

2. 第1回ジョイントコミティーミーティング議事録

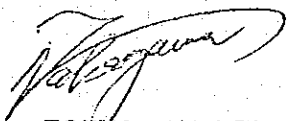
MINUTES OF JOINT COMMITTEE (1st TIME)
ON THE REMOTE SENSING ENGINEERING PROJECT
FOR THE DEVELOPMENT OF AGRICULTURAL INFROSTRUCTUR

According to the record of discussion on remote sensing project the authorities concerned of the Republic of Indonesia and Japanese Experts held joint committee to formulate details of the Master Plan and the Annual Operational Work Plan of this project on March 23, 1982 getting attendance of Directorate Generals and representative of Planning Bureau in Ministry of Public Works, Organization Concerned, Jica, Japanese Embassy and Japanese Technical Guidance Team Organized by the JICA and headed by DR. Emori.

On the committee, the activity in past one year, facing subjects and the draft of implementation plan for hereinafter were reported, and many proposals or suggestions for the successfull implementation of this remote sensing project were exchanged in serious discussion.

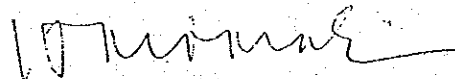
As a result of this committee, the matter reffered to the document attached here to was agreed. And it is expected that more smoothe execution of this project will be promoted by this agreement.

Jakarta, March 23, 1982,



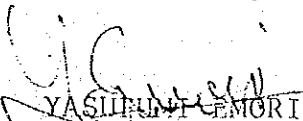
TOKUO NAKAGAWA

Leader Japanese Experts
Japan International
Cooperation Agency



TUBAGUS HAEDAR ALI

Head of Center for Data
Processing and Statistics
Ministry of Public Works



YASUHARU EMORI

Head, Japanese
Technical Guidance Team

I. MEMBER LIST.

No.	N A M E	OCCUPATION	OFFICE
1.	Soelistyo		Ditjen Cipta Karya
2.	Soehartono		Ditjen Bina Marga
3.	Mahsun Irsyam	Ka Pusifatsa	L A P A N
4.	Aris Poniman		BAKOSURTANAL
5.	Widodo Gondowardojo	Intal	SEKNEG/SET.KAB.
6.	Anton Sujadi	Staf	Dit.B.P.Pengairan
7.	Emir Faridz	Staf	Dit. Irigasi
8.	S u r o s o	Project Leader	PUSDATIK
9.	Haedar Ali	KA PUSDATIK	Dep. P.U.
10.	Tokuo Makagawa	Team Leader of Japanese Expert of Remote Sensing Project	
11.	M. Miyamoto	Representative	JICA
12.	Ryonosuke Goto	Assistant Re.	JICA
13.	Shinobu Sakai	Expert	JICA
14.	Hiroshi Yamamoto	Expert	JICA
15.	Yasufumi Emori	Guidance Team	JICA
16.	Kazuya Miyama	Guidance Team	JICA
17.	Kohei Yoshida	Guidance Team	JICA
18.	Akihisa Terakubo	Expert	JICA
19.	Keiichi Tsuji	Guidance Team	JICA
20.	Yoshinobu Satoh	Expert	JICA

II. REPORT ON ACTIVITY FOR LAST YEAR

The report on activity in past one year include following items was reported (see Annex - 1)

- 1) Dispatch of Experts
- 2) Provision of Equipments
- 3) Data acquisition
- 4) Field survey
- 5) Training acceptance
- 6) Budget execution (Indonesian, Japanese)
- 7) Production of Thematic Maps

III. SCHEDULE ON HEREINAFTER

The draft of implementation schedules for hereinafter were proposed and were authorised.

A. Annual execution plan on whole cooperation term
(see Annex - 2)

- 1) Annual cooperation plan ;
- 2) Annual activity plan.

B. Execution plan for next year (see Annex-3)

- 1) Dispatch of Experts ;
- 2) Training acceptance ;
- 3) Data acquisition ;
- 4) Field survey (Northe Banten, CJC, Outer Territory) ;
- 5) Provision of equipments ;
- 6) Local budget (Indonesian, Japanese)
- 7) Production of Thematic Maps.

IV. FACING SUBJECTS

Following items were reported as facing subject, and as a result of discussion.

Each countermeasures written below were come to agreement.

1) Countermeasure of Machine Trouble

For maintenance of equipments in this project except computer, two counterparts were send to Japan for training. But it's necessary to establish more firm maintenance system such as to be concluded the maintenance contract between Ministry of Public Works and Representative of Machine Manufacturer.

2) Requirement of Computer Terminal

Now this project has only two computer terminals. And it's earnestly required to install more computer terminals to accelerate improvement of Counterpart's capability that surely lead this projec to smooth - implemantation.

3) Srengthen Data Acquisition Activity

Successful achivement of this project depends on - smooth image data (especialy landsat data) acquisition.

But now it takes so long time, and the more image processing capability is increased in this project the more quick acquisition of landsat data is required, therefore certain system to get landsat data in short time should be established as eary as possible.

4) Making Data Processing Manual

The necessity of production of image data processing manual to establish firm technical transfer system was pointed out.

5) Countermeasure on Hand Over of this Project

After the end of this project terms, all facilities and activities will be handed over to Indonesian side, therefore technical transfer, management and machine maintenance systems must be established in early time, and enough local budget also should be shared in Indonesian side.

6) Multi Purpose Utilize of Facilities

It was pointed out that it's very effective to promote cooperation between this project and organization concerned to exchange information and to benefit each other.

V. O T H E R S

Following Items are agreed on this Committee

- 1) In addition to Northern Sumatera, Kalimantan Area - also be included to case study area in this project.
- 2) Besides this Committee, another technical meeting should be held at least once a month.

ANNEX 1.

1. Report in 1981 fiscal year.

1. Japanese Experts and Counterpart in Remotesensing Project.

Japanese experts dispatched by JICA in 1981 fiscal year and Counterparts in Remotesensing Project are shown in table 1.

On Japanese experts, it was three persons in the long term and six persons in the short term.

On counterparts, they are under of Ir. Tubagus Haedar Ali, Director of Data Processing and Statistics Center.

2. Provision of Machinery and Equipment.

The equipment supplied by JICA in 1980 and 1981 fiscal years are shown in table 2.

The analogue image processing system, digital usage analyzer and its operation system, computer and accessories had be transported by sea or air from June 1981 until February 1982 and it is about 70% of the equipments based on the Record of Discussion (R/D).

The setting work of Analogue image processing equipment has been carried out from about the middle of August for three weeks and it operated at the beginning of September. The setting work of the computer has been carried out by Indonesian IBM at December. And now, the education on the

handling and using of the digital image processing equipments, ARIS computer system or the image processing method etc. for the counterparts is taking by Japanese experts of 7 persons from this January until the end of March.

3. Collection of Data.

The collection of LANDSAT film, C.C.T. and map are shown in table 3.

We have collected the necessary data with your kind cooperation of LAPAN, BAKOSURTANAL and D.G.W.R.D., etc.

But it has took long time to get LANDSAT C.C.T. and also. We wish more many LANDSAT film and C.C.T. for the research of data processing method.

4. Ground Survey.

We have surveyed the topographical condition and the crop pattern in the training area of C.J.C. Project at the middle of August and the case study area of Northern Sumatera at the beginning of September for one week with all members of the counterparts. (See table 4).

5. Training.

The training Indonesian personal in Japan was three persons in 1981 fiscal year.

They are any separate trainee and the two persons training the technique of analogue returned home at March 10th through the training for two months. It is shown in table 5. And also, the one person will go to IBM Tokyo Scientific Centre as the arranged trainee in the next year at the middle of April for three months.

On the spot training, we have educated on the elementary knowledge of Remote Sensing Engineering over eight times from July to December. It is shown in table 6.

6. Japanese on-the-job expense.

On the Japanese on-the-job expense at 1981 fiscal year is shown in table 7.

But, on the out expense, it is showing the total expense from April 1981 year until February of 1982.

Table 1. List of Counterparts and Japanese Experts

(1) Counterparts

	N a m e
Project Leader	Drs. Suroso M. Djojosoekarto
Planning Operation	Drs. Ibnu Katamsi
Development of Agricultural Infrastructure	Ir. Hariyatno Soemarman
Computer or Economic	Dra. Setyaningsih
Development of Agricultural Infrastructure	Ir. Naniek Siti Murdjiati
Planning Operation	Drs. Anwar Soefi Ibrahim
"	Drs. Paido Hasurungan Hutapea
Computer	Dra. Adi Sasutji

(2) Japanese Experts

Long Term Experts	Name	Term of Service
Team Leader	Prof. Tokuo NAKAGAWA	Jan. 19, 1981 - Jun. 18, 1982
Agricultural Development	Mr. Shinobu SAKAI	Apr. 2, 1981 - Apr. 1, 1982
System Planning	Mr. Hiroshi YAMAMOTO	Jun. 13, 1981 - Jun. 12, 1982
Liaison Officer		
Hardware Development (analogue)	Mr. Kohei YOSHIDA	Aug. 13, 1981 - Sept. 3, 1981
"	Mr. Toshio IGARI	"
Hardware Development (digital)	Mr. Michio YOSHINO	Jan. 20, 1982 - Feb. 19, 1982
Software Development	Mr. Akihisa TERAKUBO	Jan. 20, 1982 - Mar. 25, 1982
Hardware Development (digital)	Mr. Yoshinobu SATO	Feb. 4, 1982 - Mar. 31, 1982
Regional Planning	Mr. Johji IIZAKA	Feb. 14, 1982 - Feb. 28, 1982

Table 2. Provision of Machinery and Equipment from Japan.

1980 Fiscal Years	Amount(YEN)	Inspect Data	Remarks
Automobile Spare Parts (NISSAN PATROL)	357,702	Jun. 3, 1981	
NISSAN PATROL (2)	3,870,320	Jun. 8, 1981	
Analogue Image Processing Equipments etc.	54,787,491	Jun. 12, 1981	Setting (Aug. 3-Sept. 3)
Handling Equipment (SAKAI Expert)	941,940	Jul. 29, 1981	
T o t a l	59,957,453		
1981 Fiscal Years	Amount(HEN)	Inspect Data	Remarks
Digital Image Processing Equipment (1)	124,100,943	Sept. 24, 1981	Setting (Des. 21-30)
" (2)	21,432,415	Dec. 19, 1981	(")
Handling Equipment (YAMAMOTO, NAKAGAWA)	1,126,669	Sept. 24, 1981	
Color Display etc.	42,313,726	Jan. 13, 1982	Setting (Jan. 22-2.10)
Magnetic Tape Equipment	6,365,853	Jan. 30, 1982	(")
Spare Parts (KIMOTO Co.)	1,500,371	Jan. 30, 1982	
" (Analogue equip- ment)	4,466,566	Feb. 12, 1982	
T o t a l	201,806,543		
In all	261,763,996		

In addition to above mentioned, air condition (8,811,000 Yen) and voltage regulator (13,394,000 Yen) more provided as spot procurement.

Table 3. Collection of LANDSAT Data and Existing Data.

Items	Area	Scale	Draw up year	Remarks
LANDSAT film	Sumatera, West Java	1:3,300,000	1972 - 1978	70 mm
Topographical map	Northern Sumatera	1:50,000	1979	
Soil map	Jawa	1:1,000,000	1960	
"	Sumatera	1:1,000,000	1964	
Geological map	Jawa	1:500,000	1977	
"	Sumatera	1:1,000,000		
Rain map	Jawa			
Administrative map	Western Jawa	1:100,000		
Population map	Jawa		1979	
Thematic map		1:200,000	1975	Mesh map (28)
Aerophotography	Northern Sumatera	1:200,000	1974	
Topographical map	Jawa	1:50,000	1977	already arranged
Aerophotograph	Jakarta	1:50,000 - 75,000	1981	" IR color
etc.				

Table 4. Field Survey.

Area	Date	Object
C.J.C. Project Northern Sumatera	Aug.18,1981 Sept.6-12,1981	topography, vegetation distribution and spectral measurement.

Table 5. Training Indonesia personal in Japan.

Name	Term	Object
Drs. ANWAR SOEPI IBRAHIM	Jan.10-19,1982	Maintenance of Enlarger,
Drs. PAIDO HASURUNGAN HUTAPEA	"	Drawscanare, Draw Printer etc.

Table 6. Results of On-the-Job Training in 1981

Date	Contents of Training	Lecturer	Remarks
Jul. 7	Summary of Remote Sensing	Ir. ALI	Persons concerned in Dept. of PW (27 persons).
Aug. 26 - Sept. 2	Operation of Analogue Equipment	Mr. YOSHIDA, Mr. IGARI	Counterparts
Sept. 28 - Nov. 2	Fundamental Technique of Computer	Indonesian IBM	"
Oct. 7	Physical Properties of LANDSAT	Dr. BAPMAWI	"
Nov. 4	Theoretical Analysis of Data Processing	Dr. SRIYATNO	"
Nov. 1 - Dec. 4	Reading	Counterparts	On "Remote Multispectral Sensing in Agriculture"
Nov. 7 - Nov. 27	Attend lecture	Dr. YASUDA	Special lecture in Indonesian Univ.
Nov. 18 - Nov. 28	Attend to ESCAP Seminar		Counterparts
Dec. 16 - Dec. 18	Visit GAJAHMADA University		"
Jan. 12	Remote Sensing in France	Mr. VAN EELAART	"
Jan. 22 - Feb. 18	Operation of Digital Image Equipment	Mr. YOSHINO	"
Jan. 22 - Mar. 24	Management of ARIS	Mr. TERAKUBO	"
Feb. 5 - Mar. 31	Computer System	Mr. SAITO	"
Feb. 15 - Feb. 27	Technique of Data Processing	Mr. IIZAKA	"

Table 7. On-the-Job Expense in 1981 fiscal year.
 A. Japanese side.

(1) In coming:
 ¥. 3,840,000.-

(2) Out going:
 Rp. 9,213,912.- (from April, 1981 until February, 1982).

I t e m s	Amount (Rp.)
Survey and Research	0
Material	1,682,555
Consumption	2,270,973
Transportation expense	241,160
Travel Allowance	206,850
Correspondence	174,425
Copy and Print	1,435,160
Lental Charge	261,500
Employment	308,900
Conference	1,584,149
Miscellaneous	1,048,240
T o t a l	9,213,912

B. Indonesian side.

Budget for fiscal year 1981 - 1982.

Routine budget : Rp. 17,447,760.-

Project budget :

* Building : Rp. 317,195,000.-

* Operational budget : Rp. 183,776,000.-

ANNEX 2.

A. Annual execution plan on whole cooperation term.

The project will be implemented in accordance with the record of discussion. However, some modifications on the schedule are necessary to cope with the change of the project's surroundings.

Some modifications are,

1) As the training for the production of thematic maps are very important for the technical transfer in the project, the project will put stress on the production of thematic maps in 1982 fiscal year.

2) North Banten area will be included into the training area in addition to CJC area. Because much ground information will be collected in North Banten area, and the remote sensing project will have great benefits in view of the ground truth data collection for the remote sensing data analysis.

3) The maximum scale of thematic maps which remote sensing techniques are able to produce, are considered the scale 1:50,000.

Therefore the production of thematic maps and evaluation maps of the scale 1:50,000 will be set as the final product of the project's activity.

4) The reinforcement of equipments is necessary to make provision against the image processing of LANDSAT-D data.

Fig.1 shows annual cooperation plan on whole term.

Fig.2 shows the concept of multi-stage remote sensing for agricultural infrastructure development.

Fig.3 shows the tentative implementation plan on whole cooperation term (modified in March 1982).

HARDWARE CONFIGURATION

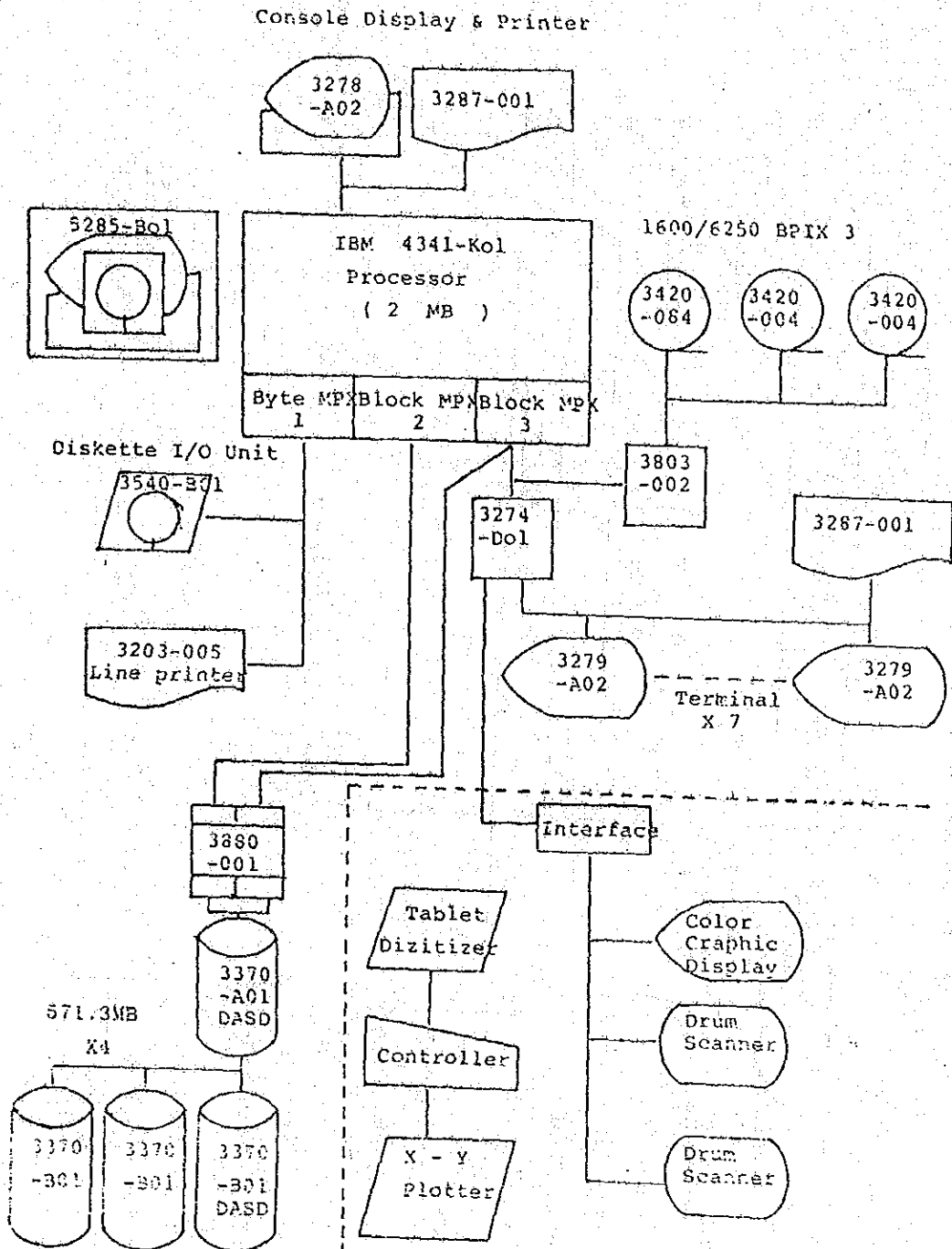


Fig. 1 (1) Annual cooperation plan on whole term for digital system

Annual implementation plan on remote sensing project.

--- or () : plan
: result

I. JAPANESE ASSISTANCE

I T E M	1st Year 1980.4-1981.3	2nd Year '81-4-'82-3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	Total
I. EXPERTS (Long-term assignment)						
1. Team Leader						
2. Agricultural Development						
3. System Planning						
4. Liaison officer						
II. EXPERTS (Short-term Assignment)						
1. Software Development						
2. Agronomy						
3. Aerial Photography						
4. Data Processing and Programming						
5. Hardware Development						
6. Regional Planning						
		(8) man-months 7	10 man-months	8 man-months	7 man-months	32 man-months

Fig. 1. (1) Annual cooperation plan on whole term.

I T E M	1st Year 1980.4-1981.3	2nd Year '81.4-'82.3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	Total
III. HARDWARE 1. Digital Image Processing System		(") Computer (") Magnetic Tape Units X 3 (") Disk Memory X 2	Tablet Digitizer X - Y PLOTTER Display Terminal X 5 Disk memory X 2 Spare parts	System Expansion Spare Parts	System Expansion Spare Parts	

Fig. 1 (2) Annual cooperation plan on whole term.

I T E M	1st Year 1980.4-1981.3	2nd Year '81-4-'82-3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	Total
2. Analogue Image Processing Equipment		(") Programmable Data Station				
		(") Drum Scanner (") Drum Printer (") Color Display (") Spare Parts				
		(") Additive Color Viewer (") Zoom Transfer Scope (") Camera	Photo densito meter Photo paper drier			

Fig. 1 (3) Annual cooperation plan on whole term.

I T E M	1st Year 1980.4-1981.3	2nd Year '81-4-'82-3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	Total
3. Vehicle	(") Photo Densito meter	(") Photo meter	(") Photo Color Processor	(") Enlarger	(" (4)) Vehicles (2)	(") Test Equipment
4. Others		(") Voltage Regula- tor with Switch Board	(") Air Conditioner	Miscellaneous	Miscellaneous	Miscellaneous

Fig. 1 (4) Annual cooperation plan on whole term.

I T E M	1st Year 1980.4-1981.3	2nd Year '81-4-'82-3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	Total
4. Others (continued)		(") MT Rack (") Refrigerator (") Miscellaneous	Light table Micro-fish viewer			
IV. TRAINING ACCEPTANCE	2 persons (2 months)	1 person (3 months) 2 persons (2 months)	1 person (3 months) 2 persons (2 months)	1 person (3 months) 2 persons (2 months)	1 person (3 months)	15 persons

Fig. 1 (5) Annual cooperation plan on whole farm.

II. INDONESIAN RESPONSIBILITIES.

I T E M	1st Year 1980.4-1981.3	2nd Year '81-4-'82-3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	Total
VI. DATA ACQUISITION		LNDENT EXISTING DATA				
VII. GROUND SURVEY		CJC area Northern Suma- tera	North Banten CJC area Outer territory	Color IR	Color IR	
VIII. OFFICE ACCOMMODATION	Construction	interia				
IX. COUNTERPARTS 1. Project Leader 2. Planning and Operation 3. Agricultural development 4. Social Economic 5. S o i l						

Fig. 1 (6) Annual cooperation plan on whole terr.

	1st Year 1980.4-1981.3	2nd Year '81-4-'82-3	3rd Year '82.4-'83.3	4th Year '83.4-'84.3	5th Year '84.4-'85.3	TOTAL
I T E M						
IX. COUNTERPARTS (continued)						
6. Data process						
7. Photo processing						2 persons
X. OFFICE EMPLOYEE						
1. Office Clerks		5 persons				
2. Drivers		1 person	2 persons			

Fig. 1 (7) Annual cooperation plan on whole term.

Consent of Multi-stage Remote Sensing
for Agricultural Infrastructure development.

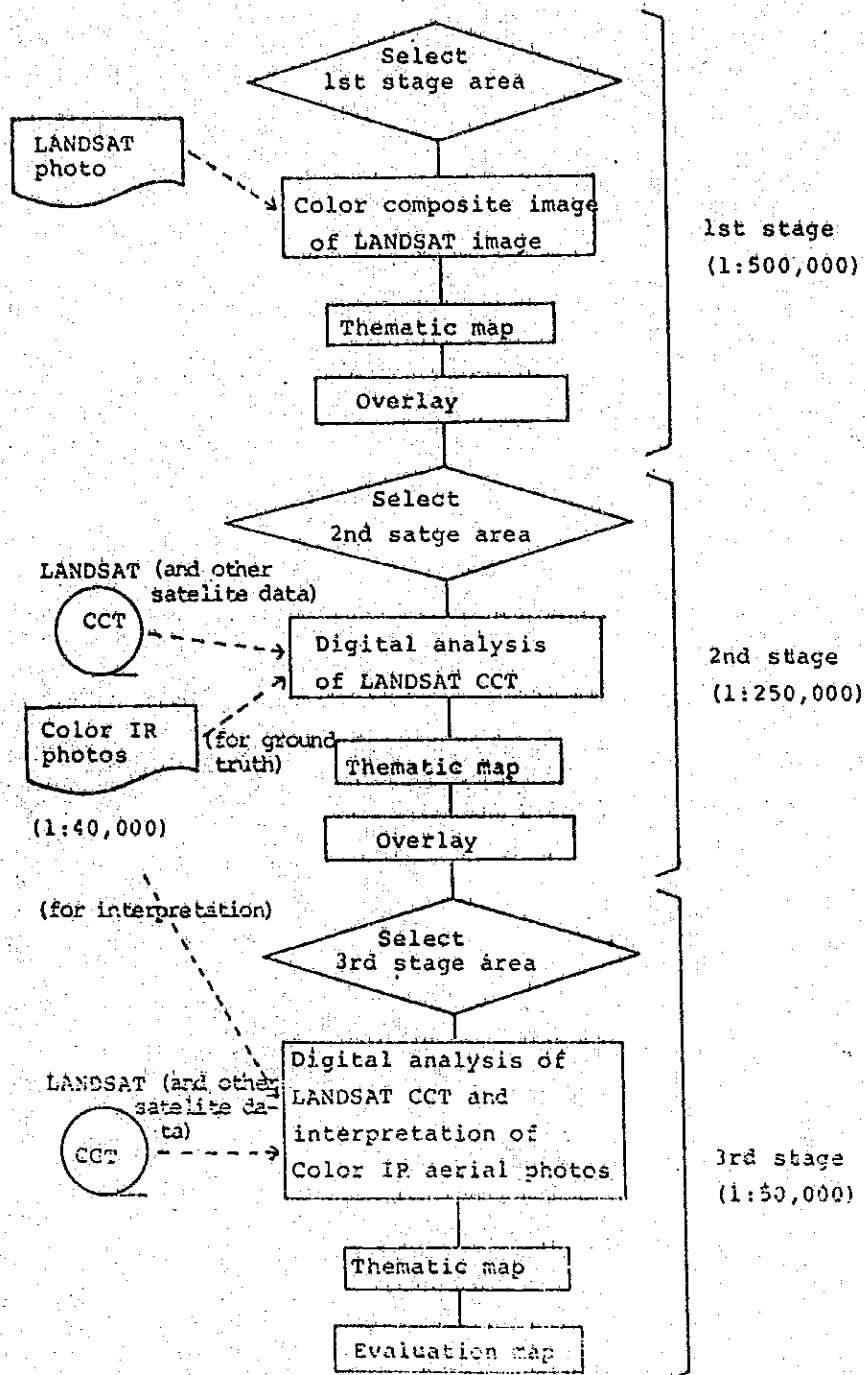


Fig. 2.

TERTIARY IMPLEMENTATION PLAN
(modified in March 1982)

	3rd year (1982 - 1983)												4th year (1983 - 1984)												5th year (1984 - 1985)											
	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Japanese experts	Team leader Agriculture development System planning Liaison																																			
	Soft → Hard → Regional → Aerial photo → data processing → Agrarian												soft → hard → Regional → data processing → Agrarian → photo interpretation												soft → regional → data processing → hard → regional → Agrarian											
Hardware installation	expansion												expansion												expansion											
Ground survey	Training area → Training area → Test area → Training area												Training area → Training area → Test area												test area → outer territory											
Data acquisition	CCT → existing data & maps → IR color → planning for next year												CCT, existing data & maps → IR color → planning for next year												CCT, existing area maps → review application for another area											
Study image data processing method	2nd stage digital (training area)												3rd stage (training area) → 2nd stage (test area)												3rd stage (test area) → review application for another area											
Establishment of image data processing method	2nd stage												3rd stage																							
Production of thematic and evaluation map	thematic 2nd map (training area) → Overlay evaluation 2nd maps (training area)												thematic 3rd maps (training area) → Overlay 3rd maps (training area) → thematic 2nd maps (test area) → Overlay maps (test)												thematic 3rd (test) → overlay 3rd (test) → review											
Selection of suitable area for development	2nd stage (training) → 3rd (training)												2nd (test) → 3rd (test)												review											
Establishment of multistage survey technique	2nd stage												3rd stage												1st - 3rd stage overall											
Training acceptance	JRM (2 persons) JICA (2 persons)												soft (1 person) soft (3 persons)												soft (1 person)											
Holding joint Committee meeting	summarization of 3rd year												summarization of 4th year												final summarization											

Fig. 3.

ANNEX 3.

B. Execution plan for next fiscal year.

The activities of the project in 1982 fiscal year are following items.

- 1) Installation of additional equipments for the digital image processing and its operation system.
- 2) Installation of additional equipments for the analogue image processing.
- 3) Installation of additional equipments, machinery, instruments, and tools for field and aerial survey and their data processing.
- 4) Collection of LANDSAT data and other satellite data such as NOAA, and collection of existing data for ground truth.
- 5) Establishment of basic techniques for digital image analysis of LANDSAT digital datas.
- 6) Production of thematic maps (the scale 1:250,000).
- 7) Overlay of thematic maps for the selection of suitable area for agricultural infrastructure development.
- 8) Field survey (North Banten area, CJC area, outer territory.

- 9) Selection of the second (2nd) stage suitable area and the third (3rd) stage suitable area for agricultural infrastructure development.
- 10) Take of aerial color IR photos (the scale 1:40,000) in the test area for ground truth data.
- 11) Training.

1. Dispatch of Japanese Experts.

The project has a plan about Japanese Experts mentioned below.

1.1. Long-term assignment.

Speciality	Number
Leader	1
Agricultural development	1
System planning	1
Liaison officer	1

Table 1.

1.2. Short - term assignment.

Speciality	Number	Term	Remark
Hardware development	1	1 month	Installation of additional equipment
Software development	1	2	Instruction of digital image processing
Data processing	1	2	Instruction of data processing for thematic map production
Aero photography	1	2	Instruction of photographing and developing of aerial color IR photo
Regional planning	1	2	Instruction of overlay and evaluation of thematic maps
Agrarian forming	1	1	Instruction of making model to select the suitable area

Table 2.

2. Training acceptance.

There are four (4) potential frame works for training in Japan in the fiscal year 1982. The term and the organization to accept four (4) counterparts for training are shown in Table 3.

Class	Number	Term	Acceptable organization
Group course	2	April 4 - June 12	JICA remote sensing course.
Separate training	2	April 15 - July 14	IBM Japan, Tokyo Scientific Center.

Table 3.

3. Data acquisition.

- The project will acquire LANDSAT CCT data and photo and other satellite data such as NOAA, Geo-satellite, etc.

in training area and test area.

Those satellite datas of other outer territory also will be acquired, in the case of receiving demands from organization concerned process image data and some benefits are able to expected each other by the cooperation.

- The project will collect existing data, maps, aerial photos and materials as ground truth data for remote sensing image processing.

- The project will cooperate with North Banten project and CJC project to get ground information for remote sensing image processing.
- Aerial color infrared photo (scale 1:40,000) will be taken in test area (North Sumatra) which is used as ground truth data for thematic maps (scale 1:250,000) in 1983. The production of thematic maps (scale 1:50,000) in 1984 will carry out with help of the photo interpretation technique of these photos.
- Technical papers should be acquired for research and development of new remote sensing techniques.

4. Field Survey.

Field survey will be carried out more than 2 times on North Banten area and CJC area to acquire ground truth datas. Some of ground truth are expected to be supplied by organization concerned being cooperated each other.

For test area (Sumatra), field survey for aquisition calibration datas of color IR photo will be carried out.

5. Provision of equipments.

Equipments and materials required by Remote Sensing Project are listed on Table 4.

I t e m	Spesification	Quantity
Disk memory	IBM 3370 - B01	2 sets
Display terminal	IBM 3279 - A02	5 sets
Tablet digitizer	with controller	1 set
X - Y Plotter	Max Size A1	1 set
Photo densito meter	for transparency	1 set
Light table	with film drive	1 set
Photo paper drier	drum type	1 set
Micro fith viewer	for LANDSAT DATA search	1 set
IR color film	KODAK 2443	5 rolls
IR color chemical	process EA-5	1 set
Color negative film	KODAK 4107	600 sheets
Color negative chemical	process C-41	1 set
Color reversal paper	KODAK 14 RC paper	1,000 sheets
Color reversal chemica;	process R-41	1 set
Printer device for spectrometer	for PM12A for PM 2500	1 set 1 set
Interface for drum scanner and Photo printer	for off-line drive	1 set
Color reel paper width 1 m		3 rools
Miscellaneous		

Table 4.

Equipment List which is
required in 1982 fiscal year.

6. Local budget.

6.1. The plan of Japanese on-the-job expense in 1982 fiscal year.

The plan of Japanese on-the-job expense in 1982 Fiscal year are shown in Table 5.

Item	Incoming	Outgoing
	9,600,000	
Survey and research		800,000
Material		1,500,000
Consumption		2,000,000
Transportation expense		200,000
Travel allowance		500,000
Correspondence		200,000
Copy and Print		1,400,000
Lental charge		200,000
Employment		300,000
Confarence		1,500,000
Miscellaneous		1,000,000
		Balance
		0

Table 5.

6. 2. The plan of Indonesian on-the-job expense in 1982 fiscal year.

Budget for physical yeear 1982 - 1983.

Routine budget	:	Rp. 40,120,728.-
Project budget	:	Rp.195,929,000.-

Table 6.

7. Production of thematic maps, and overlay of them.

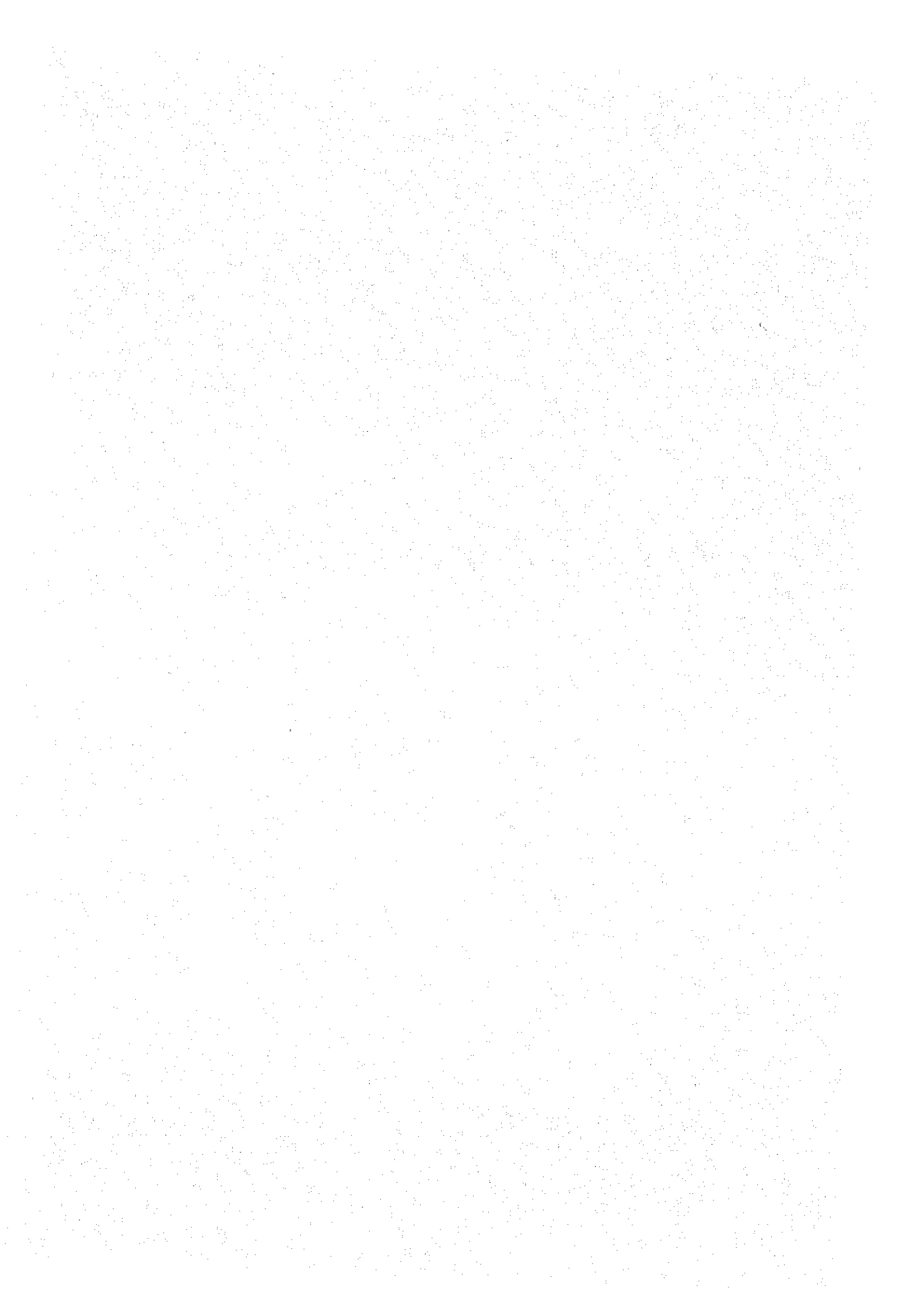
In the activity in 1982 fiscal year, the production of following thematic maps shall be given weight.

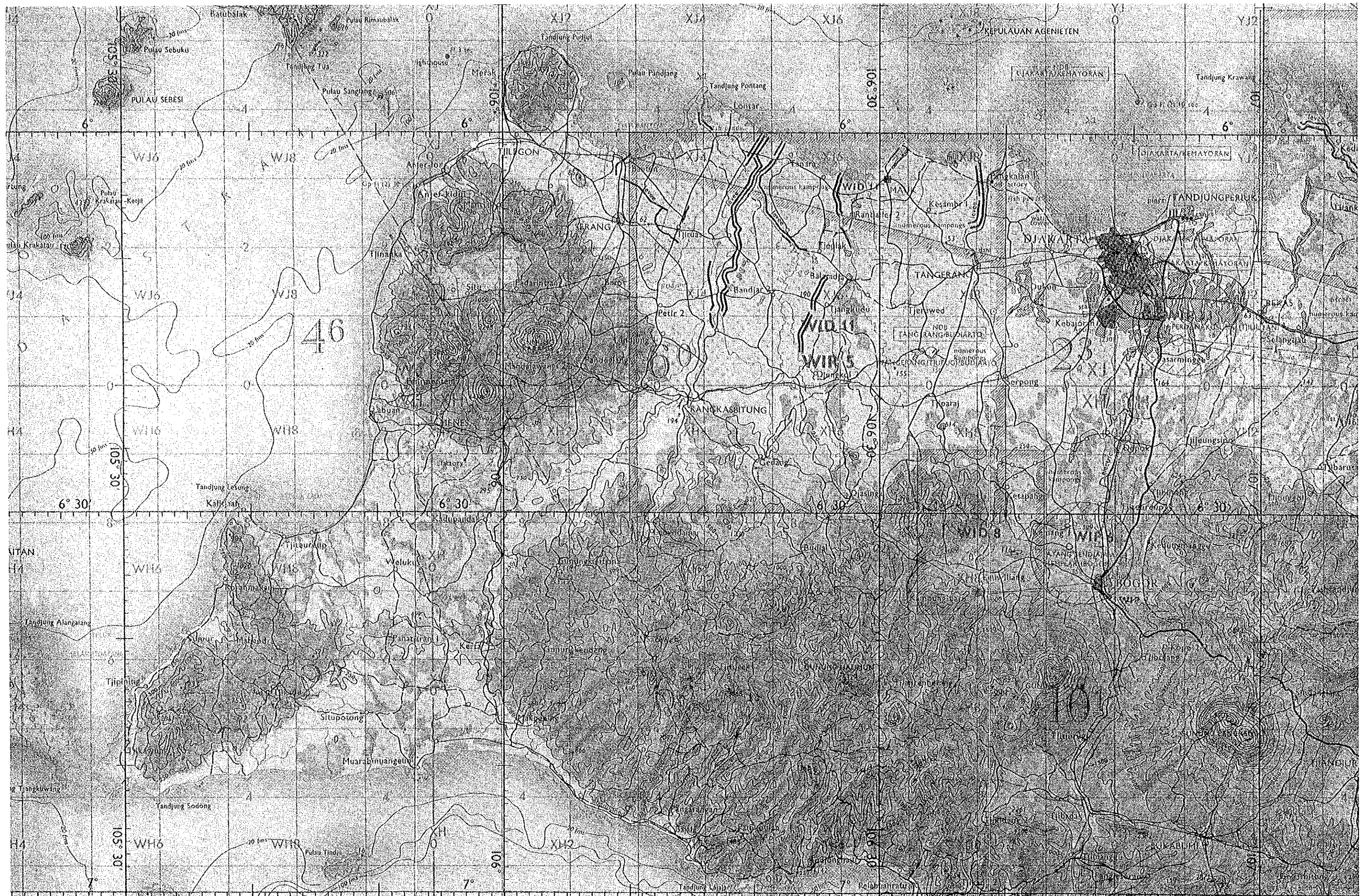
- 1) Land use map
- 2) Vegetation distribution map and biomass estimation map
- 3) Geomorphology map
- 4) Soil map
- 5) River and drainage pattern map
- 6) Human settlement map
- 7) Suspended solid distribution map.

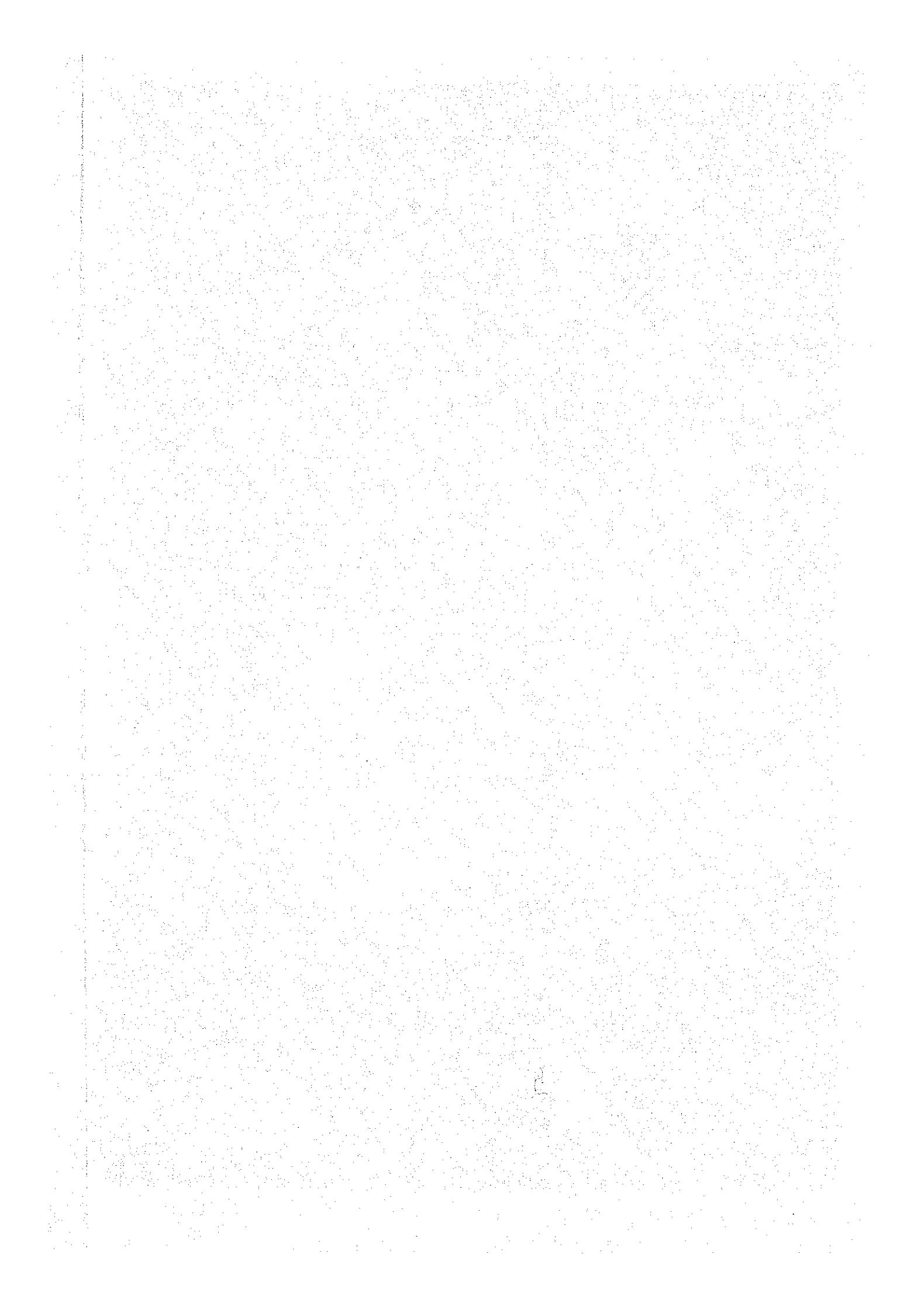
DETAILED PLAN FOR THE 3rd YEAR
(1982.4 - 1983.3)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Experts (Short term)				Software (1 person)		Hardware (1 person)	Data Processing Regional (1)		Aerial photo (1)		Agrarian (1)	
Hardware Installation						Expansion						
Production of Thematic maps							Thematic map of training area (1:250,000) (Land cover, Land Use, Vegetation, Soil, Geology, SS, Human Set)				Overlay maps of training area (1:250,000)	
Ground survey		Training area	Training area (DJC & North Banten)				Training area		Test area (Sumatra)			
Data acquisition		LANDSAT CCT Existing datas							Color IR photo of test area Sumatera (1:40,000)		Data acquisition plan for next year	
Selection of suitable area		2nd Stage										3rd Stage
Study of image data processing method				LANDSAT Digital Processing (1:250,000)								
Establishment of image data processing method				2nd Stage								
Training acceptance		I B M (2 persons) JICA (2 persons)										
Joint committee												
JICA Survey Team												

Fig. 4.







JICA

