End Wrench, Double Head	46x50mm	2
28	Open End Wrench, Single Head	30mm	2
29	Open End Wrench, Single Head	32mm	2
30	Open End Wrench, Single Head	35mm	2
31	Open End Wrench, Single Head	36mm	2
32	Open End Wrench, Single Head	38mm	2
33	Open End Wrench, Single Head	41mm	2
34	Open End Wrench, Single Head	46mm	2
35	Open End Wrench, Single Head	50mm	2
36	Open End Wrench, Single Head	54mm	2
37	Open End Wrench, Single Head	55mm	2
38	Open End Wrench, Single Head	58mm	2
39	Open End Wrench, Single Head	60mm	2
40	Screw Plate Set	NF(SAE) size	1
41	Pipe Taps (1/8" - 1")		1
42	Pipe Die (1/8" - 1")		1
43	Bearing & Gear Puller Set	For Construction Machine	1
44	Air Impact Wrench (3/4" sq.)		1
45	Socket for Impact Wrench	(3/4" sq.) 22mm	1
46	Socket for Impact Wrench	(3/4" sq.) 24mm	1
47	Socket for Impact Wrench	(3/4" sq.) 26mm	1
48	Socket for Impact Wrench	(3/4" sq.) 27mm	1
49	Socket for Impact Wrench	(3/4" sq.) 30mm	1
50	Socket for Impact Wrench	(3/4" sq.) 32mm	1
51	Socket for Impact Wrench	(3/4" sq.) 35mm	1
52	Socket for Impact Wrench	(3/4" sq.) 36mm	1
53	Electric Drill	Drilling capacity: 13mm dia.	1
54	Electric Drill	Drilling capacity: 25mm dia.	1
55	Straight Shank Twist Drill Set	1-13 mm, 0.5 mm	1
56	Morse Taper Shank Twist Drill	14-25 mm	1
57	Electric Hand Grinder	Grinding wheel: Max. 32 mm dia.	2
58	Disc Sander	Capacity: 100 mm dia.	1
59	Chain Block	Capacity: 1 ton	1
60	Puller (short travel)	Capacity: 50 ton	1
61	Puller (short travel)	Capacity: 30 ton	1
62	Oil Filter Wrench	Band type	1
63	Adjustable Wrench, Giant Type	Opening: 89.6-120.6mm	1
64	Adjustable Wrench, Giant Type	Opening: 38.1-76.2mm	1
65	Stud Remover	13mm dia.	1
66	Handle Adapter 1/4"(F)x3/8"(M)		1
67	Handle Adapter 3/8"(F)x1/4"(M)		1
68	Bolt Cliper	Cutting cap. 7mm dia.	1
69	Bolt Cliper	Cutting cap. 18mm dia.	1
2. ROAD MAINTENANCE COURSE			
2-1 ROAD MAINTENANCE EQUIPMENT			
1	Vibration Compactor	MDR-9D 8.5ps 950kg	1
2	Concrete Cuter	MCD-10B 10~12"	1
3	Asphalt Sprayer	AS-6 30L/min, 3.5ps	1
4	Asphalt Kettle	AK-2 200L	1
5	Cutting Blade	Asphalt/Concrete	1
7	Core Picking Machine	TA-342 φ100mm with 5Edges	1
2-2 SOIL TESTING EQUIPMENT			
1	Motorizes Liquid Limit Set	TS-117	1
2	Electric Scale	HP-20k The amount of balance:21kg Minimum indication: .0.1g	1
3	Soil Analysis Sieves Set	TS-114b	1
4	Consolidation Test Apparatus	TS-422-3a	1
5	Direct Shear Test Apparatus	TS-132	1
6	Triaxial Test Apparatus	TS-351	1
7	Permeability Test Apparatus	TS-110c	1
8	Shrinkage Limit Apparatus	TS-159	1
9	Mechanical Analysis (Hydrometer)	TS-115, G-11, G-12, TS-173, TS-114b	1
10	Flakiness (Aggregate) Apparatus	TC-260	1

24

714

No.	Description	Main Specifications	Q'ty
2-3 ASPHALT TESTING EQUIPMENT			
1	Refrigerated Ductility Machine	TA-327	1
2	Softening Point Apparatus	TA-365	1
3	Asphalt Mixer	TA-381 30kg	1
4	Centrifuge Extractor	TA-319	1
5	Marshall Apparatus	TA-311	1
6	Asphalt Compaction Machine	TA-352	1
7	Asphalt Curing Water Bath	TA-303c	1
8	Automatic Asphalt Penetrometer	TA-375	1
9	Flash Test Apparatus (Taglibu or Cleverland)	TA-301a	1
10	Kinematic Viscosity	EX-218	1
11	Distillation Apparatus	TA-378	1
2-4 AGGREGATE TESTING EQUIPMENT			
1	Los Angeles Testing Machine	TC-520	1
2	Sample Splitter	TG-107 5, 10, 15, 25mm	1
3	Ro-Tap Sieves Shaker	TG-105	1
4	Coarse Aggregate Specific Gravity Test Set	TC-204AD	1
5	Electronic Scale	3100kg to 0.01g HF-3000	1
6	Aggregate Test Sieve Set	TC-205	2
2-5 CONCRETE TESTING EQUIPMENT			
1	Compression Testing Machine	TC-611a 1000KN	1
2	Forced Stirring Mixer	TC-350a	1
3	Portable Concrete Mixer	TC-337	1
4	Cylinder Mold	10dia X 20cm TC-207c	3
5	Cylinder Mold	10dia X 30cm TC-207d	3
6	Schmidt Test Hammer	TC-215	1
7	Cement Fineness Apparatus (Such as Turbidimeter)	TC-521	1
8	Cement Setting Apparatus (Gillmore test) or (Vicat test)	TC-522	1
2-6 SITE TESTING EQUIPMENT			
1	Sand Density Apparatus	TS-120	2
2	Field Density Apparatus	150mm dia TS-177a	1
3	Field Density Apparatus	250mm dia TS-177b	1
4	Filed Density Core Cutter	TS-414	2
2-7 COMMON EQUIPMENT			
1	Total Station		1
2	Level	SDL30	1
3	Staff	3m	2
4	Staff	5m	2
5	Tape	30m	2
6	Tape	50m	2
7	Pole		2
3. EDUCATIONAL EQUIPMENT			
3-1 COMPONENT			
1	Starter Motor	PT Type	1
2	Alternator	Power: 12 kW	1
3	Generator Unit	Capacity: 50 kW	1
4	Voltage Regulator 10 amp	For 30A	1
5	Torque Converter		1
6	Transmission		1
7	Hydraulic Pump Ass'y		1
8	Hydraulic Control Valve		1
9	Steering Control Valve		1
10	Hydraulic Motor		1
11	Hydraulic Cylinder		1
3-2 AUDIO VISUAL EQUIPMENT			
1	Video Tape Recorder	PAL	2
2	Television	21 inch	2
3	LCD Projector		1
4	Over Head Projector		1
3-3 VIDEO CASSET TAPE			
1	Diesel Engine Series		1
2	Diesel Engine Series		1
3	Diesel Engine Series		1
4	Disassembly and Assembly		1
5	Demonstration Hints for		1
6	Safety for the Operation of		1
7	Trouble Shooting of Electrical		1

764

27

Annex 4 : Assignment Plan of C/P and Supporting Staff

Assignment Plan of C/P and Supporting Staff

(1) Counterparts

Japanese Expert	Counterpart	Instructors
Chief Advisor	AT&TC Chief & Assistant of ERA	
Road equipment management and operation expert	Equipment Training Section Head	14
Road equipment mechanics expert	Trades and Crafts Training Head	12
Road construction and maintenance supervision of MCM expert	Engineering Section Head	11

(2) Supporting Staff

Secretary	2
Drivers	2
Others	to meet requirement

Handwritten mark

Handwritten mark

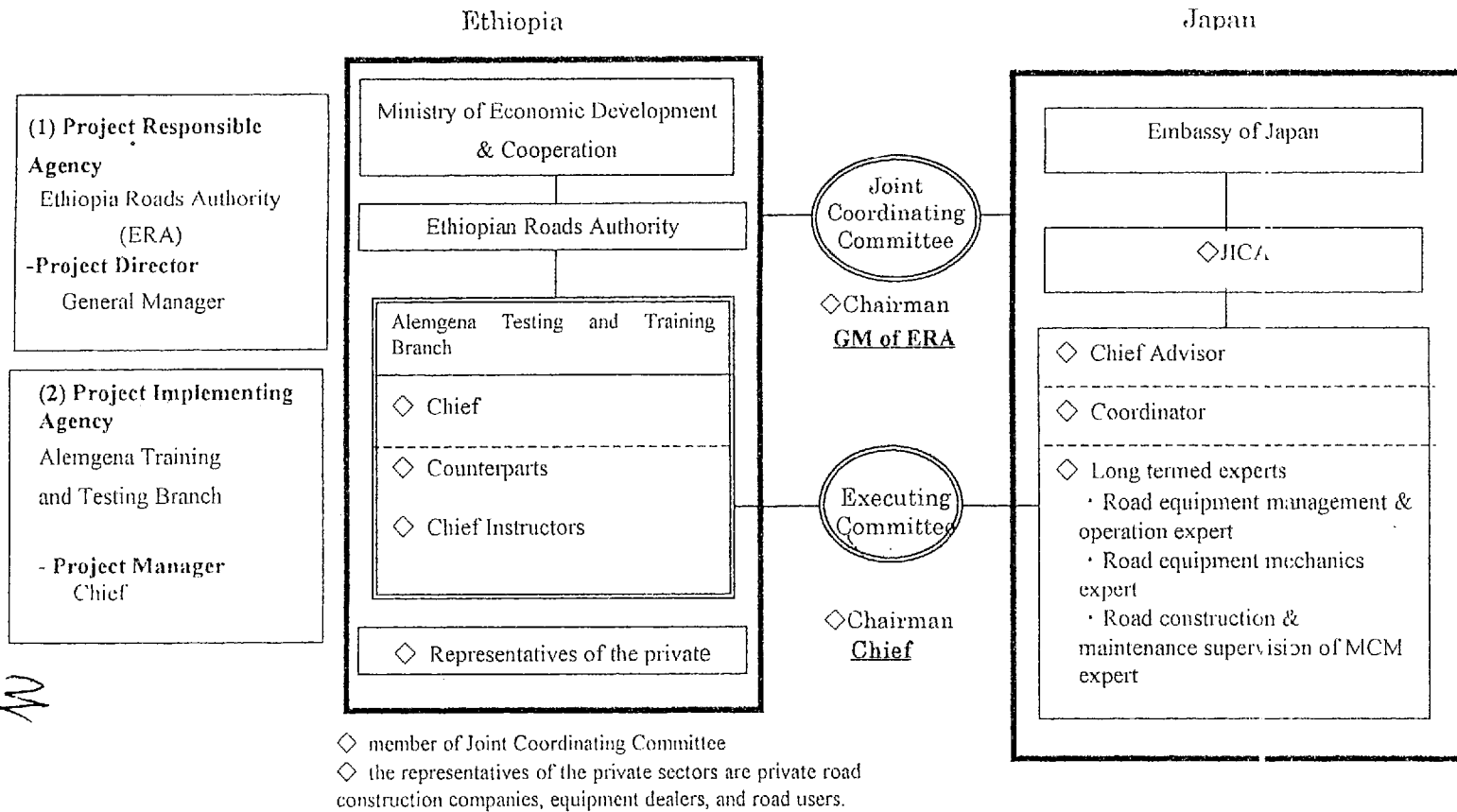
Annex 5 : Tentative Planned Training Courses

	Name of courses	Road Equipment Management and Operation Course	Road Equipment Mechanics Course			Road Construct and Maintenance Supervision of MCM Course	
			Technician course	Specialist course	Manager course		
		Tb be improved	Tb be improved	Tb be improved	Tb be improved	Tb be improved	
1	Target of training	In order to learn an appropriate operation and execution technique ①accurate and efficient operation for bulldozer , excavator, grader, loader, roller , dump truck. ②daily maintenance ③efficient and safety mechanized execution method	In order to learn the ability to find out the cause of trouble and to make an appropriate maintenance ①structure and function of equipment ②periodic maintenance, basic over haul, assemble ③in site maintenance, adjustment, urgent maintenance	In order to learn the total maintenance technology ①heavy maintenance and rebuild ②preventive maintenance, prediction for cause of trouble	In order to learn an effective management for equipment ①most appropriate maintenance planning, maintenance work planning ②parts management, prediction cause of trouble ③testing method, maintenance standard, maintenance cost analysis	In order to learn an efficient road construction and maintenance ①general technology of road structure and execution ②execution planning, quality control, quantity control, testing method, supervising method ③contract ,cost, estimate and analysis management,	
2	Training capacity	35persons	24persons	12persons	10persons	24persons	
3	Training period	3weeks per one kind (6month for all kinds)	5month	2month	0.75month	3month	
4	Training times per year	9times	2times	4times	4times	3times	
5	Number of trainees per year	315persons	48persons	48persons	40persons	72persons	
6	Course composition	Lecture	1weeks	6.7weeks	2.7weeks	1week	8weeks
		Practice	2weeks	13.3weeks	5.3weeks	2week	4weeks
		total	3weeks	20weeks	8weeks	3week	12weeks
7	Entry	ERA criteria (to be discussed)	ERA criteria (to be discussed)	ERA criteria (to be discussed)	ERA criteria (to be discussed)	ERA criteria (to be discussed)	
8	Number of chief instructor	1	1			1	
9	Number of instructor	14	12			11	

Annex 6: Tentative Organization Chart of Operation

YHC

Project Implementation Framework



M

7/14

Annex 7 Tentative Plan of Operation (PO)

Calendar Year	2002				2003				2004				2005				2006				2007	
Month	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J
RSDP	2nd phase																					
Project Year	Operation																Post Project					
	1st Year				2nd Year				3rd Year				4th Year									
JICA Activities																						
New courses																						
Monitoring & Evaluation																						
Personnel Assignment																						
Long term experts																						
Short term experts																						
Terms of Cooperation																						
1-1 Collect training needs survey																						
1-2 Transfer management know-how																						
1-3 Conduct monitoring and evaluation																						
2-1 Organize a system to formulate curriculum																						
2-2 Prepare teaching materials																						
3. Train instructors																						
4. Maintain equipment properly																						
(1)Joint Coordinating Committee (yearly)		▽				▽					▽										▽	
(2)Executing Committee (monthly)																						

1st year monitoring

2nd year monitoring

3rd year monitoring

project final evaluation

M

Handwritten signature

Annex 8 Tentative Schedule of Implementation (TSI)

Calendar Year	2001				2002				2003				2004				2005				2006				2007	
Month	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J	J-S	O-D	J-M	A-J
RSDP	1st phase								2nd phase																	
Project Year	Preparation								Operation																Post Project	
									1st Year				2nd Year				3rd Year				4th Year					
JICA Activities																										
Preparatory Study																										
Implementation Study																										
Equipment Preparation																										
Project Preparation in Japan																										
New courses																										
Monitoring & Evaluation																										
Personnel Assignment																										
<i>Long term experts</i>																										
1.Chief Advisor																										
2.Coordinator																										
3.Road Equipment M&O Expert																										
4.Road Equipment Mechanics Expert																										
5. Road C & M Supervision of MCM Expert																										
<i>Short term experts</i>																										
<i>Counterparts Assignment</i>																										
Counterparts Training in Japan																										
Project Administration																										
Joint Coordinating Committee (yearly)																										
Executing Committee (monthly)																										

M&O : management and operation
 C&M : construction & maintenance
 MCM : Machinized Construction Method

Tentative Schedule of Implementation