

**MINISTRY OF TRANSPORT
THE SOCIALIST REPUBLIC OF VIETNAM**

**BASIC DESIGN STUDY REPORT
ON THE PROJECT
FOR
PROCUREMENT OF BUSH CUTTER AND RELATED
EQUIPMENT FOR HO CHI MINH HIGHWAY PROJECT**

February 2002

**JAPAN INTERNATIONAL COOPERATION AGENCY
PACIFIC CONSULTANTS INTERNATIONAL**

PREFACE

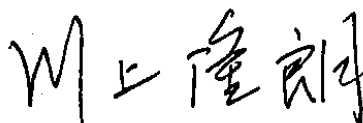
In response to a request from the Government of Vietnam, the Government of Japan decided to conduct a basic design study on the Project for Procurement of Bush Cutter and Relative Equipment for Ho Chi Minh Highway Project, and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Vietnam a basic study team from 26 August to 24 September 2001. The team held discussion with the officials concerned of the Government of Vietnam, 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 Vietnam in order to explain a draft basic design report, 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 Vietnam for their close cooperation extended to the teams.

February 2002

A handwritten signature in black ink, consisting of stylized Japanese characters: '川上隆朗' (Kawakami Takao).

Takao Kawakami

President

Japan International Cooperation Agency

February 2001

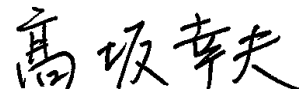
LETTER OF TRANSMITTAL

We are pleased to submit to you the basic design study report on the Project for Procurement of Bush Cutter and Related Equipment for Ho Chi Minh Highway Project in Vietnam.

This study was conducted by Pacific Consultants International under a contract to JICA, during the period from August, 2001 to February, 2002. In conducting the study, we have examined the feasibility and rational of the project with due consideration to the present situation of Vietnam 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,



Yukio Kohsaka

Project Manager

Basic Design Study Team on

The Project for Procurement of

Bush Cutter and Related Equipment for

HoChiMinh Highway Project

Pacific Consultants International

PROJECT SITE

L=2, 840km Phase 3

Phase 1

(1-a)
(L=990Km)

(1-c)
(L=650Km)

Phase 2

(2-b)
(L=430Km)

Phase 2

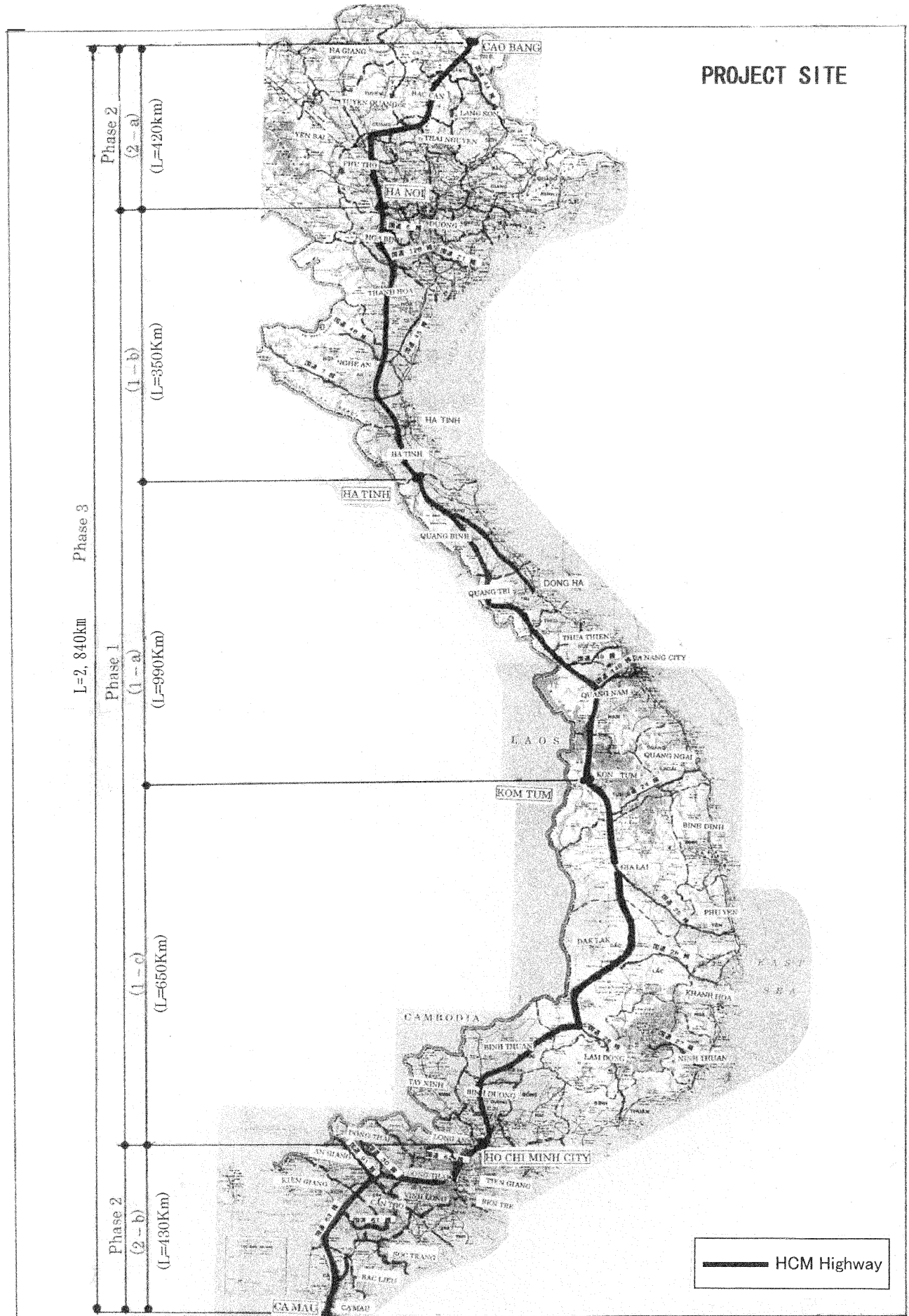
(2-a)
(L=420km)

(1-b)
(L=350Km)



— HCM Highway

PROJECT SITE



— HCM Highway

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ABBREVIATIONS

A/P	Authorization to Pay
B/A	Banking Arrangement
TTPS	Transport Technical and Professional School No.1
CIENCO	Civil Engineering Construction Corporation
CMAC	Cambodia Mine Action Center
DW	Drive Wheel
E/N	Exchange of Notes
EOJ	Embassy of Japan in Vietnam
GDP	Gross Domestic Product
HCM	Ho Chi Minh
HCM-PMU	Ho Chi Minh Project Management Unit
JCA	Japan International Cooperation Agency
M/D	Minutes of Discussion
MEC	Mechanical Engineering Company
MOC	Ministry of Construction
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
NGO	Non-Governmental Organization
PMU	Project Management Unit

SUMMARY

SUMMARY

The Project

National Highway No. 1 (Route 1) is the principal transport artery in Vietnam, connecting the north and south of the country for a length of over 2000km. In the Central Provinces, the road runs close to the coast, at the foot of steep mountains, and crosses rivers, which suffer strong flood flows during the typhoon season. Flooding and destruction of bridges and embankments are regular events, causing severe disruption to trade and movement within the country.

As a result, an inland route, the Ho Chi Minh Highway is to be developed as a second north-south arterial route. This will also have major effects in promoting economic development in the inland areas that have been largely left behind in the ongoing modernization of the rest of the country.

The route largely follows the old Ho Chi Minh Trail, the famous supply route used during the American War. Subjected to heavy bombing and mining, a large quantity of unexploded ordinance (UXO) and landmines remain along the route of the new highway. They must be removed and made safe, and represent a major obstacle to implementation of the construction project.

This is a time-consuming operation, and is hampered by the need to remove the often-dense vegetation. Vegetation removal alone accounts for around 70% of the labor requirement and there is the risk of encountering detonating a mine. Providing mechanized brush cutting machines, which carry out this essential stage of the mine clearing work, can make a great improvement to the speed and safety of manual vegetation clearance.

In view of this situation, the Vietnamese government made a request under the Japanese government Grant Aid programmed to supply specialized mechanical brush cutting equipment. This is in order to improve the speed and safety of mine bush cutting operations on the route of the Ho Chi Minh Highway.

After the request from the Vietnamese government was received, the Japan International Cooperation Agency (JICA) dispatched a “pre-basic design” study team to Vietnam in April 2001, to check the appropriateness of the project for Grant Aid funding. Approval to proceed was given and the basic design team was dispatched from August 26 to September 24, 2001. The basic design team discussed and checked the contents of a request with the

Vietnamese government, made observations of clearance methods and collected necessary data.

The basic design report sets out the type, size, quantity, and estimated cost of the equipment most appropriate to the Vietnamese government needs. After discussion of the draft report in Vietnam from November 10 to November 20, 2001 the amended final proposed equipment list is as follows.

Details of equipment

No.	Equipment designation	Main specification	Unit	Q'ty	Application
1	Brush cutter	30 ton	item	20	Brush cutting
2	Tractor Head with Trailer	35 ton	item	2	Transport of brush cutter
3	Fuel tanker	14,000 liter	item	2	Fuel supply to brush cutter
4	Mobile Workshop	4-wheel drive, 3 ton crane	item	2	Local repair of brush cutters
5	Truck	0.5 ton	item	9	Transport for supervisors

Project Cost and Duration

The planned duration of the supply process is 12 months, including training and technical assistance. The project cost is expected to be 1,455 million yen. This is to be fully funded by Japanese Grant Aid. (Japan side 1,455 million yen, Vietnamese side 0 yen.)

Technical Assistance for Operation and Maintenance

A common failing in ODA equipment supply programs is a lack of sustainability. In order to ensure that the benefits of this project are long-term, assistance will therefore be given to set in place an appropriate organizational structure, including training where required, including skilled personnel necessary to manage, operate and maintain the equipment. Specific functions required are:

Resource planning and management to ensure work output by the brush cutters meets the HCM road construction program.

Regular inspection and maintenance of equipment in a planned manner.

Repair and spare parts procurement in an organized and timely manner.

Regarding operation of the equipment, the Brush Cutters will be lent to state-run construction companies which are under contract to the Ho Chi Minh Project Management Unit (HCM-PMU). Each state-run construction company will therefore have direct responsibility for routine maintenance of equipment. HCM-PMU will be required to manage the loans to construction companies including overseeing productivity, and to supervise the maintenance management by each state-run construction company. Repair and periodic maintenance will be at the workshops belonging to the MOT.

The bush cutting work, which occupied 70 percent of the mine disposing work will advance by this project implementation, human danger mitigates sharply and a HCM highway will construct more safer and efficiently. HCM highway is the important second traffic axis in Vietnam, and it is appropriate to give the Grant-Aid of Japan to the HCM highway construction expected to the development, which maintained the national balance in a Vietnam.

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CHAPTER 1

BACKGROUND OF THE PROJECT

CHAPTER 1 BACKGROUND OF THE PROJECT

This report is the final report for the Project for Procurement of Bush Cutter and Related Equipment for Ho Chi Minh Highway Project. It describes the results of investigation of field conditions, and specifies the performance requirements of equipment to be procured under this Japanese ODA grand-aid funded project. It has been prepared by Pacific Consultants International under contract to JICA in January 2002.

National Highway No. 1 (Route 1) is the principal transport artery in Vietnam, connecting the north and south of the country for a length of over 2000km. In the Central Provinces, the road runs close to the coast, at the foot of steep mountains, and is thus exposed to strong flood flows during the typhoon season. Flooding and destruction of bridges and embankments are regular events, causing severe disruption to trade and movement within the country.

As a result, an inland route, the Ho Chi Minh Highway is to be developed as a second north-south arterial route. This will also have major effects in promoting economic development in the inland areas that have been largely left behind in the ongoing modernization of the rest of the country. The Vietnamese Government approved construction of the HCM Highway in 1998, and in 1999 the Ho Chi Minh Highway Project Management Unit (HCM-PMU) was organized within the Ministry of Transport (MOT) as a dedicated agency responsible for the manning, environmental impact assessment and budgetary management of the construction Project.

The route largely follows the old Ho Chi Minh Trail, the famous supply route used during the American War. Subjected to heavy bombing and mining, a large quantity of unexploded ordinance (UXO) and landmines remain along the route of the new highway. They must be removed and made safe, and represent a major obstacle to implementation of the construction project.

This is a time-consuming operation, and is hampered by the need to remove the often-dense vegetation. There is also the risk of encountering detonating a mine. A great procurement to the speed and safety of manual clearance can be made by provision of mechanized bush cutting machines, which carry out the first essential stage of the work.

This project is therefore the procurement of mechanized only bush cutting equipment in order to improve the speed and safety of bush cutting operations on the route of the Ho Chi Minh Highway.

CHAPTER 2

CONTENTS OF THE PROJECT

CHAPTER 2 CONTENTS OF THE PROJECT

2-1 Basic Concept of the Project

The cooperation project proposed has been designed with appropriate scale and content, and with due consideration given to the operation and maintenance system, manning, technology and financial capacity of the recipient country to ensure that the equipment will continue to be used efficiently and effectively in the future. Lessons learnt from evaluation of other similar or related projects have been incorporated where possible.

Since this is a Japanese Grant Aid funded project, the equipment will be procured in Japan. It will be delivered to an MOT-sponsored maintenance shop about 100km from Port Hai Phong. The MOT is responsible for expenditure on personnel costs for logistic, maintenance and management services.

The equipment procured under the Project is only to be used for the clearance of undergrowth, bushes and creepers along the HCM Highway route. Since the highway construction is planned as a phased project, its completion will not be until approximately 2020 and the equipment is intended to contribute during this period.

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

2-2-1-1 Natural Conditions

- Due to severe heat and high humidity, operator comfort must be considered.
- Selection of vehicles must take into account the fact that access and construction road conditions are poor after rain.

2-2-1-2 Topographic Characteristics

The equipment is to be used at remote sites in hilly terrain far from workshop facilities.

2-2-1-3 Equipment Specifications

The equipment shall be designed and constructed appropriate to the severity of the operating conditions including natural, topographical and geographical conditions,

and possible explosion of antipersonnel mines. The equipment must be resistant to, or be easily repairable when the bush cutters trigger detonation of a mine.

2-2-1-4 Maintenance

- Selection of equipment should take into account the models and size of equipment which are already familiar to local operators and mechanics.
- To simplify maintenance operations, inclusion of high-tech electric devices should be kept to a minimum.

2-2-1-5 Spare Parts

Sufficient replacement parts and consumables for the short-term should be provided initially, and a clear means of ensuring adequate budget to provide for long term maintenance and operational funding set in place. Training to improve maintenance and operation skills should be provided if required.

2-2-1-6 Transportation

Shipping should be to a major port served by regular cargo routes, and with the handling facilities to unload the equipment. The route from the port to the destination should be checked for accessibility, and the delivery destination selected.

2-2-1-7 Technical Assistance

In response to a request for assistance to improve maintenance and management procedures, technical assistance will be provided to train staff of MOT and relevant organizations. Necessary procedures and record keeping methods for operation and management will be developed, and the introduction of a computer-based record keeping system considered.

2-2-2 Basic Plan

2-2-2-1 Construction Schedule

The quantity of equipment required is determined by the construction schedule of the HCM highway. The equipment supplied should be capable of clearing sufficient vegetation per day to meet the highway progress milestones.

In seven years from 2004 to 2010, the area requiring mine clearance in section 1-a and 1-b is 107,200,000 m² (1,340,000m × 80m). The productivity of one Bush

Cutter unit is around $4,000\text{m}^2$ / day. Hence for an assumed annual availability of 200 days/year, annual output of one unit is $800,000\text{m}^2/\text{year}$ ($4,000\text{m}^2/\text{unit day} \times 200 \text{ day/year}$), and the number of units required to complete the work in the allotted time is 19 units. ($107,200,000\text{m}^2/ 800,000\text{m}^2/\text{unit year}$)

2-2-2-2 Client Resources

A further consideration in deciding the quantity and type of equipment to supply is the structure and capacity of the existing resources of the client. At present, mine disposal teams available to the HCM highway project are organized into twenty (12) teams under MOT. There is scope for the formation of additional teams if required to accelerate the progress of the works and to meet the construction tempo, HCM-PMU have established eight (8) more mine disposal teams and have intended to complete their training by the end of 2002 due to HCM highway project is very important national project. Thus the number of trained mine disposal teams shall be twenty (20).

2-2-3 Basic Design

The basic design of the grant aid assistance recommended for the current project is set out in the following section.

2-2-3-1 Quantity of Bush Cutters

Based on the daily work output requirement and the structure of the mine clearance teams available on the project, it is recommended to provide one bush cutter unit to each mine disposal team, for a total of twenty (20) machines.

2-2-3-2 Support Equipment

The MOT has a shortage of low bed trucks for transporting heavy equipment, and hence low loader lorries should also be supplied under the project. In view of the division of the highway construction work into two packages (sections 1a and 1b), two sets of support equipment are envisioned. The tractor head with trailers will have the capability of:

- a) Shipping the bush cutter units to site
- b) Moving the bush cutter units between worksites
- c) Transporting bush cutter units to workshops for routine maintenance and breakdown repair

In order to work in the often-remote worksites, support equipment in the form of fuel tankers, mobile repair/maintenance trucks is also required. These vehicles should be capable of operating in rough terrain and will be 4x4 or 6x4 type vehicles.

A summary of the recommended equipment is given in Table 2-1.

Table 2-1 Equipment List

No.	Equipment	Specification	Unit	Quantity	Applications
1	Bush cutter	30 ton	Unit	20	Clearance of vegetation
2	Tractor head with trailer	35 ton	Unit	2	Transporting bush cutters
3	Fuel tanker	14,000 litre	Unit	2	Re-fueling
4	Mobile workshop	4x4 with 3-ton crane	Unit	2	Field repair and maintenance of bush cutters
5	Trucks	0.5-ton	Unit	9	Inspection and material transport

2-2-3-3 Specification of Bush Cutters

The bush cutter is a mobile unit that can work in rough terrain, cutting vegetation at a safe distance in front of the machine to ensure safety of the operator inside the cabin in case of detonation of a land mine or shell. For this reason, a tracked excavator is used as a base machine, with a cutter and grapple attachments mounted on the end of the boom extending up to 10m in front of the machine. The principal performance requirements are as follows:

(1) Protection of operator's cab

For the purpose of protecting the operator from accidental detonation of anti-personal mines, the operator's cab shall be designed to meet the specifications specified by the Cambodian Mine Action Center (CMAC).

The operator's cab shall have a wide-angled view, and shall be equipped with air conditioner, wipers and an escape hatch in case of rollover accidents.

(2) Protection of equipment

The bush cutter shall be able to continue bush clearance even if an antipersonnel mine is detonated. It shall be designed and constructed according to specifications equivalent to or better than CMAC's.

(3) Operating weight

The weight of the bush cutter including cutter attachment should be 30-35 tones to allow transport to work sites using existing roads and bridges. Ground pressure should be less than 0.6kg/cm^2 given the often-soft ground conditions.

(4) Working radius

The working radius shall be a minimum of 10m measured from the rotational axis of the excavator body to the near edge of the cutter attachment. This provides safe working conditions for the operator, and also allows a width of 20m to be cleared in one pass.

(5) Minimum working height

The working height shall be up to a minimum of 10m above the ground. This is to allow tall slender trees to be cut first at a height up to 10m above the ground. If trees of this height are cut at ground level, there is a risk that as they fall they will trigger detonation of mines close to the machine body. For this reason, the length of cut sections of tree/branch is restricted.

(6) Swinging speed

The bush cutter is used on a variety of vegetation with the cutter attachment moving at a speed in the range 2 to 5 km/h with the boom at maximum reach.

(7) Cutting performance

The bush cutter must cut small trees with trunk diameter up to 30cm. Larger trees are cut by hand.

Vegetation is cut as low as possible, 10cm above ground level to give the clearest possible view of the ground surface in order that mines can be seen, anything but it is not digging the under ground level. This means that the cutting attachment /discs will often be impacting soil and gravel, boulders, rocks or other hard objects at the ground surface. The design of the cutter attachment, cutter blades, and cutting action must aim to give the most durable performance possible.

All the cut vegetation is to be removed efficiently by means of a rake/grapple attachment. This attachment could either be integral with the cutter, or a separate interchangeable unit.

Table 2-2 Bush Cutter Specification

Item		Specification
I. Main body		
1	Operating weight	30,000 kg or more
2	Engine output	180 HP or more
3	Minimum working radius	10 m or more
4	Minimum working height	10 m or more
5	Forward lifting capacity	1,000 kg or more
6	Lateral lifting capacity	1,000 kg or more
7	Shoe width	700mm or more
8	Ground pressure	up to 0.60kg/cm ²
9	Swinging speed	Cutter moves at 2-5km/h at full boom extension
10	Working grade	20°
II. Bush cutter		
1	Cutter	Shall withstand the shocks due to contact with mud and rock. Shall be capable of quickly cutting off trees with a trunk diameter of up to 30cm. Shall be capable of clipping at a level of 10cm or less above surface.
2	Rake / grapple	To be fitted to the cutter for removal of cut vegetation.
III. Protection		
1	Operator's cab	Protective performance equivalent to or better than the CMAC specification. Good visibility from the cab. The cab shall be equipped with air conditioner, wipers, and an emergency escape in case of rollover accident.
2	Main body	Protective performance to be equivalent to or better than that required by CMAC specification.

2-2-3-4 Tractor Head with Trailer (6 x 4, 35-ton class, steering wheel on left)

Since the access routes are muddy during the rainy season, the trailer shall be 6 x 4, and the coupler shall be of the pitching and rolling type.

Air conditioning is recommended since the climate in Vietnam is characterized by high temperature, high humidity and heavy rain.

2-2-3-5 Fuel Tanker (14,000 litres, 6 x 4, steering wheel on left)

Should be 6x4 drive for traffic ability.

Air conditioning is recommended since the climate in Vietnam is characterized by high temperature, high humidity and heavy rain.

2-2-3-6 Mobile Workshop (4 x 4, 4-ton truck, w/3-ton crane; steering wheel on left)

This vehicle will have to travel about the work sites where bush cutter is operated, and shall be 4 x 4 to ensure traffic ability.

Air conditioning is recommended since the climate in Vietnam is characterized by high temperature, high humidity and heavy rain.

2-2-3-7 Trucks for Inspection and Material Transport

These vehicles should be 4x4 considering the poor road conditions at the work sites. Air conditioning is recommended, and the vehicles should be double cabin type for practicality. Allocation is made on the basis of one vehicle per 10 PMU field staff and one unit for the headquarters.

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The type of equipment required in this project is not manufactured in Vietnam, and hence, in accordance with JICA guidelines for grant aid projects, is to be procured from Japan by competitive bidding. The procurement contract will include shipping to the MOT depot.

HCM-PMU shall be responsible for implementing the equipment maintenance & management system, whereas the MOT-sponsored maintenance shop shall be responsible for actual maintenance and management of the procured equipment.

2-2-4-2 Implementation Conditions

The implementing agency may perform all formalities for import, customs clearance and vehicular number registration, and transportation from Hai Phong to the work site. The consultant will endeavor to ensure all necessary formalities are completed in advance to ensure no delay.

2-2-4-3 Scope of Works

In principle, all procurement services including transportation from port of arrival to the MOT depot will be covered under the procurement contract. This includes port dues. It is to be understood, however, that all formalities for tax exemptions, vehicular number registration, etc. shall be undertaken by the Vietnamese authorities.

2-2-4-4 Consultant Supervision

After exchange of notes, the consultants shall conclude a service contract with HCM-PMU. The services to be provided by the consultants include issuing specifications and calling for tenders, and managing the procurement contract. The services would also include assistance with the on-site reception and inspection of the equipment. The supplier's engineer, under the guidance of the consultant's engineer will give initial training in operation, inspection and servicing of the equipment. The training period will be one month in consideration of the specialist nature of the equipment.

A further important component of the project in order to ensure best use of the equipment and sustainability of the project objectives is to provide training and technical assistance with regard to maintenance and management of construction plant. This training will be arranged by the consultant and will have duration of 2 months, divided as 1.5 months in Vietnam and 0.5 months in Japan.

2-2-4-5 Procurement Plan

During manufacture and on completion, the consultants will undertake inspection duties.

The equipment should be shipped to the port of Hai Phong, which can accommodate ships of 5,000 tonne class, and is well equipped with cargo handling facilities. After unloading, the imported equipment will be transported to the MOT-sponsored maintenance shop in the northwestern suburb of Hanoi, about 100km away from Hai Phong. The route on the way to the maintenance shop is well paved, and will pose no difficulties for transport.

2-2-4-6 Implementation Schedule

Fabrication of major equipment will take 4.0 - 5.0 months, followed by marine transportation, customs clearance and inland transportation requiring 1.5 months.

Technical training for equipment maintenance and management will be provided for 0.5 months in Japan, organized by the project consultants, together with 1.5 months of technical assistance in Vietnam at the time of delivery and acceptance inspection of the equipment.

Thus, the overall schedule will be as follows:

- From E/N to contract award : 3.5 months
- Lead time (from contract awarding to site delivery) : 7.5 months
- Overall project period
(from E/N to delivery, plus one month for training) : 11.0 months
- (• Technical training in maintenance and management (services) : 2.0 months)

A schedule for the project is shown in Table 2-3.

Table 2-3 Project Schedule

	1	2	3	4	5	6	7	8	9	10	11	12
Detail Design	■ (E/N• Contract• Confirmation at the Site)											
	■ (Approval of Tender Document)											
	■ (Bidding• Evaluation)											
	— (Total 3.5 Months) —											
	■ (Preparation of Tender Document)											
Supply	■ (Explanation of Tender Document)											
	■ (Preparation of Machinery Production)											
	■ (Production)											
	■ (Shipment Inspection)											
	■ (Transportation)											
Technical Cooperation	— (Total 7.0 Months) —											
	■ (Site Chech • Delivery)											
Technical Cooperation	■ (Forms)											
	— (Total 2.0 Months) —											
■ (Actually Training)												

■ (Job in Japan)

■ (Job in Vietnam)

2-3 Obligations of Recipient Country

The following obligations are expected of the Vietnamese Government and implementing agency.

- 1) Regarding commissions for banking services: to bear the cost of advising commission of A/P, and payment commission.
- 2) To ensure prompt unloading and customs clearance upon delivery
- 3) Tax exemption of the imported goods
- 4) Internal transportation from the MOT depot to the work site
- 5) Exemption of Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed with respect to the supply of the products and services under the procurement contract
- 6) To maintain and use properly and effectively the facilities and equipment provided under the grant aid
- 7) To bear all expenses other than those covered by the grant aid that are necessary for the transportation, installation, operation and maintenance of the equipment.

2-4 Project Operation Plan

2-4-1 Operation Structure

The Ho Chi Minh Highway Project Management Unit (HCM-PMU) is the implementing agency for the HCM Highway construction project. Similarly, HCM-PMU will be responsible for the operation, maintenance and management of the equipment procured for the proposed project. Until now, however, maintenance and management of equipment has not been part of the scope of works of HCM-PMU and it is necessary to develop an appropriate management system.

The importance of establishing a clear system of ownership, management, and responsibility for maintenance is recognized as being of prime importance for ensuring the sustainability of a project. Consequently, possible options have been considered in detail.

HCM-PMU decided for HCM-PMU to own the equipment, and to provide the machines and equipment to contractors on non-profit base.

This method of maintenance and management is illustrated in Figure 2-1 below.

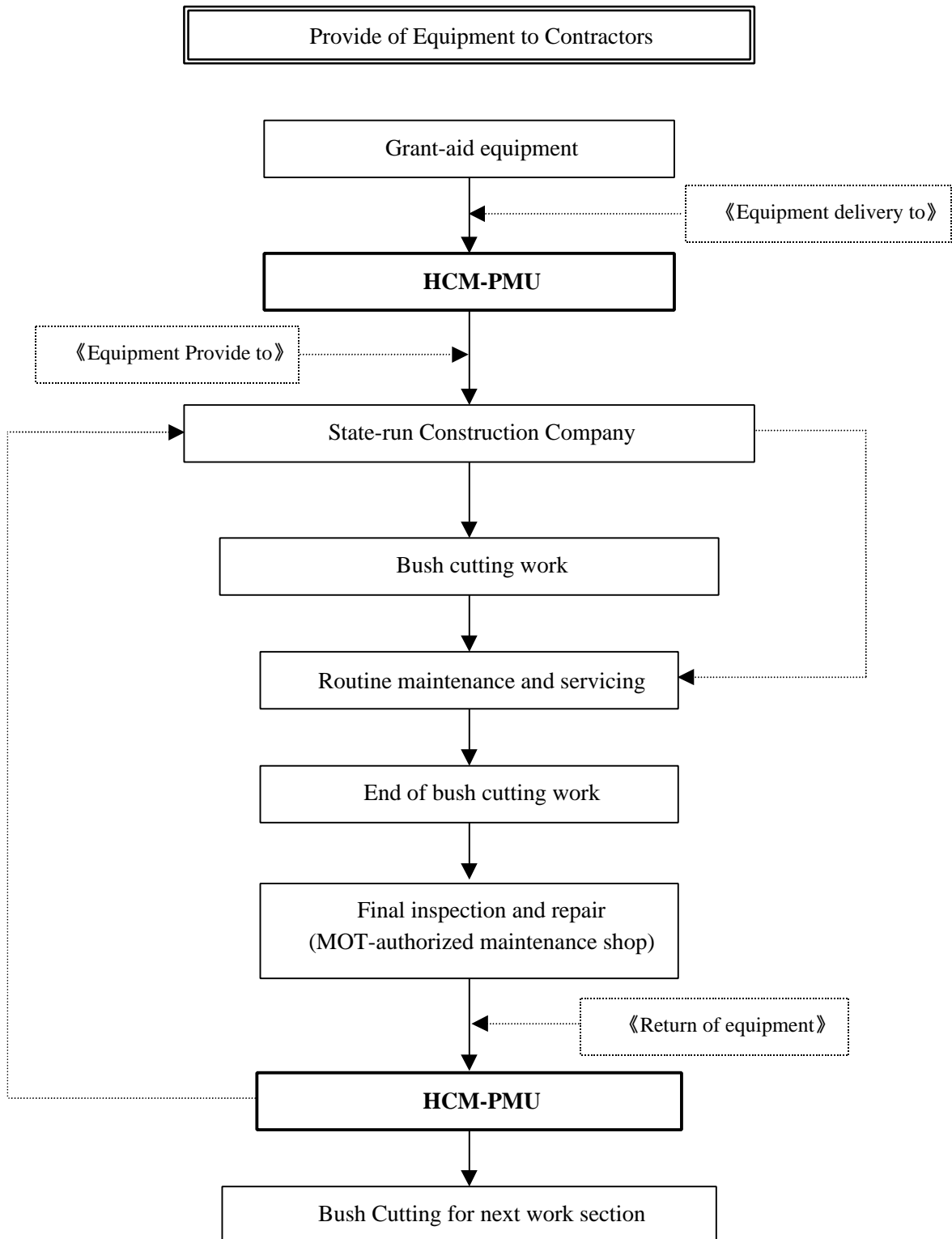


Figure 2-1 Schemes of the Operation and Management by HCM-PMU

2-4-2 Technical Assistance for Operation and Maintenance Training

2-4-2-1 Status Quo and Problems of Maintenance and Management System

Operational structure is adopted for the equipment supplied leasing to contractors, there is a need for an equipment management capability in the HCM-PMU. This includes the tasks of controlling the allocation of the equipment, its funding, and an overview role in checking that maintenance and ordering of parts is being carried out correctly. The unit has not until now undertaken such work, hence technical assistance will be provided to establish the organization and to train personnel in this work.

Maintenance operations are planned to be carried out in the field where possible, with major repairs carried out in the MOT-sponsored maintenance shops. The planned method is illustrated in Table 2-4.

Table 2-4 Maintenance and Management System

	Routine inspection and servicing	Field emergency repair (by mobile repair shop)	Periodic inspection	Medium-scale repair	Large-scale repair	Training (operators and mechanics)
Site shop of state-run civil engineering and construction firm						
MOT-sponsored maintenance shop						
Transport Technical and Professional School No.1						

There is therefore a need for training to be provided to technicians assigned to the mobile repair trucks, to staff in the workshops, and possibly also to contractor's personnel. The contents and objectives of the planned training course is described below.

(1) Accurate identification of the conditions of equipment and materials

For the purpose of maintenance and management of construction machinery, it is necessary to establish a system of documentation to make an accurate record of data on the equipment out on loan, schedule for future demand, operation, maintenance and repair and to take an accurate inventory of replacement parts.

(2) Assurance of availability of equipment in an efficient condition

If the periodic inspection and maintenance of equipment is conducted in a planned manner, the potential defects that may lead to machine failure will be located early, and the procurement of replacement parts and repair will be carried out efficiently and effectively. Eliminating errors in the placement of orders and delay in maintenance due to replacement parts having run out of stock is a key to avoid the fall of equipment availability. For this reason, it will be necessary to develop a proper equipment & parts management system and simplify the ordering procedures.

(3) Quick arrangements for equipment repair and replacement parts ordering

Exchange of data sheets recorded at workshops often leads to errors in transcription and calculation at the time of enumeration. If stocktaking survey is insufficient, discrepancies may develop between actual inventory and documentary data. This in turn may cause delay in release of orders for equipment repair and replacement parts, seriously affecting planned operation, maintenance and servicing. For this reason, data processing should be computerized in the future.

2-4-2-2 Objectives

The technical assistance service is to be provided for the purpose of establishing an efficient and effective maintenance and management system for equipment. To this end, the following objectives must be achieved in advance.

To keep track of accurate status of actual and planned use of bush cutters for the HCM Highway construction project.

To conduct short-term inspection and maintenance in a planned manner.

To conduct equipment repair and parts procurement quickly in a planned manner.

Table 2-5 Objectives, Activities and Results

Objectives/activities	Action schedule	Responsible party	Action	Result	Direct effect
Accurate identification of the conditions of bush cutters					PMU gains understanding of principles of management of equipment, and parts control.
- Development of equipment operation plan (lending plan)	Field training month 1	C/V	Explanation and discussion about lists	Operation plan	
- Explanation and discussion about equipment list	Field training month 1	C/V	Explanation and discussion about list		
- Development of equipment list	Field training month 1	C/V	Training in the organization of source material and forms and in the filling-out procedures	Equipment list	
- Development of parts list	Field training month 1	C/V		List of parts furnished	
- Development of check-in and check-out slips	Field training month 2	C/V		Check-in and check-out slips	
Systematic execution of inspection and maintenance					Machine failure rate is reduced, and the time required to repair the machine can also be reduced.
- Explanation and discussion about manual furnished with the procured equipment	Field training month 1	C/V	Explanation and discussion about manual		
- Development of periodic maintenance check sheet	Field training month 2	C/V	Training in the preparation of check sheet	Periodic maintenance check sheet	
- Development of operation log form	Field training month 1	C/V	Training in the preparation of log form	Operation log form	
- Development of periodic inspection/failure/repair log form	Through the entire period of field training	C/V	Training in the development of forms and in the entry procedures	Log forms	
- Systematic procurement of parts	Field training month 2	V	Training in the preparation of parts procurement plan	Master procurement schedule for parts	

C: Consultant

V: Vietnamese counterpart

2-4-3 Management and Operations Costs

2-4-3-1 Management Costs

The budgetary requirements to be arranged by the Vietnamese Government for management costs are estimated as follows:

• Manager	14,400 (US\$/year)	1,774.6 (¥1,000/year)
• Engineer	12,000(US\$/year)	1,478.9 (¥1,000/year)
• Secretary	4,200 (US\$/year)	517.6 (¥1,000/year)
• Clerk	3,600 (US\$/year)	443.7 (¥1,000/year)
• Storekeeper	3,000 (US\$/year)	369.7 (¥1,000/year)
• Total	37,2 00 (US\$/year)	4,584.5 (¥1,000/year)

(1 USD : ¥123.24)

2-4-3-2 Operation and Maintenance

The cost for operation and maintenance of the equipment requested for the project is estimated according to the following conditions.

- In accordance with the Construction Machinery Operation/Rental Price Guide as produced by the Ministry of Land, Infrastructure and Transport of Japan, 2001.
- The cost for maintenance and operation includes driver's fees, fuel and lubricant cost, labor and maintenance, servicing and spare parts costs.

Table 2-6 Annual Equipment Cost of the Proposed Equipment

(Unit: Million Yen)

Proposed equipment	Annual equipment cost
Driver	10.74
Fuel	21.90
Labor of maintenance	3.02
Maintenance and repair	40.21
Subtotal	75.87
Overhead cost (not including management cost*)	95.05
	170.92

* Note: Management cost refers to taxes, insurance, storage cost and other overhead costs resulting from the ownership of the equipment. It has been ignored here because it will be minimal because HCM-PMU is the owner.

The Brush Cutters will be lent to state-run construction companies which are under contract to the Ho Chi Minh Project Management Unit (HCM-PMU). Therefore each state-run construction company will have direct responsibility and expenses of the equipments are not produced for HCM-PUM.

The amount shown above will be included as a cost item in the HCM Highway construction project.

2-4-3-3 Procurement of Spare Parts

Procurement of spare parts is of critical importance to ensuring the extended service life of the equipment. Replacement parts and consumables for at least one year of operation will be provided with the equipment, and subsequent spare parts procurement will be managed by HCM-PMU with budget provision as discussed in the subsection above.

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3 PROJECT EVALUATION AND RECOMMENDATIONS

3-1 Project Effects

Results to be expected through the implementation of the Project are as follows.

3-1-1 Direct Effects

(1) More efficient bush cutting work

Bush cutting work is the most time consuming aspect of mine clearance work, accounting for around 70 percent of the man-hours requirement. The introduction of mechanized techniques of brush clearance will permit faster and more efficient working.

(2) Improvement of a bush cutting worker's safety

There is a high risk of explosion of mines during bush-cutting work, which can injure or kill the operatives carrying out the work. Introduction of mechanised equipment to carry out the work decreases the number of operatives working at this stage of the operation, and the equipment operator is protected in a specially designed cabin.

One accident has already occurred during mine-clearance for the Ho Chi Minh Highway project, and provision of bush-cutting equipment will greatly improve the safety of working conditions for mine-clearance personnel.

(3) Improvement of maintenance operation capability

The maintenance operation capability in the government sector will improve as a result of training carried out under the project.

3-1-2 Indirect Effects

(1) More rapid construction of the HCM highway

Mechanized brush-clearance will lead to time and cost savings on the HCM highway construction project.

(2) Economic benefit

Early completion of the HCM highway will provide economic benefit and improvements in social conditions to the isolated communities in the rural areas to be linked by the highway.

3-2 Recommendations

3-2-1 Issues to be Handled by the Counterpart

(1) Management and maintenance supervision

It is intended that state-run construction companies will operate the bush cutting equipment and carry out day-to-day maintenance of the equipment. The implementing agency must however establish an organization within HCM-PMU to carry out management and maintenance supervision of the equipment.

(2) Reservation of staff and fund resources

Personnel and budgetary allocations are required for the management and maintenance supervision unit mentioned above.

(3) Construction of HCM highway as planned

Planning and budget approval has already been given for the HCM highway construction project. The Vietnamese government should continue with this project according to plan, in order that the bush-cutter equipment is to have practical use.

3-2-2 Future Technical Cooperation

It is a requirement of all JICA funded projects to undertake evaluation some time after completion of projects. This is to examine the sustainability of each project, to make recommendations for remedial measures if required. The results of evaluations are also important so that lessons learnt may be incorporated into future projects. The implementing agency is requested to cooperate with such evaluation as required in future.

APPENDICES

**Member of the Basic Design Study
on the Project for Procurement of Bush Cutter and Related Equipment
for Ho Chi Minh Highway Project**

1. Nr. Yoshikazu Yamada : Leader
Director, Third Project Management Division, Grant Aid Management, JICA

2. Mr. Yukio Kohsaka : Chief Consultant
Pacific Consultants International

3. Mr. Shigemichi Namiki : Road Construction Machinery Planning 1
Pacific Consultants International

4. Mr. Shigenobu Suzuki : Road Construction Machinery Planning 2
Pacific Consultants International

5. Ms. Jemgi Kojika : Interpreter
Pacific Consultants International

Survey Schedule of Basic Design Study on the Project for Procurement of Bush Cutter
and Related Equipment for Ho Chi Minh Highway Project (Site Survey)

Date			Mr. Yamada (JICA)	Mr. Kohsaka (PCI)	Mr. Namiki (PCI)	Mr. Suzuki (PCI)	Ms. Kojika
1	26-Aug	Sun	Continue from another team	Narita - Hongkong - Hanoi			
2	27-Aug	Mon	Courtesy call to JICA Hanoi office, EOJ in Hanoi, MOT				
3	28-Aug	Tue	Discussuin with HCM-PMU				
4	29-Aug	Wed	Discussuin with HCM-PMU				
5	30-Aug	Thu	Signing on the Minutes of Discussions				
6	31-Aug	Fri	Discussuin with JICA Hanoi office	Discussuin with HCM-PMU			
7	1-Sep	Sat	Hanoi-Hongkong-Narita	Internal Meeting			
8	2-Sep	Sun		Internal Meeting			
9	3-Sep	Mon		Internal Meeting			
10	4-Sep	Tue		Discussion and inspection with 120 maintainance company			
11	5-Sep	Wed		Discussion and inspection with The 1st traffic technology training school			
12	6-Sep	Thu		Discussion with construction company CIENCO No.1			
13	7-Sep	Fri		Discussuin with HCM-PMU			
14	8-Sep	Sat		Internal Meeting			
15	9-Sep	Sun		Internal Meeting			
16	10-Sep	Mon		Site survey 1 - b (Thanh Hoa)			
17	11-Sep	Tue		Site Survey 1 - b (Ne An)			
18	12-Sep	Wed		Site survey 1 - a (Quang Tri)			
19	13-Sep	Thu		Site survey 1 - a (Quang Tri)			
20	14-Sep	Fri		Quang Tri - Hanoi			
21	15-Sep	Sat		Internal Meeting			
22	16-Sep	Sun		Internal Meeting			
23	17-Sep	Mon		Discussuin with HCM-PMU			
24	18-Sep	Tue		Discussuin with HCM-PMU			
25	19-Sep	Wed		Discussuin with HCM-PMU			
26	20-Sep	Thu		Discussuin with HCM-PMU			
27	21-Sep	Fri		Courtesy call to JICA Hanoi office, EOJ in Hanoi, MOT			
28	22-Sep	Sat		Internal Meeting			
29	23-Sep	Sun		Internal Meeting			
30	24-Sep	Mon		Hanoi - honkong - Narita			

Survey Schedule of Basic Study on the Project for Procurement of Bush Cutter
and Related Equipment for Ho Chi Minh Highway Project (Explanation Draft Report)

Date			Mr. Yamada (JICA)	Mr. Murata (JICA)	Mr. Kohsaka (PCI)	Mr. namiki (PCI)	Ms. Kojika
1	11-Nov	Sun	Continue from anoter study	Narita - Hongkong - Hanoi			
2	12-Nov	Mon	Courtesy call to JICA Hanoi office, EOJ in Hanoi, MOT				
3	13-Nov	Tue	Discussuin with HCM-PMU				
4	14-Nov	Wed	Discussuin with HCM-PMU				
5	15-Nov	Thu	Discussuin with HCM-PMU				
6	16-Nov	Fri	Signing on the Minutes of Discussions				
7	17-Nov	Sat	Hanoi - Hongkong - Narita		Internal Meeting		
8	18-Nov	Sun			Internal Meeting		
9	19-Nov	Mon			Discussuin with HCM-PMU		
10	20-Nov	Tue			Hanoi - Hongkong - Narita		

Appendix-3 List of Parties Concerned in the Recipient Country

List of Parties Concerned in the Recipient Country

Name	Title	Authority/Firm
HA DINH CAN	General Director	PMU/HCM
LE MINH CHAU	Chief Administrative	PMU/HCM
PHAM HONG SON	Vice General Director	PMU/HCM
DO BAC	Chief of Expertise	PMU/HCM
NGUYEN NGUYET NAG	Expert	International Relations Dep. MOT
NGUYEN NGOC TRAN	Chief Direction for Investment Preparation	PMU/HCM
NGUYEN VAN DAC	Adviser Tech. Division	PMU/HCM
NGUYEN QUANG DONG	Director of Dept for Policy	Office of the Government
NGUYEN VAN LUC	Chief Accountant	Office of the Government
DUONG VAN KHOI	Vice Chief Accountant	Office of the Government
VU DUY LOAT	Vice Director of Pharmacy and Economic Division	PMU/HCM
NGUYEN MINH HAI	Director of Technical Division	PMU/HCM
NGUYEN DVC THANG	Director of Pharmacy and Economic Division	PMU/HCM
BUI VAN HUE	Deputy Chief of Diversion for Investment Preparation	PMU/HCM
DONG TUAN MINH	Vice General Director	PMU/HCM
PHAM VAN MINH	Deputy Director of Dept for Sectors Economic	Office of the Government
NGUYEN VAN NHAT	Director of Dept for Infrastructure	MPI
TRAN DOAN THO	Vice Minister	MOT
TAUONG TAN BIEN	Active Director of Planning and Investment Dept	MOT
PHAM MINS CHINS	Director	Ministry of Interval Affairs
DANG VAN DING	Deputy Chief of Diversion	Ministry of Interval Affairs
DAO VAN DUONG	Director	Technical & Professional School for Transport 1
HA CAO DAM	Vice General Director	Civil Engineering Construction corporation No.1
DO DUC HOP	Director	120 Mechanical Company

Minutes of Discussions

On the Basic Design Study

On the Project for Procurement of Bush Cutting and Anti-Personnel Landmine Disposing Machine and Relative Equipment for the Ho Chi Minh Highway Project In the Socialist Republic of Vietnam

In response to the request from the Government of the Socialist Republic of Vietnam (hereinafter referred to as "Vietnam"), the Government of Japan decided to conduct a Basic Design Study on the Project for Procurement of Bush Cutting and Anti-Personnel Landmine Disposing Machine and Relative Equipment for the Ho Chi Minh Highway Project (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

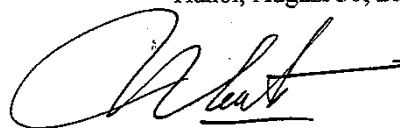
JICA sent to Vietnam the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshikazu Yamada, Director of the Third Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from August 26 to September 1, 2001.

The Team held discussions with the concerned officials of the Government of the S.R. Vietnam. In the course of the discussions, both parties have confirmed the main items as described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

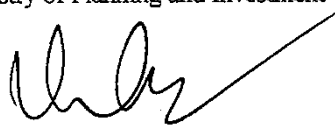
Hanoi, August 30, 2001.



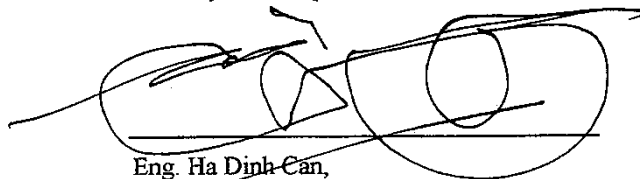
Yoshikazu Yamada,
Leader,
Basic Design Study Team,
Japan International Cooperation Agency



Nguyen Ngoc Nhat,
General Director,
Infrastructure Department,
Ministry of Planning and Investment



Truong Tan Vien,
Acting Director General,
Planning and Investment Department,
Ministry of Transport



Eng. Ha Dinh Can,
Director General,
Ho Chi Minh Highway Project Management Unit,
Ministry of Transport

7. OTHER RELEVANT ISSUES

(1) The Progress of the HoChiMinh Highway Project

The Team confirmed that the progress of zone 1-a of the Ho Chi Minh Highway Project is almost on schedule. And the Vietnamese side commented that construction work of zone 1-a will be completed by 2003. The zone 1-b is also in progress and will be completed by 2005. As for the other remaining zones (1-c, 2-a, 2-b), they will be rebuilt and upgraded around 2005 – 2010. The zone 3 of expanding the HoChiMinh Highway from Hanoi to HoChiMinh City to 4,6,8 lanes, according to the approved Master Plan will be implemented after 2010.

(2) Equipment procurement

The Team explained to the Vietnamese side that all the equipment procured under Japanese Grant Aid should be procured by tendering. Without any written permission from the Government of Japan, any supplier would not be qualified in advance. The Vietnamese side understood the Team's explanation.

(3) Necessity of technical training

For the sake of the technology transfer of how to operate the machinery, the Vietnamese side requested the technical training with the period of minimum one month. The Team understood its necessity, and will study the detail of the technical training methods and timing. The results will be explained in the draft report.

(4) Cooperation by other donors

The Team confirmed that the Vietnamese side have not received any other donation for the Ho Chi Minh Highway Project at present, and will inform to the Japanese side of other donors' cooperation plan in case it would be considered.

(5) Operation and maintenance cost for new equipment

The Vietnamese side will allocate the necessary budget and personnel for execution of the Project.

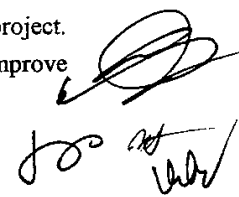
(6) Undertakings required by Vietnamese side

The Vietnamese side confirmed that they should take necessary measures for the tax exemption including VAT and customs clearance.

The Vietnamese side also confirmed that they should complete the Feasibility Study (F/S) of this Project by February 2002.

(7) Limited procurement

There is a certain limit for the number of equipment to be procured through this project. However, the selection of the equipment aims to achieve the maximum effect to improve the road construction facilities of the Vietnamese side under this limitation.



ATTACHMENT

1. OBJECTIVE

The objective of the Project is to support the construction / upgrading the HCM highway, running approx. 2,840km from north to south through procurement of bush cutting and anti-personnel landmine disposing machine and relative equipment.

2. PROJECT SITE

The site of the Project is shown in Annex-1.

3. RESPONSIBLE ORGANIZATION AND IMPLEMENTING AGENCY

(1) Responsible Organization : Ministry of Transport

(2) Implementing Agency : Ho Chi Minh Highway Project Management Unit

The organization charts are shown in Annex-2A and 2B.

4. ITEMS REQUESTED BY THE GOVERNMENT OF VIETNAM

After discussions with the Team, the followings were finally requested by the Vietnamese side in the priority as follows.

(1) Bush Cutter machine × 20 units.

(2) Trailer for Bush Cutter machine × 2 units.

(3) Fuel Tank Truck × 2 units.

(4) Mobile Workshop × 2 units.

(5) Protection Devices for Safety × 50 pairs.

(6) Spare Parts.

JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. JAPAN'S GRANT AID SCHEME

(1) The Vietnamese side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Vietnam explained by the Team as described in Annex-3.

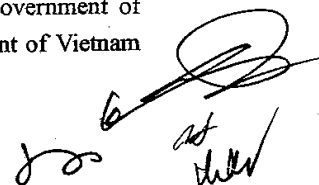
(2) The Vietnamese side will take necessary measures, as described in Annex-4, for smooth implementation of the Project as a condition for the Japanese Grant Aid to be implemented.

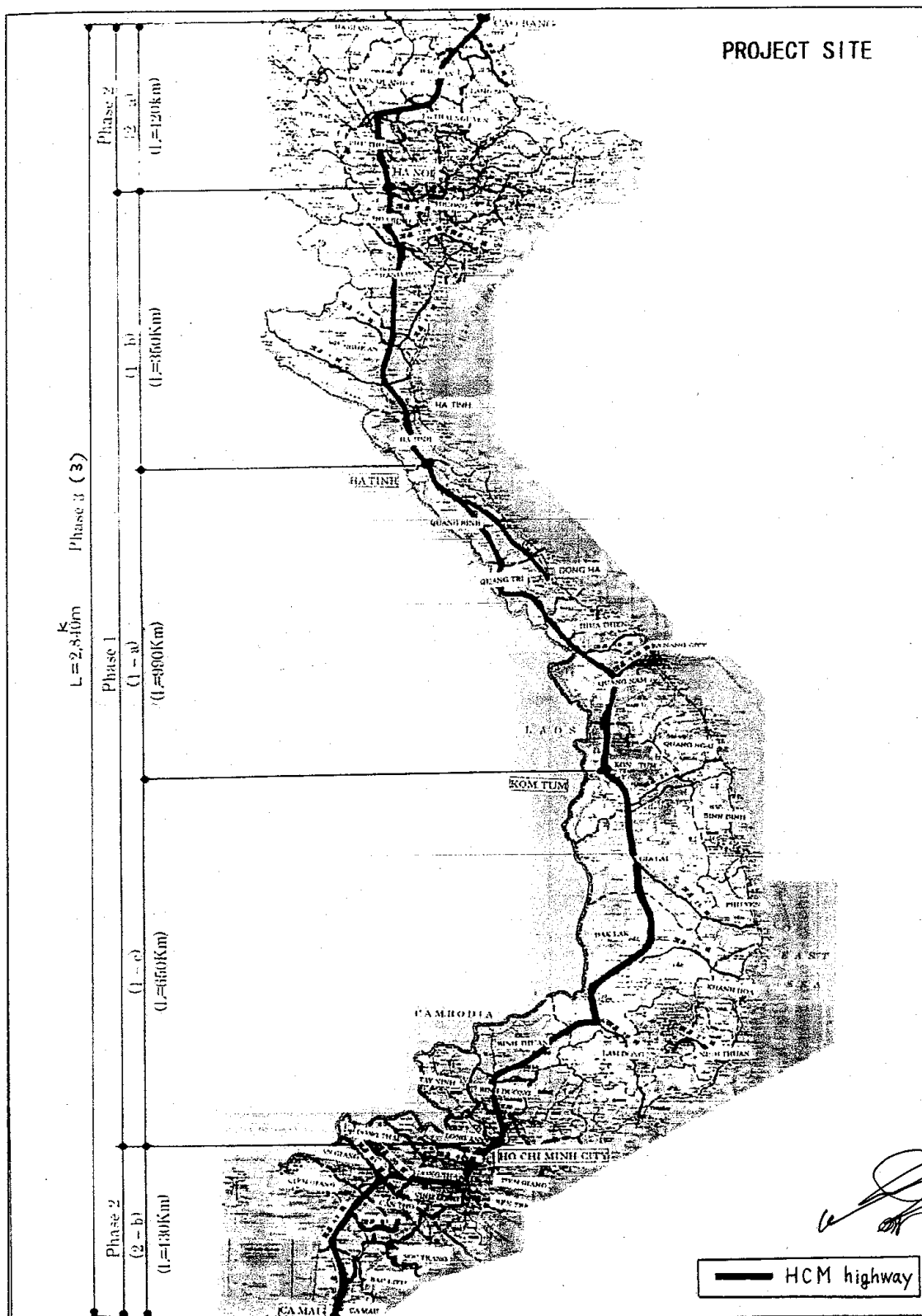
6. SCHEDULE OF THE STUDY

(1) The consultants will proceed to further studies in Vietnam by September 24, 2001.

(2) JICA will prepare the draft report in English and dispatch a mission to Vietnam in order to explain its contents in November 2001.

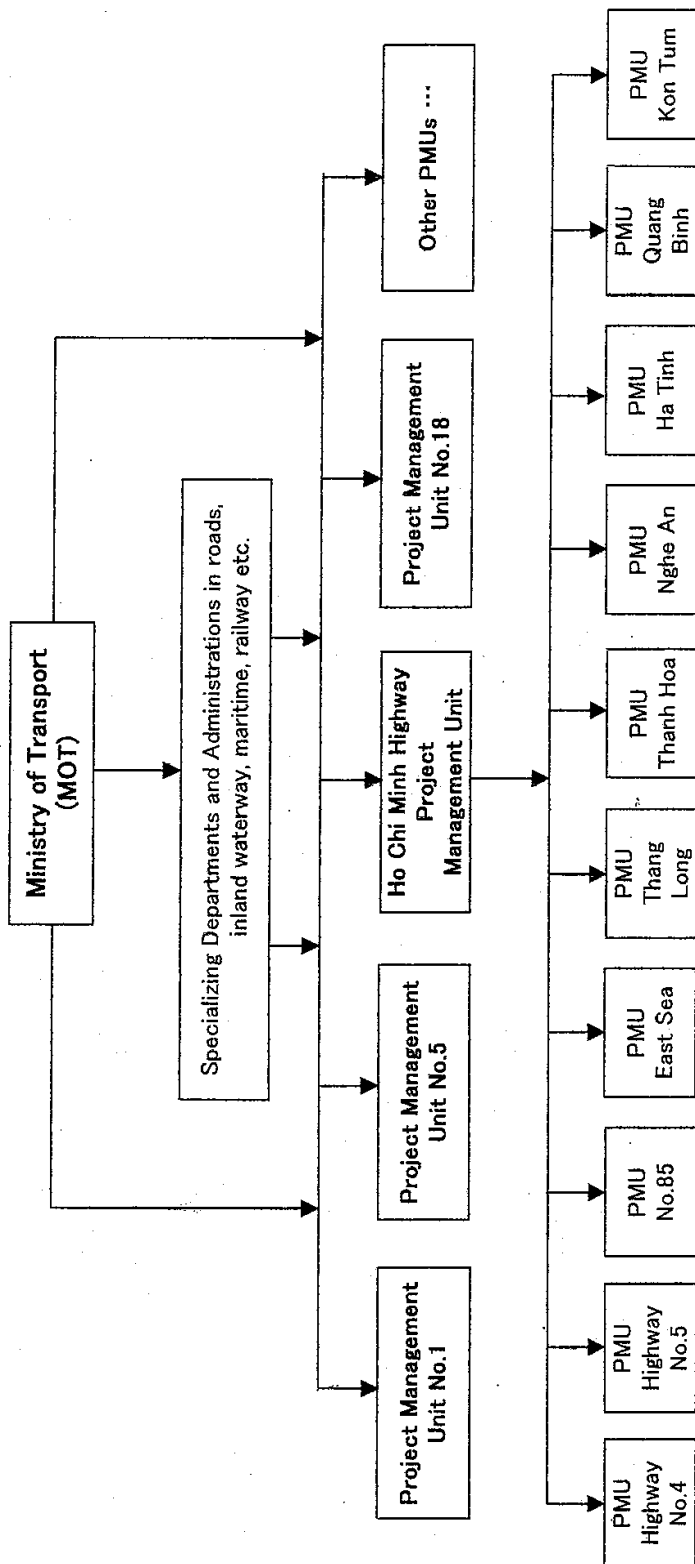
(3) In case that the contents of the report is accepted in principle by the Government of Vietnam, JICA will complete the final report and send it to the Government of Vietnam by January 2002.



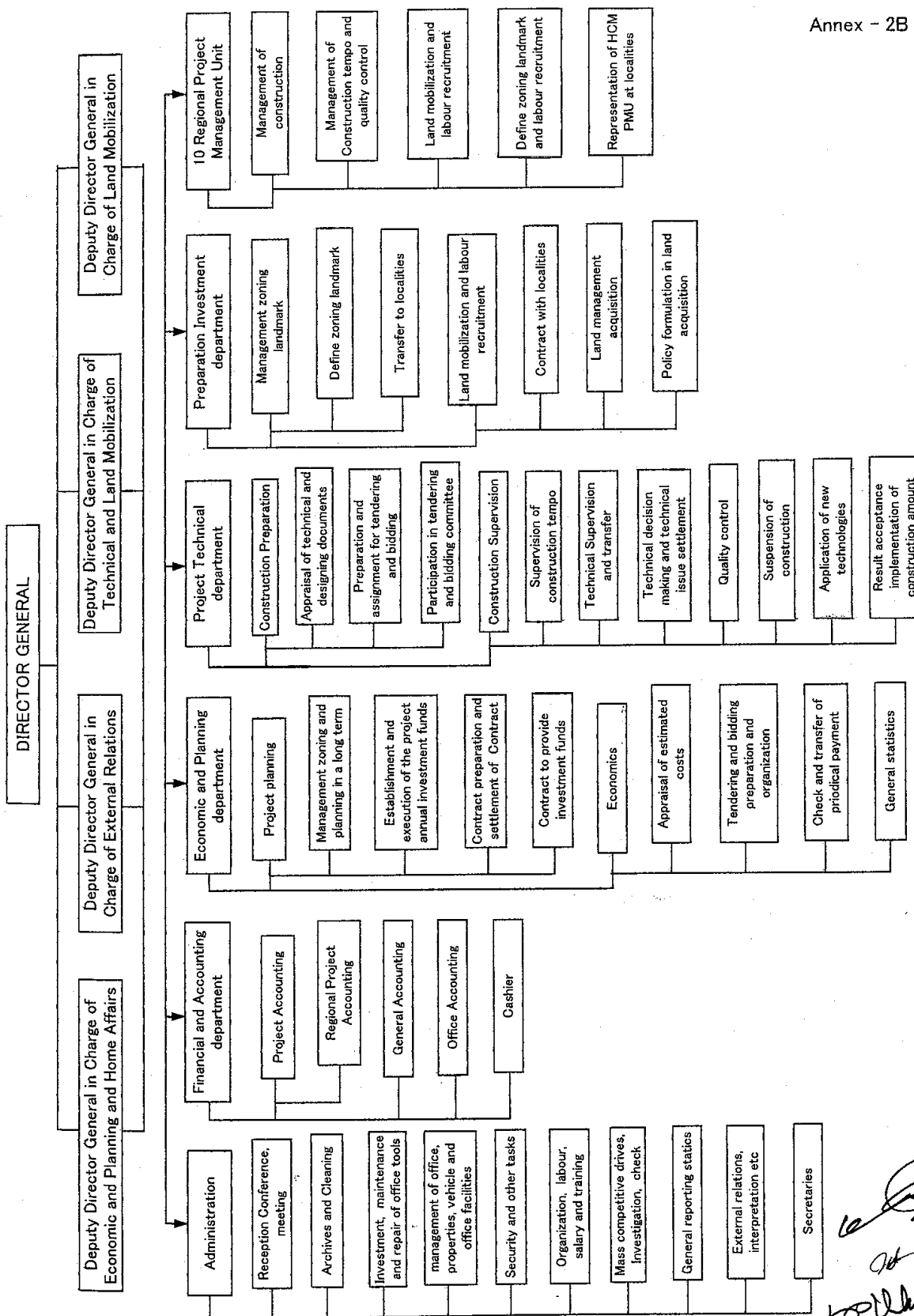


Annex - 2A

ORGANISATION CHART OF HCM HIGHWAY PROJECT MANAGEMENT UNIT(HCM PMU) IN THE MOT



Notes : PMU - Project Management Unit
Regional PMU : 10 Regional PMUs for Ho Chi Minh Highway Project, which on behalf of HCM PMU, help in the management and Monitoring of the HCM Highway at different road sections.



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JAPAN'S GRANT AID

The Grant Aid Scheme 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. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

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

- Application (Request made by the recipient country)
- Study (Basic Design Study conducted by Japan International Cooperation Agency (JICA))
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet)
- Determination of the Implementation (The Note exchanged between the Governments of Japan and recipient country)

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 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.

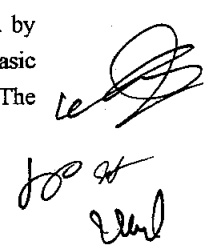
Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

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

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

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

2) Selection of Consultants

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

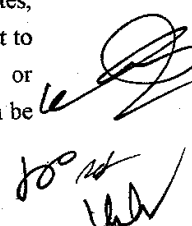
The consultant firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

1) 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.

- 2) "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 Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be



further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

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

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

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

- 4) 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.

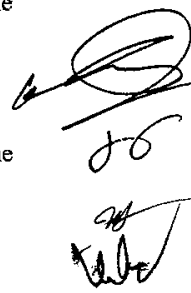
- 5) Undertakings required of the Government of the Recipient Country

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 excursion 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.

- 6) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the

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equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

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

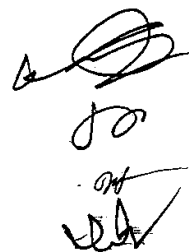
8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in 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 issued by the Government of the recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

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Annex -4

Major Undertakings to be Taken by Each Government

NO	Items	To be covered by Grant Aid	To be covered by Recipient side
2	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		●
3	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port 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 contract		●
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
6	To bear all the expense, other than those to be borne by the Grant Aid, necessary for construction of the facilities		●

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

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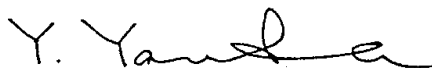
**Minutes of Discussions
on Basic Design Study
on the Project for Procurement of Bush Cutter and Relative Equipment
for Ho Chi Minh Highway Project
in the Socialist Republic of Vietnam
(EXPLANATION ON DRAFT REPORT)**

In August 2001, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Procurement of Bush Cutting and Anti-Personnel Landmine Disposing Machine and Relative Equipment for the Ho Chi Minh Highway Project (hereinafter referred to as "the Project") to the Socialist Republic of Vietnam (hereinafter referred to as "Vietnam"), and through discussion, 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 Government of Vietnam on the components of the draft report, JICA sent to Vietnam the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshikazu Yamada, Director of the 3rd Project Management Division, Grant Aid Management Department, JICA from November 10 to November 20, 2001.

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

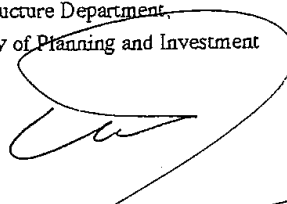
Hanoi, November 16, 2001




Yoshikazu Yamada,
Leader,
Draft Report Explanation Team,
Japan International Cooperation Agency



Nguyen Ngoc Nhat,
General Director,
Infrastructure Department,
Ministry of Planning and Investment



Tran Quang Minh,
Deputy Director General,
Planning and Investment Department,
Ministry of Transport



Eng. Ha Dinh Can,
Director General,
Ho Chi Minh Highway Project Management Unit,
Ministry of Transport

ATTACHMENT

1. Components of the Draft Report

The Vietnamese side agreed and accepted in principle the components of the draft report explained by the Team. Main components of the Project are shown in ANNEX-1 as a result of the discussion. JICA will assess the appropriateness of the components and will recommend to the Government of Japan for approval.

2. Japan's Grant Aid Scheme

The Vietnamese side understood the Japan's Grant Aid scheme and the necessary measures to be taken by the Vietnamese side as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on August 30, 2001.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed components and send it to the Vietnamese side by the end of January, 2002.

4. Other Relevant Issues

(1) Name of the Project

Both sides confirmed that the name of the project shall be changed from "The Project for Procurement of Bush Cutting and Anti-Personnel Landmine Disposing Machine and Relative Equipment for Ho Chi Minh Highway Project" to "The Project for Procurement of Bush Cutter and Relative Equipment for Ho Chi Minh Highway Project"

(2) Necessity of technical training

Based on the request from the Vietnamese side, the Team explained the contents of technical training on operation of machinery and the consultation services for administrative works on Bush Cutter as one of the components of the Grant Aid.

The Vietnamese side agreed the said contents.

(3) Specifications of equipment

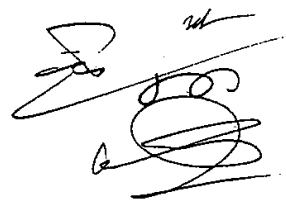
Vietnamese side agreed that the specifications of equipment should be set on the premise of general competitive tender.

(4) Confidentiality of the specifications

The Team handed one copy of the draft-detailed specifications of the equipment to the Ministry of Transport. Both sides agreed that these draft specifications are confidential and should not be duplicated or released to any other outside parties in order to secure the fairness and competitiveness of the tender of the Project.

(5) Property right of equipment

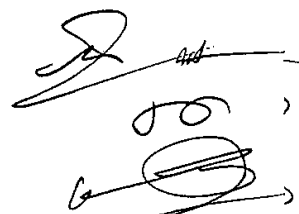
The Ministry of Transport agreed that they should have the ownership of equipment procured by Japan's Grant Aid and take reasonable care to maintain them as national assets.



ANNEX-1

Main Components of the Project

No.	Component	Quantity	Remarks
1	Bush Cutter	12	30 ton
2	Low-Loader trailer and truck	2	35 ton
3	Fuel truck	2	14,000 liter
4	Mobile repair shop	2	4×4 with 3-ton crane

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(November 16 2001)

(6) Administrative framework for the operation and maintenance of equipment

The Vietnamese side agreed that they should decide the administrative system of the equipment selected among the proposed schemes (shown in ANNEX-2, 3, 4) explained by the Team in addition to modifications, if necessary.

The Vietnamese side agreed that they should inform the Japanese side of the feasibility of the system by a letter through the JICA Vietnam Office by the middle of December 2001.

(7) Proper use

The Vietnamese side agreed that they should use the equipment procured under the Japan's Grant Aid properly and effectively on non-profitable base.

(8) The Progress of the Ho Chi Minh Highway Project

The Team reconfirmed that the progress of zone 1-a of the Ho Chi Minh Highway Project is almost on schedule. And the Vietnamese side reconfirmed that the zone's construction work will be completed by August 2003. The tender for zone 1-b has been almost completed on schedule, and will be completed by 2005. As for the other remaining zones (1-c, 2-a, 2-b), they will be rebuilt and upgraded around 2005 – 2010. The zone 3 of expanding the Ho Chi Minh Highway from Hanoi to Ho Chi Minh City to 4, 6, 8 lanes, according to the approved Master Plan will be implemented after 2010.

(9) Cooperation by other donors

In case there will be any offers by other donors relating to the zone 1-a and 1-b of the Ho Chi Minh Highway Project, the Vietnamese side shall inform the Japanese side of the offers in order to avoid the duplication with the Project.

(10) Operation and maintenance for equipment

The Vietnamese side agreed that the equipment procured under the Japan's Grant Aid should be operated and maintained as shown in ANNEX-5.

The Vietnamese side agreed that they should allocate enough budget and personnel necessary for this operation and maintenance.

(11) Trucks for inspection and transportation of materials for Bush Cutters

The Vietnamese side strongly requested that they need nine (9) trucks because of inspection and transportation of materials for Bush Cutters for efficient use under the limited number of Bush Cutters and shortage of the number of trucks the Ho Chi Minh Project Management Unit (HCM PMU) has now.

The Team understood the request and will convey it to the Japanese side. The Japanese side will inform the result of the request of the Vietnamese side through JICA Vietnam Office by the middle of December.

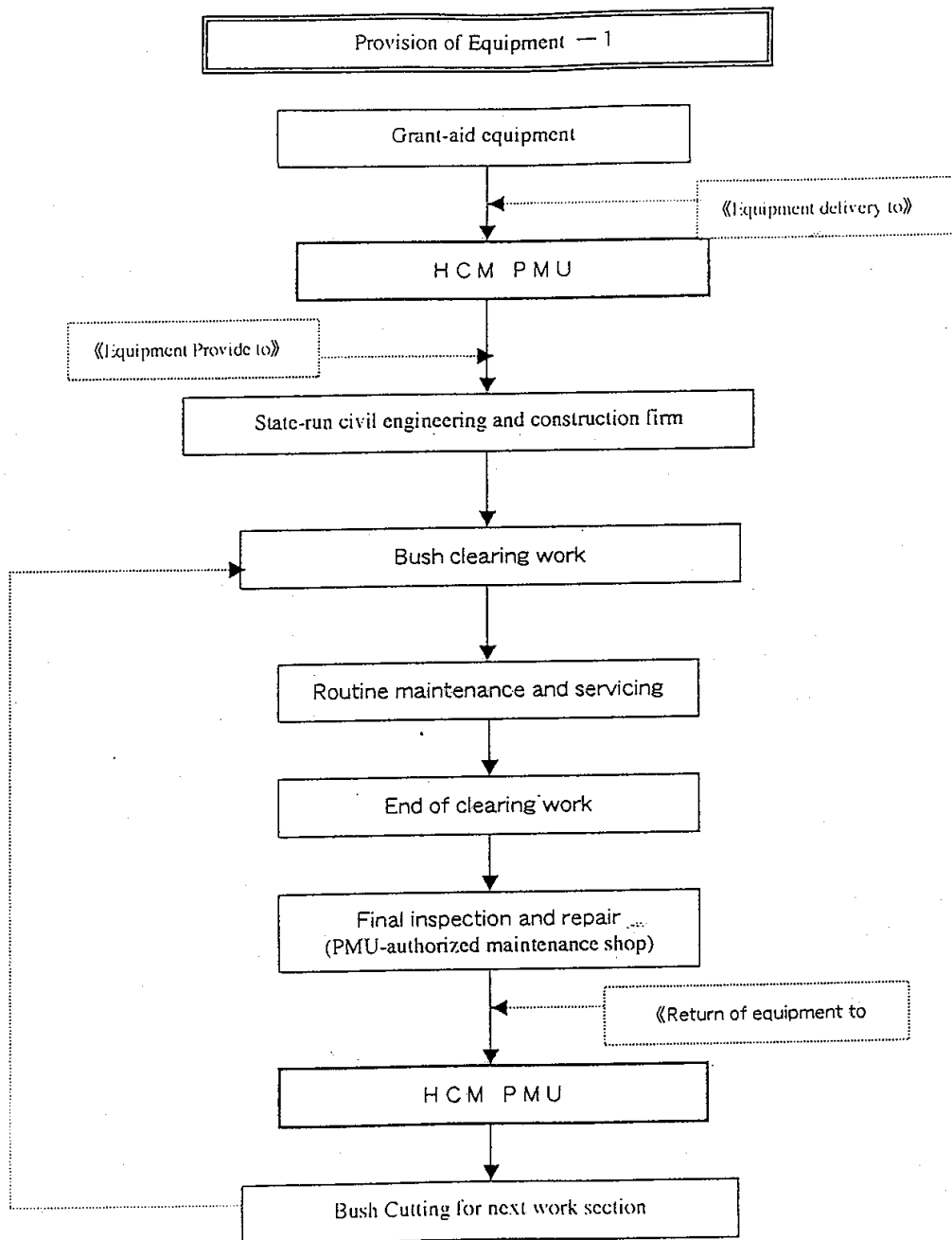
(12) Undertakings required by the Government of Vietnam

The Vietnamese side agreed that they should take all the necessary measures to exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes including VAT, and other physical levies which may be imposed in Vietnam regarding the procurement of equipment and materials and services under the verified contracts.

The Vietnamese side also agreed that they should complete the Feasibility Study (F/S) of this Project by February 2002.

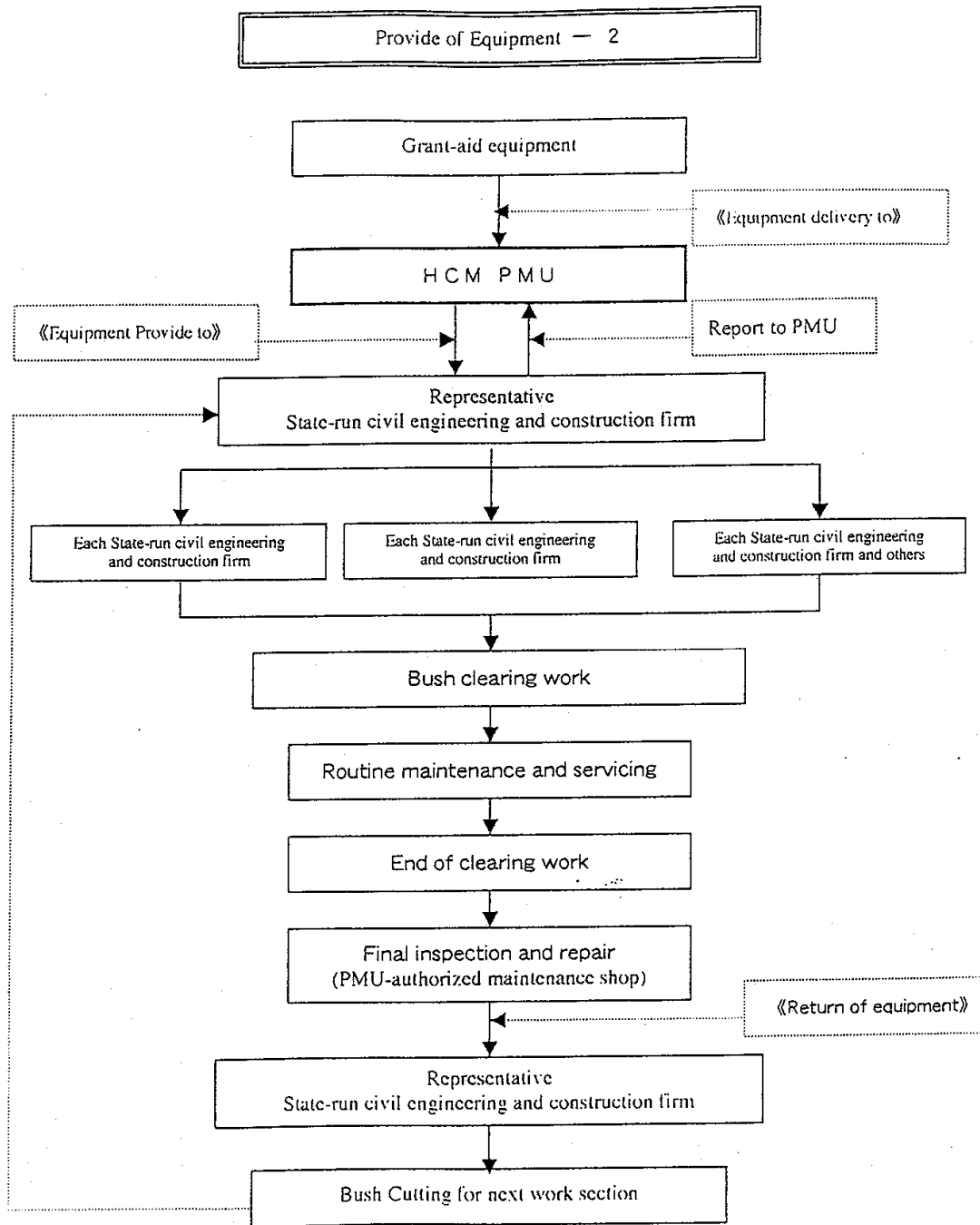


ANNEX - 2



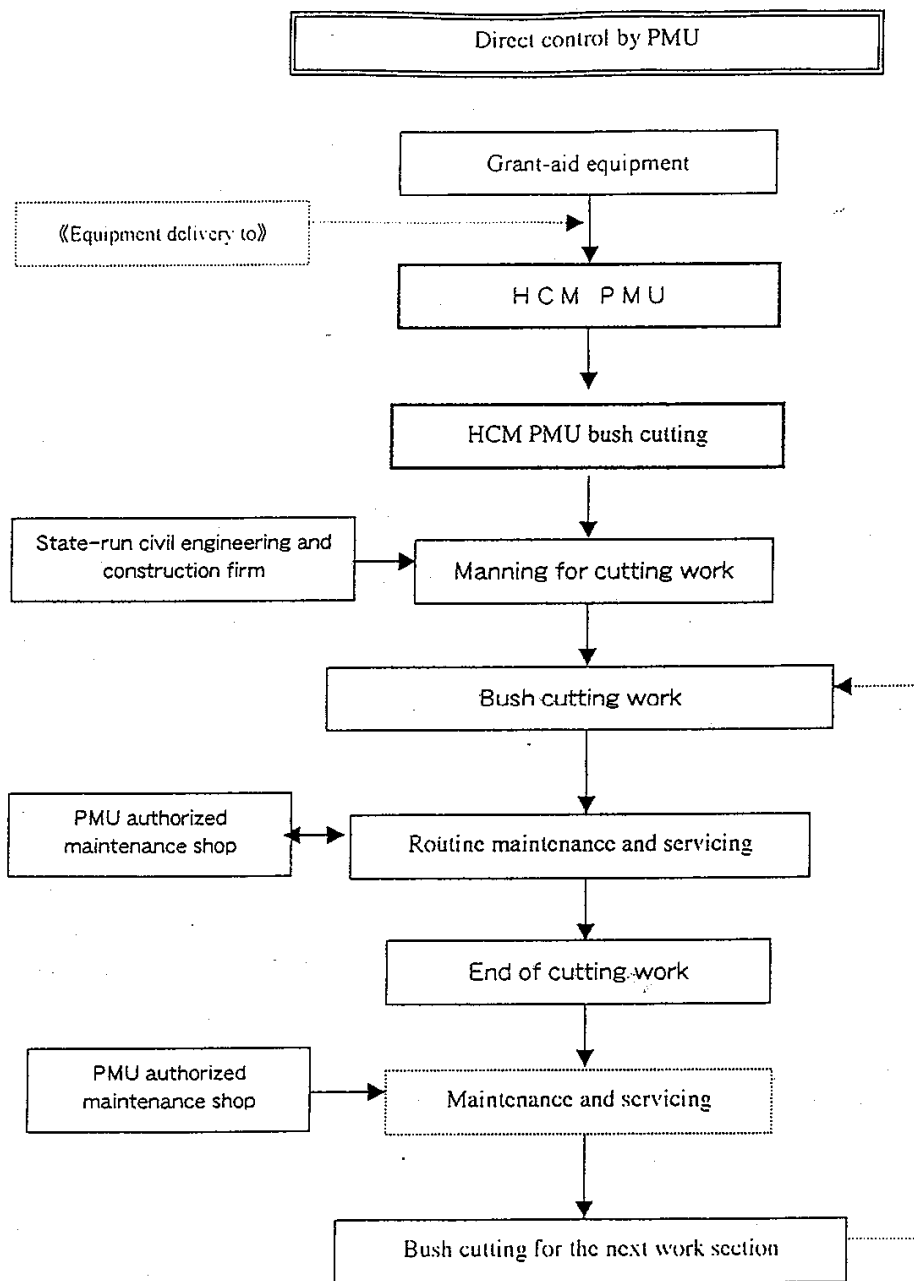
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ANNEX - 3



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ANNEX - 4



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ANNEX- 5

Maintenance and management system

	Routine inspection and servicing	Field emergency routine (by mobile repair shop)	Periodic inspection	Medium-scale repair	Large-scale repair	Training (Operators and mechanics)
Site shop of state-run civil engineering and construction firm	<input type="radio"/>					
MOT-sponsored maintenance shop		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Ba Vi training school						<input type="radio"/>

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