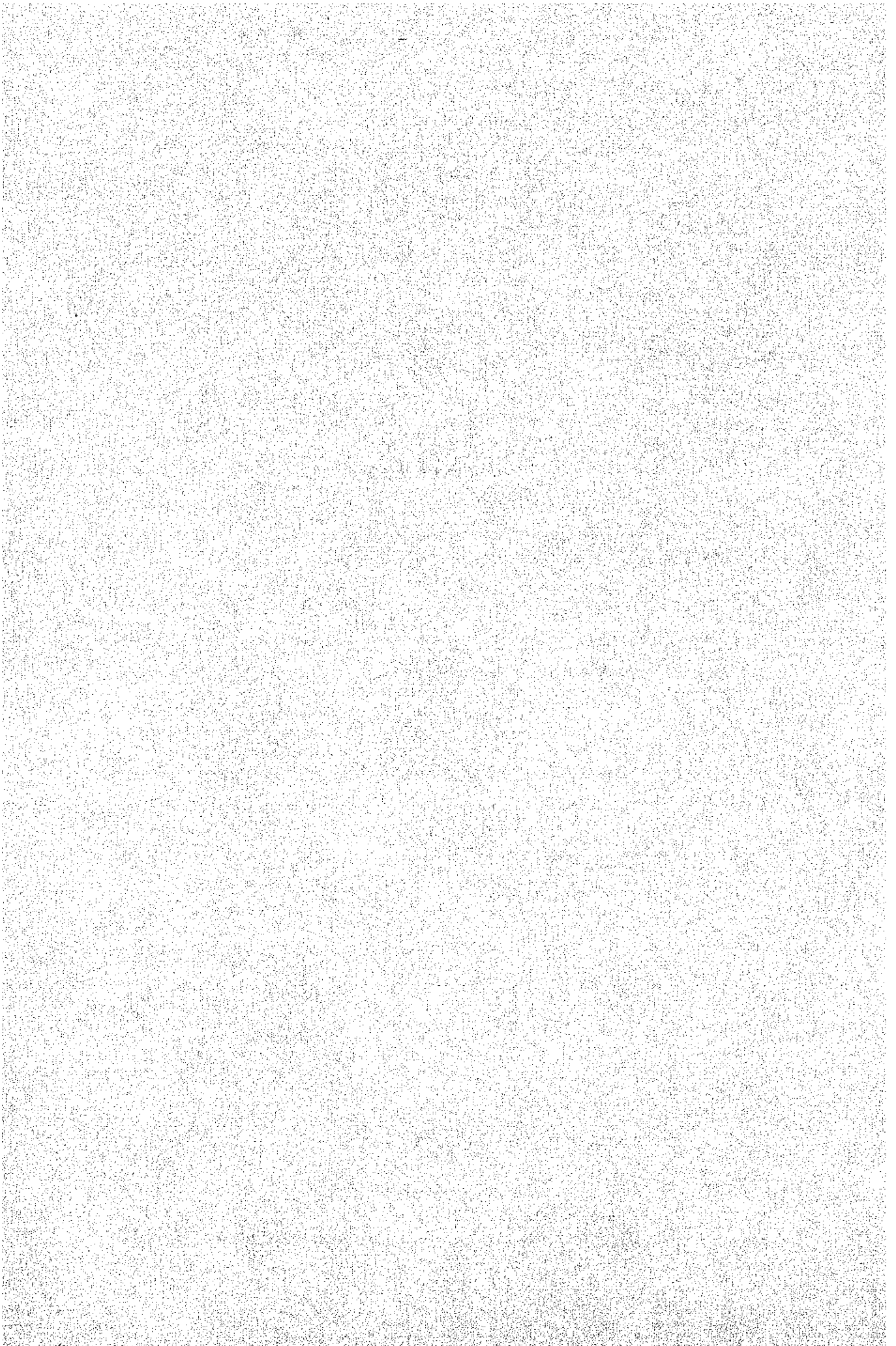


## 参 考 资 料

1. Plan of Operation, Technical Cooperation for the Trial Plantation Project in Benakat, South Sumatra . . . . .
2. Minutes of Meeting Held Between the Cooperation Planning Survey Team for the Trial Plantation Project in Benakat, South Sumatra and the Director of Reforestation and Land Rehabilitation, the Directorate General of Forestry, the Republic of Indonesia (Memorandum) . . . . .



参 考 資 料 1.

本プロジェクトの具体的実施計画は1979年9月に派遣された実施設計チームにより策定されたが、この計画にそってしかも現地の実情にあわせて多少修正を加えたPlan of Operationが1980年6月12日に開催された第1回合同運営委員会で公式に承認された。その内容は次のとおりであり、これは今後のプロジェクト実施の基本計画となる。

**TECHNICAL COOPERATION FOR  
TRIAL PLANTATION PROJECT IN BENAKAT  
SOUTH SUMATRA**

**PLAN OF OPERATION**

**DIRECTORATE FOR REFORESTATION AND  
LAND REHABILITATION  
DIRECTORATE GENERAL OF FORESTRY**

**OCTOBER 1980**

TECHNICAL COOPERATION FOR  
THE TRIAL PLANTATION PROJECT IN BANAKAT  
SOUTH SUMATRA ATA – 186.

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Project Title : Trial Plantation in Banakat, South Sumatea

Record of Discussion : April 12, 1979

Location : Banakat, South Sumatra.

Duration : 5 years, starting date: 12 April 1979

Government Cooperating Agency : Directorate for Reforestation and Land Rehabilitation.

Target : Manual method = 1,000 ha  
Machanical method = 850 ha  
Species trial = 250 ha  

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= 2.100 Ha

Budget : Rp. 1.100.000.000

Machinery : ¥ 580.000.000

Jakarta, January 1980.

R. KATO

Chief Advisor – JICA

Ir. APANDI MANGUNDIKORO

Chief of Joint Steering Group

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### LEGAL CONTEXT

### THE PROJECT

- A. Development objective
- B. Input
- C. Activities and work plan
- D. Outline of the trial plantation

### BUDGET AND MACHINERY

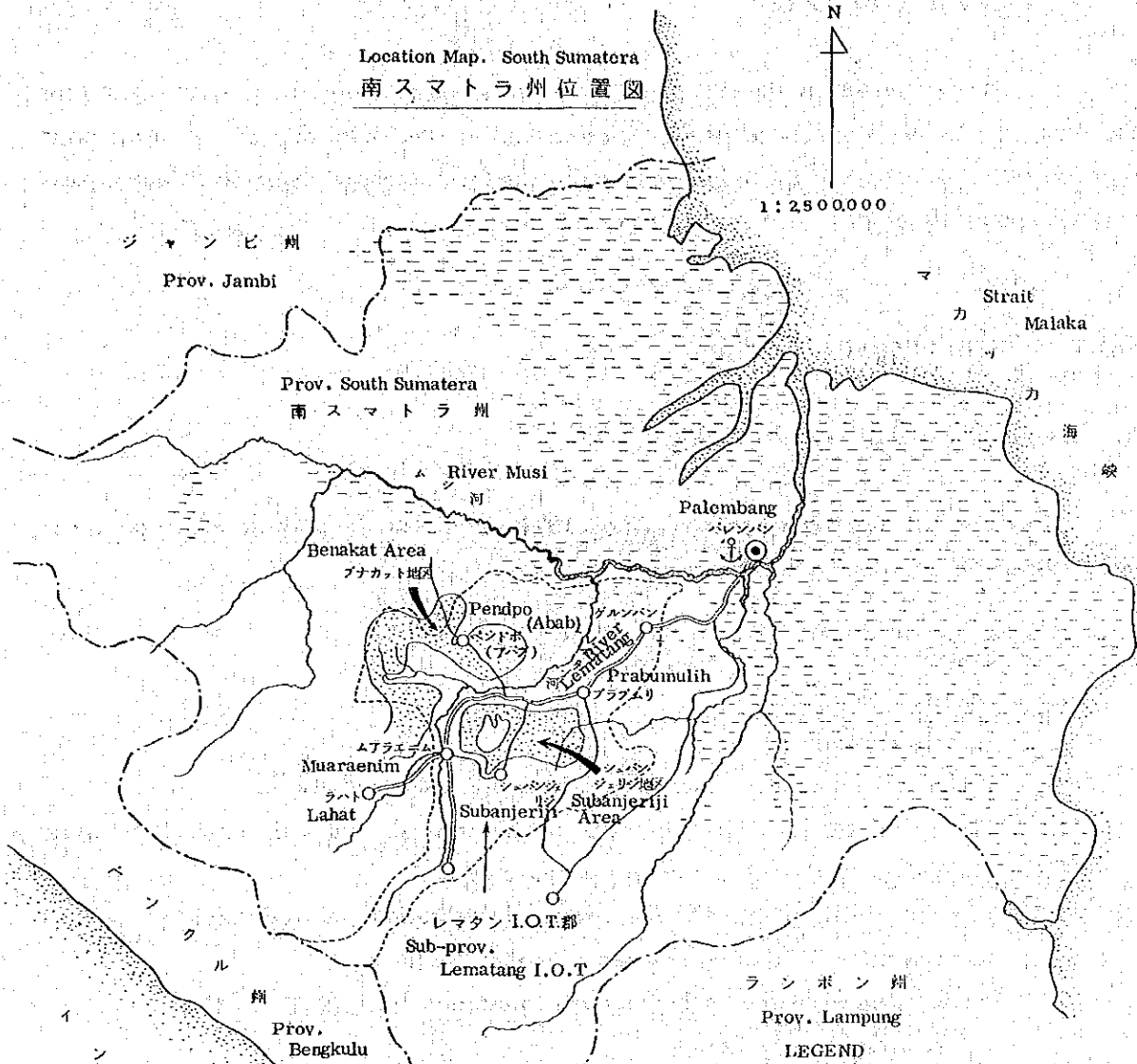
- A. Budget
- B. Machinery

### REGISTRATION, EVALUATION AND REPORT

# Location Map of the Project

Location Map. South Sumatera  
南スマトラ州位置図

N  
1 : 2 5 0 0 0 0 0



## LEGEND 凡例

	Boundary of province 州界
	Boundary of sub-province 郡界
	City, Town, Village 市または町村
	Trunk road 幹線道路(経路)
	Other roads その他の道路
	港 Port
	河 川 River
	沼 地 Swamp
	Grass land 草原地帯

## **PART I – LEGAL CONTEXT.**

This project document (herein after referred to as plan of operation) is an instrument specifying the technical implementation of project ATA – 186. With this plan of operation it is hoped that single minded action will be taken by the Field Manager, Expert and Counterparts in carrying out this project.

## **PART II – THE PROJECT.**

### **A. Development objectives.**

The record of discussion signed on April, 1979 states that the purpose of the project is to develop and improve the following items:

1. Species trial
2. Nuresry techniques
3. Planting techinques
4. Techniques for counter - measures against fire, insect and disease
5. Techniques of designing and managing forest roads and soil conservation work
6. Techniques for the application of machine power
7. Test and investigation on the environmental implication of afforestation
8. Test and studies of the social implication of afforestation
9. Planning and evaluation techniques of afforestation
10. Other necessary techniques.

### **B. Output.**

The output of the project will take the form of report, manuals, working paper/publication, and trained personal in the field of plantation establishment, as follows:

#### Relative to objective 1 (species trial)

To test the initial growth and suitability of a number of tree species.



Relative to objective 2 (Nuresry techniques).

1. To develop an adequate nursery and facilities to produce at least 1,5 million plants (Reports).
2. To test and develop suitable and economical plant production method for a variety of species (Manual).
3. To prepare a cost benefit study of plant production for different spesies (Reports).
4. To provides adequate training in all aspect of nursery development and plant production for 10 – 25 selected personnel through out the period of the project (Training Courses).

Relative to objective 3 ( Planting techniques).

1. To investigate and compare a variety of technicues of planting by hand mechanical, and agri - silvicultural method
2. To investigate and to develop suitable techniques of plant transportation and planting method (Manual).
3. To investigate and compare a variety of techniques of tending including hand, machanical, chemical, fartilizar and nurse plant treatments (Manual).

Relative to objective 4 (Protection against fire, insect and disease).

1. To investigate and determine suitable measure for prevention and control of fire (Reports).
2. To develop a suitable training program and conduct training course in fire protection for selected personnel (Training Course).

Relative to objective 5 (Road construction).

To develop a suitable method of plantation road construction (Report).

Relative to objective 6 (Application of machine power).

1. To develop the organization and management of machines and equipment in a mechanized afforestation project (Report).
2. To implement an on-the-job training course in machine and equipment maintenance

and repair (Training Course).

3. To prepare recommendation for selection of suitable machine and equipment (Report).

Relative to objective 7 (Environmental implication).

To determine the effects different tree species and planting distance in Alang-Alang.

Relative to objective 8 (Social implication).

1. Social pattern and requirements of an integrated afforestation project (Report).
2. Suitability of the modified tumpansari system (Report).

Relative to objective 9 (Planning and evaluation techniques).

1. To develop and implement a suitable cost recording system (Report).
2. Cost benefit analysis and identification of the recommended afforestation techniques (Report).
3. Outline a management for a large scale industrial plantation on grassland (REPORT).

Relative to objective 10 (Other).

1. Any other activities identified during the course of the project relevant to the conduct of the project.
2. The technical data and information resulting from the project will be published in the interest of reforestation activities in Indonesia (Working paper/Publication).

C. Activities and Work Plan

Activities	79/88	80/81	81/82	82/83	83/84	Total
<u>1. Planting (ha)</u>						
Experiment A (manual)	—	200	200	300	300	1,000
Experiment B (mechanization)	—	—	150	300	400	850
Experiment C (species trial)	—	—	50	100	800	250
	—	200	400	700	800	2,100
<u>2. Nursery</u>						
Seedling (x 1000)	450	788	1,375	1,513	—	—
Beds (1.2 x 12 x 0.1 m)	233	454	812	988	—	—
Soil for pots (m <sup>3</sup> )	536	1,048	1,833	2,098	—	—
<u>3. Tending</u>						
1st Year old (one/year)	—	200	400	700	800	—
2nd Year old (3 x/year)	—	—	200	400	700	—
3rd Year old (3 x/year)	—	—	—	200	400	—
4th Year old (2 x/year)	—	—	—	—	200	—

C. Activities and Work Plan. -cont'd

Activities	79/88	80/81	81/82	82/83	83/84	Total
4. Chemical (ha)	-	-	5	5	5	
5. Fertilizing (tons)	-	5,5	18,5	35,5	45,25	
6. <u>Fire break (km)</u>						
Along main road (30 m)	-	3,6	2,4	5,2	7,6	
Along operational road (20 m)	-	1,8	13,8	18,4	32,0	
Around annual planting area	-	-	14,2	23,8	24,0	
7. <u>Road construction (km)</u>						
Main road	1,8	1,2	2,6	3,8	9,4	
Operational road	0,9	6,9	9,2	16,0	33,0	
Spur road	-	7,1	11,9	12,0	31,0	
8. Fire tower	-	1	1	1	-	

C. Activities and Work Plan. -cont'd

Activities	79/88	80/81	81/82	82/83	83/84	Total
<u>9. Building and Facilities.</u>						
(1) Administration office	50 m <sup>2</sup>	200 m <sup>2</sup>	-	-	-	250 m <sup>2</sup>
(2) Sheds	100 m <sup>2</sup>	-	-	-	-	100 m <sup>2</sup>
(3) Store house	25 m <sup>2</sup>	125 m <sup>2</sup>	-	-	-	150 m <sup>2</sup>
(4) Experts counterparts dormitory	50 m <sup>2</sup>	470 m <sup>2</sup>	-	-	-	520 m <sup>2</sup>
(5) Workshop garage	-	200 m <sup>2</sup>	-	-	-	200 m <sup>2</sup>
(6) Generator house	-	60 m <sup>2</sup>	-	-	-	60 m <sup>2</sup>
(7) Pump house	6 m <sup>2</sup>	14 m <sup>2</sup>	-	-	-	20 m <sup>2</sup>
(8) Pond	12 m <sup>2</sup>	-	-	-	-	-
(9) Oilstock rooms	-	-	320 m <sup>2</sup>	-	-	320 m <sup>2</sup>
(10) Plantation office	-	30 m <sup>2</sup>	-	-	-	30 m <sup>2</sup>
(11) Plantation office	-	150 m <sup>2</sup>	-	-	-	150 m <sup>2</sup>
(12) Potting house	30 m <sup>2</sup>	70 m <sup>2</sup>	-	-	-	100 m <sup>2</sup>
(13) Fertilizer stock house	80 m <sup>2</sup>	-	-	-	-	80 m <sup>2</sup>
(14) Guest house	-	380 m <sup>2</sup>	-	-	-	380 m <sup>2</sup>
	341 m <sup>2</sup>	1,699 m <sup>2</sup>	320 m <sup>2</sup>	-	-	2,360 m <sup>2</sup>

D. Outline of the trial plantation.

Detailed specification of the above mentioned activities:

1. Design of the trial plantation.

Location: The site is established on national forest, situated at Benskat about 12 Km. westward from Pendopo.

The areas of site: The total areas of trial plantation site is about 2,400 ha including the the land for the forest road, fire breaks and left over area about 300 ha.

The main purpose of the trial plantation are:

- 1) To select the suitable tree species from the ordinary planting species in rainforest area for the grassland and to establish their right afforestation techniques by annual.
- 2) To establish the afforestation techniques by mechanization for the grassland.
- 3) To experiment adaptability and possibility of indigeneous and exotic tree species for grassland.

Accordingly, the trial plantation consists of 3 types of experiment, manual experiment and species trial.

Manual experiment (Experiment A).

This experiment carries and by using tree species that have already been experimented at various countries under the rainforest climate. The aims of this experiment are to select the suitable tree species for this area from the following sight tree species and to make clear the relationships between the growth of such species and the various sicultural operation in this area by manual. The sight tree species taking part in this experiment are as follows:

Botanical name	Species code	Indonesian name
1. Pinus Markusii	PIM	Pinua
2. Albizia falcatera	ALF	Albizia
3. Eucalyptus deglupta	EUD or	
E. Urophylla	EUU	Ekaliptus

4.	Swietenia macrophylla	SWM	Mahoni
5.	Schima bancana	SCB	Puspa
6.	Acacia auriculiformis	ACA	Kormis
7.	Paronema canescens	PEC	Sungkai
8.	Anthocephallus cadamba	ANC	Jabon

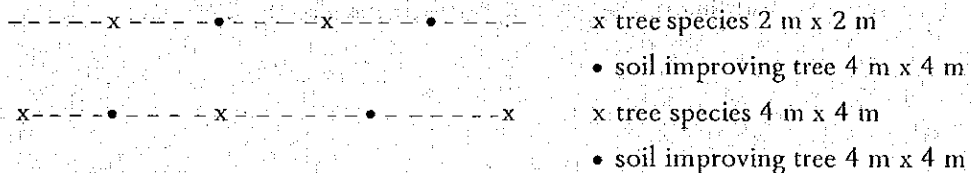
The items of the experiment taking into account in this experiment are as follows:

- i) Effect of topography: 2 categories
  - a) Top and upper slope of terrain
  - b) foot and lower slope of terrain.
- ii) Effect of site preparation: 3 categories
  - a) strip
  - b) cutover
  - c) cutover with burning

Site preparation is carried out by strip in general, effect of cutover and cutover with burning will be examined separately.

The strips are cleared 1 m wide by using bush cleaner and plowing the planting spots in area of 50 cm x 50 cm.

- iii) Effect of planting distance: 3 categories
  - a) 2 m x 2 m
  - b) 4 m x 2 m
  - c) 4 m x 4 m.
- iv) Effect of soil improving tree such as laucsena glauca. The half of the planting area is planted with soil improving tree by using planting distance 4 m x 4 m as follows:



- v) Effect of planting season: 3 categories
  - a) rainy season (November – January)
  - b) intermediate season (March – May)
  - c) dry season (July – September)

Planting season on rainy season will be carried out in general, while b) and c) will be examined separately.

vi) Effect of fertilizer: 3 levels

a) non fertilizer b) standard amount of fertilizer and c) half amount of standard.

Fertilizer using on this test is polynutrient fertilizer NPK = 13:17:12 or 14:16:12. Other kind of fertilizer will be tested 20 gr. Nitrogen per a seedling for broad leaves trees and 8 gr. Nitrogen per a seedling for pine, and 6 gr. Nitrogen per a seedling for Leguminane tree, about 2 month after planting.

The areas of each plot of fertilizer test is 0,25 ha (50 m x 50 m) and repeated twice. The plots are settled on two categories of topography.

Fertilizer to be examined during 3 years after planting. The amount of fertilizer in second year to be increased about 20% of the first year and is the third year will be increased more 20% than that of 2nd year.

vii) Effect of tending: 3 categories

a) Weeding is done by clearing strip twice a year

b) Weeding is done by clearing strip three times a year

c) Weeding is done by using grass killers.

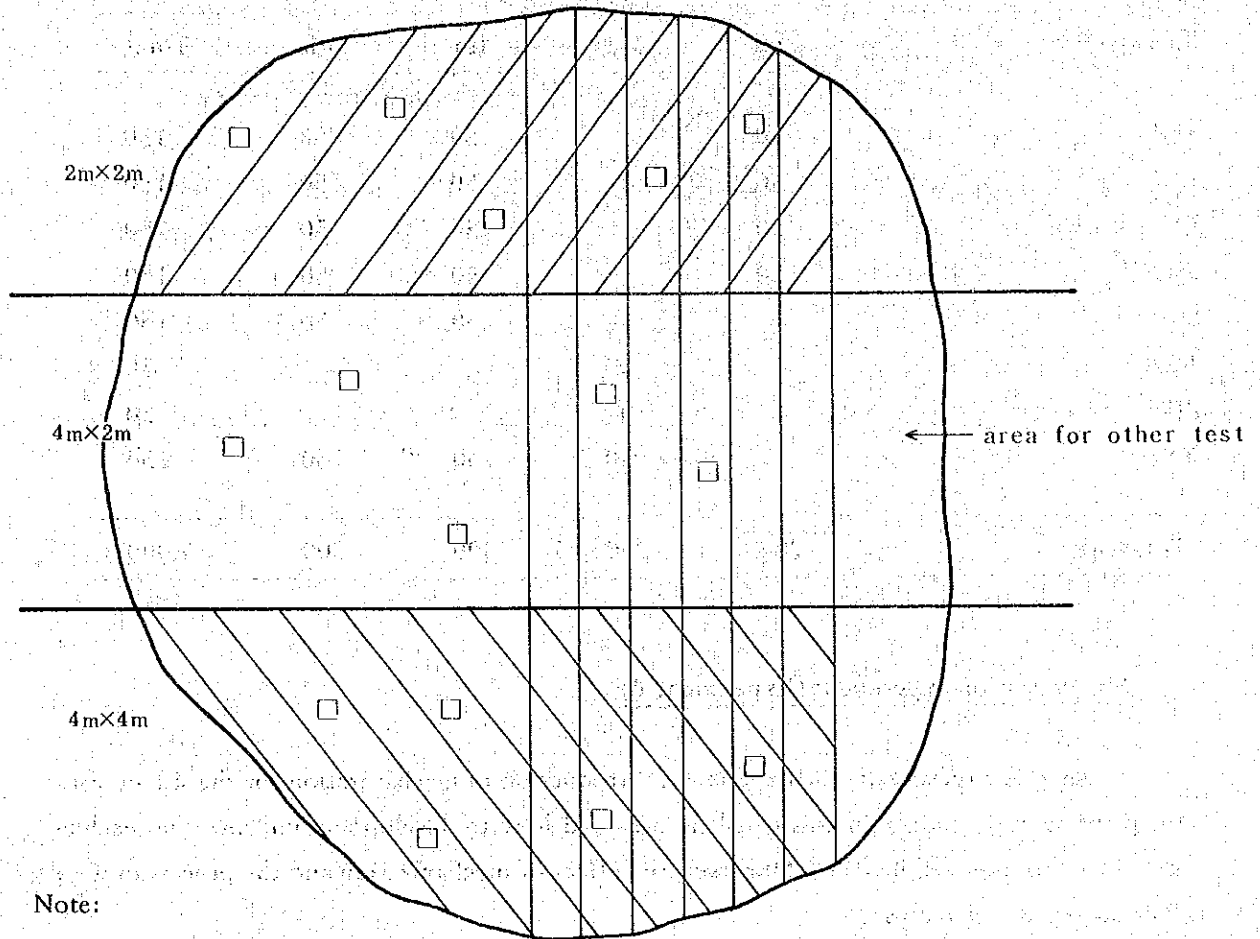
Category a) will be carried on in general, while b) will be examined separately.

viii) The arrangement of plot:






The planting area for one species (petak) is 50 ha. The area is divided into 3 area equally according to the planting distance and also the half them.



The arrangement of compartment  
(Total area about 50 ha)



Note:

-  The area for 2 m x 2 m.
-  The area for 4 m x 2 m.
-  The area for 4 m x 4 m.
-  The area for the soil improving plant except the Giant epil-epil. (half of the area).
-  The plot for fertilizer trial 50 m x 50 m (72 plots).

Annual planting areas of each species is as follows:

Species code	2nd	3rd	4th	5th	Total
PIM	50	—	50	50	150
ALF	50	—	50	50	150
EUU or EUD	50	—	50	50	150
SWM	50	—	50	50	150
SCB	—	50	50	50	150
ACA	—	50	—	—	50
PEC	—	50	—	—	50
ANC	—	50	50	50	150
Total (ha)	200	200	300	300	1.000

#### Mechanization experiment (Experiment B).

Under this experiment, the experiment introduction of mechanization for the site preparation, planting and tending in this grassland area and how to develop and improve the machine suitable for this area will be tried. Moreover, the effect of mechanization and the process of work will be surveyed and analysed.

The tree species to be planted is the same as experiment A.

The effect of mechanization in this area is examined on the following items:

- i) Effect of topography: 2 categories, this is the same as Experiment A.
- ii) Effect of site preparation: 2 categories
  - a. Strip clearing and strip cultivation
  - b. Cutover and strip cultivation, but this will be examined separately.
- iii) Planting season: it is performed only from November to January.

- iv) Planting method: to use Earth Auger and tree planter will be employed.
- vi) Arrangement of plot: the planting area (petak) for one species is 50 ha. This area is divided into 2 area equally according to the planting distance and also the half of them is planted with soil improving trees.

So such sub-petak is settled 12 plots of fertilizer test on two categories of topography.

The area of fertilizer test is 0,25 ha (50 m x 50 m).

Annual planting area of such species is as follows:

Species code	2nd	3rd	4th	5th	Total
PIM	—	50	50	50	150
ALF	—	50	50	50	150
EUU or EUD	—	50	50	50	150
SWM	—	—	50	50	100
SCB	—	—	50	50	100
ACA	—	—	50	50	100
PEC	—	—	—	50	50
<b>Total</b>	—	150	300	400	850

#### Introduction experiment of new tree species (Experiment C)

Under this experiment, the indigeneous tree species in Indonesia and exotic tree species introduced in Indonesia, which will have adaptability and possibility of good growing, will be experimented.

The tree species that supposed to be tried are as follows, but they will be reexamined not only with the advancement of the project but also with the accumulation of the information on

the possibility of artificial planting by all kind of tree species:

<u>Botanical name</u>	<u>Species code</u>	<u>Loka name</u>
1. Pinus	PIC	—
2. Alsurites moluocane	ALM	Kemiri
3. Euxideroxylon zuegeri	EUZ	Ulin
4. Shores sp.	SMS	Meranti
5. Hopes sp.	HOS	Hopea
6. Octomalis sumatrana	OCS	Benuang
7. Dalbergis lalifolia	DAL	Sonokaling
8. Cordis allioora	COA	—
9. Cedareis odorate	CEO	—
10. Ptarocarpus indicus	PTI	Angeana
11. Acacia mangium	ACM	Mangium
12. Khaya sp	KHS	Kaya
13. Enterolobium sp	EMS	Pete brasil
14. Gmelina arbores	CMA	—
15. Leucaena leucocaphalla	LEL	Ipil-ipil
16. Ochroma bicolor	OCB	Balsa
17. pte gots allats	PTA	—

However, it is necessary to collect enough need to establish the plantation of 10 ha one species. Total number of species is expected to reach 25 species.

The experiment will be tried under following items:

- i) Effect of topography: this is same to experiment A.
- ii) Site preparation: it is performed only by strip clearing.
- iii) Effect of planting distance: 2 categories
  - a) 2 m x 2 m
  - b) 4 m x 4 m
- iv) Planting season: it is performed only from November to January.

v) Planting method: this is same to Experiment B.

vi) Effect of fertilizer: 2 categories

a) Standard amount of Experiment A

b) non fertilizer.

vii) Tending: this is same to Experiment A.

Arrangement of block, petak, sub-petak and plot.

Trial plantation area is divided into 3 experimental area. Trial plantation area divided into experimental block (A, B, C) area are further divided into compartment and compartment are divided into sub-compartment. Every compartment is intended for one tree species and every sub-compartment kind combination of treatment.

Block, compartment sub-compartment are code numbered as follow:

I - B - 10 - a

A = Type of experiment (I = 89/81; II = 81/82; III = 82/83; IV = 83/84)

I: Annula planting area

10 = number of compartment

a = code of sub-compartment (petak)

## 2. NURSERY

i) Location of nursery site: the location is on the west bank of baung river, about 20 Km westward from Pendopo.

ii) Area of nursery site: total area is about 16.2 ha, area for nursery bed is 3.5 ha and about 12.7 ha for apparatus.

iii) Facility of nursery site:

a. Three ponds for reservoir are established by utilizing the crack of Baung river.

The capacity of the pond is 500 m<sup>3</sup>.

- b. Shed for soil, shed for soil besting, shed for potting work, germination room, place for transplanting, germination beds, seedling beds, sprinkling system, drainage ditch and sun shade by lawn.
- c. Seedling beds:  
 Size of a bed is 1.2 m (width) x 12 m (length) x 0.1 m (height) and is paved with the bricks and piles up.  
 The soil and cover with the mortar or plastic sheet.  
 Total number of potted seedling beds about 1,000 beds, but they include 36 spare beds. Number of pots per a bed is 2,250 pots in case of *Pinus merkusii*.  
 Total number of germination bed is by beds.
- iv) The procedure of raising seedling:
  - a. Seed collection or purchasing the seed
  - b. storage of seeds
  - c. sowing
  - d. transplanting to the pots
  - e. raising the seedling.
    - a) Planting out the seedlings. *Swietenia macrophylla* and *Leucana glauca* will be sowed directly on the field, *Peronama canescens* are planted by direct cutting on the field. *Albizia falcata* will be sowed in the pots and *Suitenia macrophylla*, *Gmelina arborea* and *Schima bancana* planted as the stumps.
    - b) Method of storing seeds.  
 According to the species, some species must be stored in draught and cool condition, draught, airtight but non-cool condition and the other must be stored in draught, dark cool and ventilated condition.
    - c) Soil for sowing bed or box:  
 To use the heating coarse sand and heating soil by using heating machine.
    - d) Soil for pot:  
 To use soil mixed with compost and added with the chemical fertilizer, my

corhiza in case of Pinus species.

Pot size is 8 cm (diameter) x 20 cm (length), in general.

e) Sowing

To use the sowing bed for the big seed and the sowing box for the fine seed.

f) Transplanting to the pots

Sufficient watering the pots before transplanting, making the pencil size hole on the pots soil, and transplanting with hand carefully.

g) Making the compost

Material for the compost are mainly Alang-Alang grass, but method of making compost is decided after surveying the method to make compost for agriculture and gardening.

h) Machines used for nursery.

Tractor with the attachment of shovel, trailer and etc. Dumptruck, Sieve, Soil heating machine, Sprinkler, Soil mixer, Water pump, Generator etc.

### 3. Forest road plan

Main road will be established along watershed running from north to south. Operation road is established around the trial plantation site and spur road is established to connect the main road with the operation road. Main items of standard in construction of such forest road area are as follows:

<u>Item</u>	<u>Main road</u>	<u>Operation road</u>	<u>Spur road</u>
Expectant speed by car (Km/Ha)	20	10	—
Minimum radius of Curvature (m)	30	20	10
Visted disntance of curve (m)	40	20	20
Maximum surface slope %	7	10	12

Thickness of sand	30	20	10
Surface of embankment	Sodding work	Sodding work	—
Culvert	Corrugated pipe	Corrugated pipe	

4. Fire break.

Fire breaks are established along the main road, operation road spur road and also around the trial plantation established annually (block). The width of fire breaks are 30 m along the main road and 20 m along the operation road and 20 m along the spur road including the width of road. The width of fire breaks around the blocks is 20 m. Some of the fire breaks will be covered with cover plant or planted with green fire breaks tree species.

5. Fire look out tower.

The fire look out tower with the height of 15 m will be constructed on 4 spots along the main road.



PART III BUDGET AND MACHINERY

A. Budget

No.	Activities	79/80	80/81	81/82	82/83	83/84	Total
1.	Plantation						
	To design plantation area	-	2.000	4.000	7.000	8.000	21.000
	Experiment A (Manual)						
	Experiment B (Mechanical)		35.000	70.000	122.500	140.000	367.000
	Experiment C (Species trial)						
			37.000	74.000	129.500	148.000	388.500
2.	Nursery	3.700	7.300	13.000	15.000	-	39.000
3.	Tending		9.000	20.000	36.000	50.000	115.000
4.	Fertilizing		2.500	10.000	15.000	25.000	52.000
5.	Fire bread		2.500	8.00	15.000	19.000	44.500
6.	Road construction						
	Main road						
	Operation road						
	Spur road						
			14.000	25.000	33.000	40.000	112.000
7.	Fire Tower		5.000	4.000	4.000	4.000	16.000

A. Budget-cont'd

No.	Activities	79/80	80/81	81/82	82/83	83/84	Total
8.	<u>Building and facilities</u>						
1.	Administration office	1,500	8,000	-	-	-	9,500
2.	Sheds	500	-	-	-	-	500
3.	Store house	500	3,750	-	-	-	4,500
4.	Experts dormitory	2,750	25,850	-	-	-	28,600
5.	Workshop and garage	-	5,000	-	-	-	5,000
6.	Generator house	-	2,400	-	-	-	2,400
7.	Pump house	90	280	-	-	-	370
8.	Pond	1,200	-	-	-	-	1,200
9.	Laboratories and lecture room	-	-	12,800	-	-	12,800
10.	Oil stock room	-	900	-	-	-	900
11.	Plantation office	-	4,500	-	-	-	4,500
12.	Potting house	300	700	-	-	-	1,000
13.	Fertilizer stock house	-	1,600	-	-	-	1,600
14.	Guest house	-	22,800	-	-	-	22,800
	Total	7,090	75,760	12,800	-	-	95,670

A. Budget-cont'd

No.	Activities	79/80	80/81	81/82	82/83	83/84	Total
9.	Management:						
A.	Salary/wages/honorarium						
1.	Head office personnel						
	- Manager	600	600	600	600	600	3,000
	- Co manager	480	480	480	480	480	2,400
	- Staff (7)	2,520	2,520	2,520	2,520	2,520	12,600
	Total 9 A1	3,600	3,600	3,600	3,600	3,600	18,000
2.	Field personal						
	- Field manager (1)	480	480	480	480	480	2,400
	- Treasur (1)	360	360	360	360	360	1,800
	- Administration (1)	360	360	360	360	360	1,800
	- Staff administration (6)	1,800	1,800	1,800	1,800	1,800	9,000
	- Guard (3)	900	900	900	900	900	4,500
	- Driver (cars) (4)	1,200	1,200	1,200	1,200	1,200	6,000
	- Mechanic (4)	1,920	1,920	1,920	1,920	1,920	9,600
	- Driver (tractor-buldozer) (6)	2,880	2,880	2,880	2,880	2,880	14,400
	Total 9 A2	9,900	9,900	9,900	9,900	9,900	49,500

A. Budget-cont'd

No.	Activities	79/80	80/81	81/82	82/83	83/84	Total
3.	Counterpart						
	- Nursery (1)						
	- Silviculture (1)						
	- Road construction (1)	2.880	2.880	2.880	2.880	2.880	14.400
	- Forest protection (1)						
	- Soil conservation (1)						
	- Liaison officer (1)						
	Total 9 A3	2.880	2.880	2.880	2.880	2.880	14.400
	Total 9 A	16.380	16.380	16.380	16.380	16.380	81.900
B.	Travelling						
	- Head personnel	4.000	4.000	4.000	4.000	4.000	20.000
	- Field personnel	4.000	4.000	4.000	4.000	4.000	20.000
	- Experts	4.000	4.000	4.000	4.000	4.000	20.000
	- Counterpart	4.000	4.000	4.000	4.000	4.000	20.000
	Total 9 B	16.000	16.000	16.000	16.000	16.000	80.000

A. Budget-cont'd

No.	Activities	79/80	80/81	81/82	82/83	83/84	Total
C. Others							
1.	Jeep	5.090	6.500	—	—	—	11.590
2.	Rent on office at Bogor (1)	—	2.500	2.500	2.500	2.500	10.000
3.	Rent on office at Palembang (1)	2.000	2.000	2.000	2.000	2.000	10.000
4.	Rent on house at Palembang (1)	2.000	2.000	2.000	2.000	2.000	10.000
5. Meetings							
—	Bogor	1.000	1.000	1.000	1.000	1.000	5.000
—	Palembang	1.000	1.000	1.000	1.000	1.000	5.000
6.	Overtimes	200	500	500	500	500	2.200
7.	Runing/servicing (3 cars)	1.466	3.000	3.000	3.000	3.000	13.466
8.	Postage, telegrams etc.	1.500	1.500	1.500	1.500	1.500	7.500
9.	Film, documentation, fotocopy	300	500	500	500	500	2.300
10.	Medicines (expert)	—	—	—	—	—	—
Total 9 C		15.156	21.100	14.600	14.600	14.600	80.056
Total 9		47.536	53.480	46.980	46.980	241.956	
Total 1 a/d 9		58.326	205.560	213.780	294.480	332.980	1.105.126

B. Machinery  
(x 1,000 Yen)

No.	Items	79/80	80/81	81/82	82/83	83/84	Total
1.	MACHINERY AND EQUIPMENT						
A.	Nursery and planting						
(1)	Wheel tractor						
(2)	Auto auger						
(3)	Auger						
(4)	Brush cleaner						
(5)	Chain saw 13 Hp						
(6)	Dump truck						
(7)	Truck						
(8)	Craneler dump						
(9)	Trancer						
(10)	Soil mixer						
(11)	Forklift						
(12)	Sprinklar system						
(13)	Conveyer system						
(14)	Auto seelder						
(15)	Auto seedler selector						
(16)	Hand tractor						
(17)	Others						
	Total A						

**B. Machinery-cont'd**  
(x 1,000 Yen)

No.	Items	79/80	80/81	81/82	82/83	83/84	Total
B.	Road Construction						
(1)	Angledozer						
(2)	Shoveldozer						
(3)	Rammer						
(4)	Motor grader						
(5)	Road roller						
(6)	Dump truck						
(7)	Crawler dump						
(8)	Truck						
(9)	Trencher						
(10)	Main road						
	<b>Total B</b>						

B. Machinery-cont'd  
(x 1,000 Yen)

No.	Items	79/80	80/81	81/82	82/83	83/84	Total
C.	General use machines						
(1)	Jeep & others						
(2)	Bus						
(3)	Motor cycle						
(4)	Fire fighting equipment						
(5)	Generator						
(6)	Service equipment						
(7)	Experimental electric equipment						
(8)	Radio and electric equipment						
(9)	Meteorological observation equipment						
<hr/>							
Total C							
<hr/>							
Total A + B + C (machinery)		120,000	160,000	100,000	100,000	100,000	580,000



#### **PART IV REGISTRATION EVALUATION AND REPORT.**

##### **A. REGISTRATION.**

Registers are made of nursery and plantation aim at providing comprehensive and practice description and histories of plantation and also to storage the authentic date information for the preparation of reports, evaluation etc.

The registers will be maintained and will be kept up to date by regular entries.

Registers of nursery is made per a tree species and registers of plantation is made per a "sub-petak" (form 1 and form 2).

##### **B. EVALUATION.**

Periodic evaluation of project activities and result will be made twice a year in order to know which techniques are unsuitable and which one should be further developed.

Evaluation is made in the field and the result are then discussed in Joint Steering Group meeting.

Evaluation is also made in order to prepare Annual Work Plan (DUP), and working paper/publications.

##### **C. REPORTS.**

At the end of the project or during the project is implemented, various reports and manual will be issued as mentioned above (PART II - B. OUTPUT).

## 参 考 資 料 2.

1979年11月に最初の専門家が派遣されて以来技術協力を進めてきているが、プロジェクト開始初期段階に発生しがちな問題点(プロジェクト関連施設の整備、インドネシア側予算の不足、供与機材の引取りの遅れ等)がでてきている。本格的なプロジェクト実施にあたりこれらの問題は是非解決しなければならないものであり、これらを解決するため1980年6月9日日本プロジェクトのインドネシア側最高責任者であるアバンディ林業総局造林局長をまじえての協議を行った。その内容は次のとおりである。

MINUTES OF MEETING HELD BETWEEN THE COOPERATION PLANNING SURVEY TEAM FOR THE TRIAL PLANTATION PROJECT IN BENAKAT, SOUTH SUMATRA AND THE DIRECTOR OF REFORESTRATION AND LAND REHABILITATION, THE DIRECTORATE GENERAL OF FORESTRY, THE REPUBLIC OF INDONESIA (MEMORANDUM)

The Cooperation Planning Survey Team for Trial Plantation Project in Benakat, South Sumatra, headed by Mr. Katsuhiro Kotari, and the Director of Reforestation and Land Rehabilitation, the Directorate General of Forestry, the Republic of Indonesia held a meeting in a friendly atmosphere for smooth implementation of the project. The result of the above-mentioned meeting is outlined as follows.

June 9, 1980

The Cooperation Planning Survey  
Team for Trial Plantation Project in  
Benakat, South Sumatra

I. Outline of the Meeting

1. Topics for the Meeting

- (1) Improvement of accommodations at the project site in Benakat.
- (2) Supplementation of the budget for fiscal 1980
- (3) Immediate take-over of machinery and equipment and their effective use

2. List of Attendances

(1) Japanese side

Mr. Katsuhiro Kotari	Leader, the Cooperation Planning Survey Team for Trial Plantation Project in Benakat, South Sumatra
Dr. Kazuto Arimitsu	Afforestation, ditto
Mr. Seinosuke Kadoya	Cooperation Planning, ditto
Ms. Noriko Namba	Liaison Officer, ditto
Mr. Takeichi Ishikawa	Embassy of Japan
Mr. Ryosuke Kato	Chief Advisor, Trial Plantation Project in Benakat, South Sumatra
Mr. Yoshiichi Sakamoto	Coordinator, ditto
Mr. Tomochika Uchida	JICA Jakarta Office

(2) Indonesia Side

Mr. Apandi Mangundikoro	Director of Refforestation and Land Rehabilitation, Directorate General of Forestry
Mr. Jdumura	Chief of Sub Directorate Kawasan
Mr. Apip P.S. Sagala	Staff of Sub Directorate Reforestration
Mr. Sjahrir	Chief of Sub Directorate Nursery
Mr. Pramono	Staff of Sub Directorate Rehabilitation

3. **Mr. Zulkifli Mulsani** Field Manager of Trial Plantation Project in  
in Benakat, South Sumatra

3. **Place of the Meeting**

Conference Room of Director, Directorate General of Forestry

4. **Time and Date of the Meeting**

June 9, 1980 from 10: to 12:00

II. **Results of the Meeting**

1) **Improvement of accommodations at the project site in Benakat**

(1) The Government of the Republic of Indonesia will complete the construction of the dormitory for both Japanese experts and Indonesian counterparts by the end of November, 1980, based on the Record of Discussion signed on April 12, 1979.

(2) The quality of the above-mentioned dormitory should be higher than the guest house in STANVAC Residential Area which Japanese experts are using at present.

(3) The Government of the Republic of Indonesia will make as much effort as possible to extend the period of rental contract between STANVAC, so that business of Japanese experts is not interfered further than present.

(4) Preparation of accommodations mentioned by the Government of the Republic of Indonesia at the meeting (above-mentioned (1)) is not sufficient for the smooth operation of the project. Officials concerned of both Japan and Indonesia will discuss the construction of the other facilities, such as administration office, warehouse, generator house and oil stock room, which are supposed to be prepared this fiscal year at the Joint Steering Committee held on June 12, 1980.

2. **Supplementation of the budget for fiscal 1980**

There exists difference of about 50 million rupiah between the required cost

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