(Unit: Rp '000)

Item	Telagasari	Bagor	Mattiro Bulu	Trimurjo
The Fifth Year				
Balance	13,872	13,064	9,687	15,413
Cumulative	64,440	65,080	118,268	201,431
The Tenth Year				
Balance	5,849	11,193	4,859	16,345
Cumulative	83,351	88,654	136,296	235,383

7.3 Economic Evaluation

7.3.1 Economic Benefit

Economic benefit will accrue from the decrease in losses of paddy and rice and increase in rice quality which are considered as the quantitative and qualitative benefits respectively. Incremental benefits between without and with project conditions are estimated in terms of economic value of milled rice.

Quantitative benefits consist of the decrease in reaping and threshing losses at field level and rice milling losses which will be produced by the improvement of harvesting and milling activities with introduction of machinery and equipments. Increase in milling recovery rates are estimated at 5% between the present rate of around 60% and the improved rate of around 65% in with project condition. The saving of these field and milling losses is evaluated by applying the class C price.

The milled rice in without project condition is considered as the class C rice which is common product around the pilot areas. The rice quality in with project condition will be improved to the class B or A by the improvement of drying, cleaning and milling activities with introduction of winnowers, drying and storage facilities and rice mills. Qualitative benefit is calculated in terms of economic price differences among each class.

The quantitative and qualitative annual benefits are estimated as shown in Table 7.3-1 and summarized as follows:

Item	Unit	Telagasari	Bagor	Mattiro Bulu	Trimurjo
I. Quantitative Benefit					
1. Decrease in Field Losses					
- Decrease in losses	t of paddy	99	47	98	72
- Increase in rice	t of rice	59	28	59	43
- Price of Class C rice	Rp'000/t	328	328	328	328
- Benefit	Rp'000	19,352	9,184	19,352	14,104
2. Decrease in Milling Losses					
- Decrease in milling losses	t	84	61	56	91
- Benefit	Rp'000	27,552	20,008	18,368	29,848
3. Quantitative Benefit	Rp'000	46,904	29,192	37,720	43,952
II. Qualitative Benefit					
1. Class B Rice Production					
- Production in with	t	1,034	754	690	1,127
- Price difference (Class B and C)	Rp'000/t	22	22	22	22
- Benefit	Rp'000	22,748	16,588	15,180	24,794
2. Class A Rice Production					
- Production in with	t	40	27	24	42
- Price difference (Class A and C)	Rp'000/t	65	65	65	65
- Benefit	Rp'000	2,600	1,755	1,560	2,730
3. Qualitative Benefit	Rp'000	25,348	18,343	16,740	27,524

The benefits will be expected to increase linearly year by year and reach the full benefits in and after five years after the implementation of the pilot plan.

7.3.2 Economic Cost

(1) Economic Project Cost

Economic project cost for the pilot plan comprises the construction cost for drying floor, warehouse and milling house, and procurement cost for machinery. Economic project cost is converted from the financial costs by applying the standard conversion factor (SCF) of 0.9. The economic project cost is estimated as follows:

(Unit: Rp '000)

	Telagasari	Bagor	Mattiro Bulu	Trimurjo
1. Machinery and Equipment	28,864	31,432	19,181	46,241
2. Construction				
- Drying Floor	9,597	6,855	7,312	10,511
- Building	53,928	39,312	40,824	57,456
Sub-total	63,525	46,167	48,136	67,967
3. Total (1 + 2)	92,389	77,599	67,317	114,208

(2) Operation and Maintenance Cost

Operation and maintenance cost (O&M costs) for processing and marketing activities using drying floor, winnowers, rice mills and warehouse are considered the additional cost in with project condition. Economic O&M costs are estimated by applying the economic labor cost of Rp 1,450/man-day and the SCF of 0.9 for the other cost portion. Economic annual O&M costs in the respective pilot areas are estimated as follows:

(Unit: Rp '000/year)

	Cost Item	Telagasari	Bagor	Mattiro Bulu	Trimurjo
I.	Operation and Maintenance Cost	10,561	7,506	7,224	11,332
II.	Personnel Cost	6,801	4,750	4,617	7,355
III.	Transportation Cost	1,775	1,174	1,190	1,850
	Total (I+II+III)	19,137	13,430	13,033	20,534

(3) Change of Cost for Harvesting

O&M cost for the threshers accrues in with project condition instead of threshing labor costs in without project condition. The labor costs for pre drying activities will be an additional cost in with project condition. Total economic harvesting cost will increase between without and with project conditions. The incremental harvesting costs are summarized as follows:

(Unit: Rp '000)

Item	Telagasari	Bagor	Mattiro Bulu	Trimurjo
Incremental cost				
Wet season	518	1,018	588	1,364
Dry season	835	1,253	524	1,758
Total	1,353	2,271	1,062	3,122

(4) Replacement Cost

The following machinery and equipments are considered to be replaced by 5 years and 2 or 3 years respectively. Building and drying floor will be replaced by 20 years. Economic replacement costs for machinery and equipment are estimated by applying the SCF of 0.9 to those of financial prices as follows:

(Unit: Rp '000)

Item	Useful Life (year)	Telagasari	Bagor	Mattiro Bulu	Trimurjo
1. Replacement in 3rd year					
- Serrated Sickle	2	412	340	365	542
- Drying Sheet	2	1,440	1,080	1,080	1,440
Total		1,852	1,420	1,445	1,982
2. Replacement in 4th year					
- Threshing Sheet	3	738	216	504	306
- Pedal Thresher	3	3,690	0	2,520	0
Total		4,428	216	3,024	306
3. Replacement in 6th year					
- Power Thresher	5	0	15,084	0	21,369
- Power Winnower	5	2,064	1,032	1,032	2,064
- Rice Mill Unit	5	20,520	13,680	13,680	20,520
Total		22,584	29,796	14,712	43,953
4. Replacement in 21st year					
- Building	20	53,928	39,312	40,824	57,456
- Drying Floor	20	9,597	6,855	7,312	10,511
Total		63,525	46,167	48,136	67,967

7.3.3 Economic Evaluation

The economic useful life of the pilot plan is considered to be 20 years on the basis of the useful life for building and drying floors of 20 years. The economic internal rate of return (EIRR) is calculated from the economic cost and benefit flows for each pilot area as shown in Table 7.3-2. The EIRRs are as follows:

	Telagasari	Bagor	Mattiro Bulu	Trimurjo
EIRR (%)	25	18	24	19

The project sensitivity is analyzed with respect to the change in benefits and cost. The pilot plan is still expected to become economically feasible even if there are increase in the costs and decrease in the benefits between 10-20% as follows:

Assumption (%)		EIRR (%)			
Cost Up	Benefit Down	Telagasari	Bagor	Mattiro Bulu	Trimurjo
+10	-10	20	14	19	15
+10	-20	16	10	16	13
+20	-10	19	12	18	14
+20	-20	15	9	15	12

7.4 Socio-Economic Impacts

In addition of the direct benefits assessed in the economic and financial evaluations, various secondary and intangible benefits and/or favourable socio-economic impacts may be expected from the implementation of the pilot plans as follows:

(1) Activation of Village Economy

The present economy in the pilot areas depends on the paddy production sector. The agro-processing industries including rice milling are limited to the home consumption for farmers and most of marketable surplus are brought out by paddy or raw materials. The operation of rice mills by farmer groups will create the employment opportunities of laborers and operators for drying, cleaning and milling. Initial rice milling activities by farmer groups would promote the other processing industries for palawija crops. The village economy will be stabilized and enlarged by the close coordination between production and processing sectors.

(2) Spreading Effects to Other Area

Each of the pilot area is located at the major rice producing area in the respective four provinces. The development effects by the pilot plan will be easily spread to the other farmer groups around the pilot areas through the existing Rural Extension Centers and the proposed Post Harvest Service Centers.

(3) Enhancement of Farmer Groups Organization

Joint post harvest and marketing activities by farmer groups will accrue close coordination with pre harvesting activities and KUDs'

activities. Farmer group activities for the improvement of post harvest will be expanded to pre harvesting activities on the basis of SUPRA INSUS technologies. Farmer groups will easily join the KUDs' activities through the timely arrangement for the procurement of farm inputs, surely repayment of SUPRA INSUS credit and close coordination of marketing activities.

When the farmer groups by the unit of tertiary irrigation block are reorganized and their post harvest and marketing activities are fairly under way, the respective farmer groups will be integrated as a rice growers' association. This association will have chances to introduce more effective technologies i.e. mechanical dryers, larger scale rice mills with higher efficiency, and to get more strong bargaining powers. The set-up of the growers' association will bring more benefits to the member farmers.

(4) Enhancement of Village Society

The proposed pilot plan will play the leading activities in the village society. Not only member farmers but also agricultural laborers and the government officials in the villages will participate in the pilot activities. Most of the village members will be required to attend the meetings for the promotion of the plan and have the joint activities each other. The village society can be enhanced through these activities.

(5) Promotion of Palawija Crop Production

The present major constraints for the production of palawija crops are lower productivities due to improper farming practices as well as limited water supply or production under rainfed conditions, and lower prices due to limited market outlets. The farmer groups set-up by the pilot plan could improve the constraints on the marketing outlets through the joint processing and marketing activities of rice product.

8. RECOMMENDATIONS

(1) Early Implementation of the Plans

The plans are verified herewith to be technically sound, and economically and financially feasible. It is highly recommended that the necessary arrangement for early implementation of the plans be taken as soon as possible.

(2) Financial Support by the Government for the Pilot Plans

It is very important to realize improvement in post harvest and marketing in farmer groups in the pilot plans as one of the progressive examples for future implementation of the national post harvest improvement program. For early and steady realization of proposed pilot plans, it is recommended to support financial arrangement of farmer group's initial investment costs by the Government.

In order to facilitate, introduction of advanced machinery by farmer groups, it is recommended to provide some subsidized credit or lease services of advanced machinery to farmer groups with technical guidance and training through the Service Centers.

(3) Intensive Investment in Farm Roads and Drainage Canals

The poor drainage and road system is one of the major causes of the harvesting losses and low efficiency in the field work of the paddy cultivation and its improvement is the prerequisite for the improvement in harvesting and transportation activities. But the improvement of drainage and road system is though to be too heavy for farmers. It is recommended to implement drainage and road improvement work in the pilot areas by the Government.

TABLES

Table 3.1-1 PRESENT ADMINISTRATIVE AND AGRICULTURAL CONDITION IN SURVEY AREA

KABUPATEN	KARAWANG		NGANJUK		PINRANG		LAMPUNG TENGAH	
KECAMATAN	TELAGASARI		BAGOR		MATTIRO BULU		TRIMURJO	
Survey area/related Desa (plan area)	Survey area	Cadas Kertajaya	Survey area	Selorejo	Survey area	Marannu	Survey area	Purwodadi
1. Area (km2)	50	3.9	52	2.9	161	20	58	5.2
2. Population/H.Hold								
Population	49,600	2,697	50,630	4,254	23,240	2,401	42,720	3,667
Population density (person/km2)	992	692	990	1,467	107	489	736	705
No. of household	12,860	672	11,900	985	4,770	120	8,210	759
Average family size	3.9	4.0	4.3	4.3	4.9	4.9	5.2	4.8
3. No. of Farm Household								
Owner Farmer	3,820	297	2,480	154	2,300	212	4,920	401
Tenant Farmer	2,100	121	5,720	563	1,840	241	1,120	124
Agricultural Labor	4,240	200	2,740	230	0	0	610	131
Total	10,160	618	10,940	947	4,140	453	6,650	656
Share to whole H.H (%)	79	92	92	96	87	93	81	86
4. Land use								
Paddy Field :								
Irrigated (ha)	3,960	290	1,940	197	3,950	1,357	3,900	324
Rainfed (ha)	-	-	160	-	1,380	-	300	-
Sub-total (ha)	3,960	290	2,100	197	5,330	1,357	4,200	324
Upland (ha)	20	93	160	56	10,610	623	300	165
Others (ha)	1,020	7	2,860	34	160	20	1,300	36
Total (ha)	5,000	390	5,120	287	16,100	2,000	5,800	525
5. No. of Farmer Groups								
SUPRA INSUS	102	8	44	3	122	32	53	5
Non-SUPRA INSUS	0	0	4	0	0	0	49	0
Total	102	8	48	3	122	32	102	5

Source : BPP, Camat office, Dinas Pertanian.

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (1/7)

Item		Kab. Karawang Kec. Telagasari		Kab. Nganjuk Kec. Bagor		Kab. Pinrang Kec. Mattiro Bulu		Kab. Lampung Kec. Trimurjo	
1. Land Use in the Average Year (ha)									
(1) Paddy Field	-Irrigated	3,960	(-)	1,940	(-)	3,950	(-)	3,900	(-)
	-Rainfed	0	(-)	160	(-)	1,380	(-)	300	(-)
	Subtotal	3,960	(79%)	2,100	(41%)	5,330	(33%)	4,200	(72%)
(2) Upland Field		20	(0%)	160	(3%)	10,610	(66%)	300	(5%)
(3) Others		1,020	(21%)	2,860	(56%)	160	(1%)	1,300	(22%)
(4) Total		5,000	(100%)	5,120	(100%)	16,100	(100%)	5,800	(100%)
(5) Area covered by SUPRA INSUS		100% of irrigated paddy field		70% of irrigated paddy field		60% of irrigated paddy field		85% of irrigated paddy field	

2. Paddy Production (1988/89)		Dry Season	Wet Season	Total	Dry Season	Wet Season	Total	Dry Season	Wet Season	Total	Dry Season	Wet Season	Total
(1) Irrigated land	Harvested Area (ha)	3,960	3,960	7,920	1,550	1,750	3,300	2,700	3,950	6,650	3,900	3,900	7,800
	Average Yield (t/ha)	6.5	6.8	6.6	6.3	6.5	6.4	5.8	5.8	5.8	5.2	5.7	5.4
	Production (1000 ton)	25.7	26.9	52.6	9.8	11.4	21.2	15.7	22.9	38.6	20.3	22.2	42.5
(2) Rainfed land	Harvested Area (ha)	-	-	-	-	160	160	-	540	540	-	300	300
	Average Yield (t/ha)	-	-	-	-	2.0	2.0	-	1.5	1.5	-	1.5	1.5
	Production (1000 ton)	-	-	-	-	0.4	0.4	-	0.8	0.8	-	0.5	0.5

3. Cropping Pattern in the Irrigated Paddy Field	Dry Season	Wet Season	Total	Dry Season	Wet Season	Total	Dry Season	Wet Season	Total	Dry Season	Wet Season	Total
(1) Cropping Intensity of Paddy	100%	100%	200%	80%	90%	170%	44%	100%	144%	100%	100%	200%
							Intensity in dry season is average of past 3 years. (Intensity tends to increase recently.)			Intensity in dry season decreases to 50% once 3 years.		
(2) Cropping Intensity of Upland Crops												
-Plan	65%	-	65%	10%	60%	70%	-	-	-	20%	-	20%
-Actual	0.3%	-	0.3%	10%	60%	70%	-	-	-	2%	-	2%
				Sugarcane is planted in 10% of the total paddy area.								
(3) Harvesting Season of Paddy	Dry Season	Wet Season		Dry Season	Wet Season		Dry Season	Wet Season		Dry Season	Wet Season	
-Plan	July (1 month)	Feb.25-Mar.25 (1 month)		Jul.18-Aug.5 (0.8 month)	Mar.7-30 (0.8 month)		Aug.15-Sep.15 (1 month)	Feb.15-Mar.15 (1 month)		Aug.15-Sep.15 (1 month)	April (1 month)	
-Actual	Jul.10-Aug.25 (1.5 month)	Feb.15-Mar.30 (1.5 month)		Jul.18-Aug.10 (0.9 month)	Mar.4-Apr.10 (1.3 month)		Aug.3-Sep15 (1.4 month)	Feb.15-Mar.30 (1.5 month)		Aug.7-Sep.20 (1.5 month)	Mar.15-May 15 (2 month)	

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (2/7)

Item		Kab. Karawang Kec. Telagasari		Kab. Nganjuk Kec. Bagor		Kab. Pinrang Kec. Mattiro Bulu		Kab. Lampung Kec. Trimurjo	
(4) General		a. 75% of farmers have not operated farming practices according to the schedule. b. Harvesting is delayed cause of delayed planting (due to improper water management) and labour shortage in harvesting period.		a. 60% of farmers properly carry out farming practices according to the schedule. b. Due to labour shortage, land preparation and transplanting are delayed.		a. Large land owners didn't cultivate in dry season against the plan, and this resulted in low cropping intensity. b. Due to labour shortage for land preparation and delaying previous dry season crop, planting in rainy season is behind the schedule.		a. Dry season crop delays due to shortage of animal power and irrigation water for land preparation. b. Rainy season crop delays due to shortage of animal power and irrigation water for land preparation.	
4. Farming Practice		Dry Season	Wet Season	Dry Season	Wet Season	Dry Season	Wet Season	Dry Season	Wet Season
(1) Variety	-Plan	IR64	Cisadane	IR36	IR36	IR64	IR36/42	IR64	Cisadane
	-Actual	IR64 (100%)	Cisadane (90%) IR64 (10%)	IR36 (100%)	IR36 (100%)	IR64 (100%)	IR36 (80%) IR42 (20%)	IR64	Cisadane (20%) IR64/42 (80%)
		Recommended variety in rainy season is Cisadane as disease tolerant variety, but farmers prefer IR64, high yielding variety.						Recommended variety in rainy season is Cisadane as disease tolerant variety, but farmers prefer IR64, high yielding variety.	
	-Use of Certified Seeds	98%	98%	59%	98%	80%	90%	62%	62%
(2) Fertilizer	-Actual	40% of farmers apply ammonium sulfate inadequately.		Application of fertilizer is carried out as planed. Organic fertilizer is recommended to apply 5 t/ha for rainy season crop, 40% of farmers apply the planned dosage.		Generally, dosage of ammonium sulfate and KCl is short (8% for ammonium sulfate and 16% for KCl against the plan).		60% of farmers apply urea insufficiently.	
(3) Agro-chemicals	-Actual	Insufficient application of agro-chemicals due to delay of distributing materials.		Insecticide is applied as planned. Rodenticide is not applied as planned. Only Hitorasil is applied as Hormone.		Insecticide is applied by 30% of planned amount. Rodenticide is not applied due to high price. Fungicide is not applied against recommendation Only Sitocine is applied as Hormone.		Agro-chemicals is applied by planned amount. It is insufficient for 65% of farmers to observe insects and disease.	

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (3/7)

Item	Kab. Karawang Kec. Telagasari	Kab. Nganjuk Kec. Bagor	Kab. Pinrang Kec. Mattiro Bulu	Kab. Lampung Kec. Trimurjo
5. Farm Operation System				
(1) Land Preparation and Soaking	Custom land preparation by hand tractor. (animal power is not applied.)	Custom land preparation by hand tractor. Operators are labour force in the villages. 1 ha can be finished in 1 day.	50% is custom land preparation by hand tractor, and another 50% is carried out by animal power. Operators are labour force in the villages. Working efficiency is 0.6 ha/day.	a. Land preparation by animal power. (custom land preparation by hand tractor is partially started.) b. Land preparation is not sufficient (20% of farmers).
(2) Transplanting	Contract with a labour group (20-40 persons). Owner and tenant farmers have contracts with labour groups in villages.	Transplanting of 1 ha can be finished in 1 day by about 20 females labours.	Family labour force is exchanged each other under the Gotong Royong system. 1 ha can be transplanted in 1 day by about 20 females labours.	Contract with village transplanting group (10 females and 2 males, owner/tenant farmers and labour in the village). Farmers groups and labour groups help each other (Gotong Royong system).
(3) Weeding	a. More than 2 times according to the instruction. b. By labours in free of charge (Cheblokan), by labours with payment (Gropyokan). c. There is no case that owner or tenant farmers weed by themselves.	Contract with village labour force. There is no case that owner or tenant farmers weed by themselves.	Usually owner or tenant farmers weed by themselves. Supplementary labour force is supplied through labour exchange among farmers in Gotong Royong system.	a. More than 2 times farmers to the instruction. b. Owner or tenant farmers carry out weeding with other farmers (12 persons/ha/ time). Other farmers get wages. c. Farmers groups and labour groups help each other (Gotong Royong system).

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (4/7)

Item	Kab. Karawang Kec. Telagasari	Kab. Nganjuk Kec. Bagor	Kab. Pinrang Kec. Mattiro Bulu	Kab. Lampung Kec. Trimurjo
(4) Application of Fertilizers and Agro-chemicals	Contract with labour groups.	Usually owner or tenant farmers apply by themselves. Application method and time are carried out according to the instructions of the extension workers.	Usually by owner or tenant farmers. Processes like application method and time are carried out according to the instructions of the extension office.	Usually by owner or tenant farmers carry out by themselves.
(5) Harvesting				
1) Harvesting System	Gropyokan (10~20%) Cheblokan (80~90%)	Gropyokan (50%) Contract (50%)	Gropyokan (40%) Contract (60%)	Gropyokan (90%) Cheblokan (10%)
2) Allotment of products	1/7 of harvests in both systems.	1/7 of harvests for Gropyokan, Rp 20 per kg for contract.	1/11 of harvests for Gropyokan, Rp 15 per kg for contract.	1/7 of harvests in both systems
3) Operation Method	1. Reaping at the middle part of rice plants. 2. Binding rice plants in 2-3 hills, and put on the hills reaped 3. Collecting rice plants and dumping on the bounds. 4. Accumulating rice plants at the threshing spots. 5. Threshing by beating on the wooden plates using threshing sheet (3.6m x 2.5m). 6. Winnowing on the vinyl sheets using bamboo bowl. - Winnowing is not sufficient and much impurities are contained. 7. Packing paddy.	1. Male labours reap by common sickle at the middle to low part (12-15 cm from ground). 2. Every 35-40 hills are temporarily placed on the reaped hills. (Reaping 7 hills/time on average.) 3. Reaped paddy are collected in the center of each plot. 4. Threshing is carried out in the same day. 5. 80% is threshed by pedal thresher, and another 20% is by beating. All operations is done by labours. - 5m x 5m sheet is used for the pedal thresher. - Rental charge of pedal thresher:Rp 5,000/day. - 2 male labours operate 1 pedal thresher.	1. Male labours reaps by common sickle at the middle to low part. (12-15 cm from ground.) 2. Every 120 hills are temporarily placed on the reaped hills (reaping 6 hills/time on average). 3. Reaped plants are divided into 3 to 4 portions, and are accumulated in each plot. 4. Threshing is carried out in the next day of reaping. 5. Females thresh paddy by beating. - Vinyl sheet (2.8m x 2.1m) - Wooden plates for beating 6. Winnowing on the sheet.	1. Reaping at the middle part of rice plant. 2. Binding rice plants in 2 to 3 hills, and put on the hills reaped 3. Collecting rice plants and dumping on the bounds 4. Gathering rice plants at the threshing spot. 5. 10% is threshed by pedal thresher, and another 90% is beating. - Pedal thresher.is wooden and home-made. - Pedal threshes are owned by limited farm household. - Vinyl sheet (5m x 5m) - Wooden plates for beating

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (5/7)

Item	Kab. Karawang Kec. Telagasari	Kab. Nganjuk Kec. Bagor	Kab. Pinrang Kec. Mattiro Bulu	Kab. Lampung Kec. Trimurjo
3) Operation Method	8. Transportation to the main roads. - on the backs of labours. - 1 back (75-90kg)/time. 9. Transportation to the farmers' house yard by bicycle or by cart, and dividing 9'.Dividing at the main road-side and sell to middleman or millers	6. Winnowing on the sheet. 7. Packing threshed paddy (70-80 kg per jute bag) 8. Transportation to main road by man power. Transportation to farm yard is by man power cart (500kg capacity) in the area of good road condition (20%), and by bicycle in the area of worse road condition. 9. Working efficiency of 1. to 8. is 0.31 ha/day by 10 persons, or at 0.125 ha/day by 4 persons.	7. Packing in the plastic bag (90 kg per bag). 8. Transportation by horse to assembly points at the main road side. - Rp 11/km under 2 km - Rp 13-15/km over 2 km - 4 bags (360 kg) in one time (2 horses x 2 bags x 90 kg) 9. Paddy is sold at the assembly points at the road side (mainly rainy season).	6. Winnowing on the vinyl sheet using bamboo bowl. - winnowing is not sufficient and much impurities contain. 7. Packing threshed paddy. 8. Transportation to the main road and farmers house yards by bicycle (2-3 bags/time) through farm road. 9. Division at the farm yard. 9' not many cases of dividing at the main road and sell to middleman or millers.
(6) General	a. Labour force is short for harvesting rainy season paddy due to long rainy days. b. Labour force is sufficient for harvesting dry season paddy. c. High harvesting loss and low paddy quality in rainy season are caused by the inefficient farm operations due to insufficient drainage in the field.	a. Labour force stays in 47% of the area, and is enough in this area. In the other 53%, labour force is only available after completing in the above area, and labour force is short for harvesting rainy season paddy and land preparation in dry season. b. Pedal threshers decrease the opportunities for female labour force to join harvesting.	a. Large owner farmers hire the labour force of small holders and tenants by contract. Owner farmers use family members and sometimes hire labours from other villages. Labour force is short. b. Due to shortage of irrigation water and labour force, land preparation is usually delayed.	a. Labour force is always short for harvesting rainy season paddy (difficult to harvest timely). b. Labour force is sufficient for harvesting dry season paddy, because labour (mainly relatives) is available from rainfed area. c. High harvesting loss and low paddy quality in rainy season are caused by the inefficient farm operation due to insufficient drainage in the field.

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (6/7)

Item	Kab. Karawang Kec. Telagasari	Kab. Nganjuk Kec. Bagor	Kab. Pinrang Kec. Mattiro Bulu	Kab. Lampung Kec. Trimurjo
6. Water Management (Tertiary canal and down stream)				
(1) Personnel in Charge of Water Management	Irrigation inspector (Uru Uru) of Desa office and labour group. *Chief of water user's association (P3A) is elected by farmers. Usually, chief of P3A and Uru Uru is the same person.	Existing water user's association (HIPPA) is organized in village level. 1 representative is elected in each farmers group, and one of representatives are selected as a chief of HIPPA. 1 unit of HIPPA is th plots of the farmers group.	a. P3A is organized, and a chief is elected from the farmers group. Usually, a group leader is elected as an inspector. b. P3A is the same organization as the farmers group, and the names of farmers groups are applied as the block names in on-farm level.	a. Irrigation inspector (Ili Ili) of Desa office and several farmers. P3A has not organized yet.
(2) Water Management	a. Uru Uru control the gate of tertiary canals. (Quarterly canals have not been equipped yet.) b. In the plot-to-plot irrigation area, irrigation blocks are adjusted by farmers. (Adjustment is not so sufficient that plots near the terminal area tend to be short of irrigation water).	a. Irrigation inspectors control the gate of tertiary canals. b. Farmers groups divide paddy field into blocks, and prepare schedule for irrigation and drainage. In the dry season, farmers make a plan for crops to be planted in each block and allocate irrigation water.	a. Irrigation inspector control the gate of tertiary canals. b. Plot-to-plot irrigation. c. In the rainy season, a part of area is under poor drainage condition. d. In the dry season, water allocation is not so fair that much area can not be planted.	a. Irrigation inspectors control the gate of tertiary and quarterly canals. b. In the plot-to-plot irrigation area, irrigation blocks are adjusted by farmers. (As plot-to-plot irrigation area is limited due to undulating topographic condition, it is easy to adjust irrigation area among farmers.)

Table 3.2-1 PRESENT CONDITION OF AGRICULTURE IN SURVEY AREA (7/7)

Item	Kab. Karawang Kec. Telagasari	Kab. Nganjuk Kec. Bagor	Kab. Pinrang Kec. Mattiro Bulu	Kab. Lampung Kec. Trimurjo
(3) Maintenance	a. In the active P3A area, tertiary canals are repaired by farmers groups through provision of labour force before starting irrigation in each season. b. P3A is generally inactive, and it is not sufficient to repair tertiary canals. c. Quarterly canals is not functioned due to sedimentation.	a. Well maintenance of main to tertiary canals.	a. Tertiary and quarterly canals are maintained by farmers groups voluntarily.	a. Tertiary and quarterly canals are maintained as required by farmers group through provision of labour force before starting irrigation in each season. b. Well maintenance of tertiary and quarterly canals.
(4) Water Charge	a. 15-20 kg of paddy/ season/ha b. Water charge is collected at harvesting time in every season, and is disbursed as payment for inspectors and labours.	a. Rp 3,000/year/ha.	a. 25 kg of paddy/year/ha.	a. 15-20 kg of paddy/year /ha. b. Water charge is collected at harvesting time in every season, and is disbursed as payment for inspectors/ labours and for repairing materials (cement and stone).

Table 5.2-1 PADDY PRODUCTION IN THE PILOT AREAS

Pilot Area/ Description	Telagasari West Java	Bagor East Java	Mattiro Bulu South Sulawesi	Trimurjo Lampung
A. Harvested Area				
- Wet season paddy	119 ha	98 ha	105 ha	157 ha
- Dry season paddy	119 ha	87 ha	84 ha	157 ha
Total	238 ha	185 ha	189 ha	314 ha
B. Unit Yield (wet paddy, GKP)				
- Wet season paddy	8.5 t/ha	8.4 t/ha	7.5 t/ha	6.9 t/ha
- Dry season paddy	8.3 t/ha	7.7 t/ha	6.8 t/ha	6.2 t/ha
C. Production at Field (wet paddy, GKP)				
- Wet season paddy	1,011 tons	823 tons	787 tons	1,083 tons
- Dry season paddy	987 tons	669 tons	571 tons	973 tons
Total	1,988 tons	1,492 tons	1,358 tons	2,056 tons
D. Harvested Paddy (dry paddy, GKG)				
- Wet season paddy	859 tons	662 tons	626 tons	956 tons
- Dry season paddy	822 tons	562 tons	492 tons	875 tons
Total	1,681 tons	1,224 tons	1,118 tons	1,831 tons
E. Paddy for Food Consumption				
- Wet season paddy	79 tons	107 tons	47 tons	120 tons
- Dry season paddy	78 tons	106 tons	46 tons	119 tons
Total	157 tons	213 tons	93 tons	239 tons
F. Seed				
- Wet season paddy	4 tons	3 tons	4 tons	6 tons
- Dry season paddy	4 tons	3 tons	3 tons	5 tons
Total	8 tons	6 tons	7 tons	11 tons
G. Milling Paddy				
- Wet season paddy	855 tons	659 tons	622 tons	950 tons
- Dry season paddy	818 tons	559 tons	489 tons	870 tons
Total	1,673 tons	1,218 tons	1,111 tons	1,820 tons
H. Marketable Paddy				
- Wet season paddy	776 tons	552 tons	575 tons	830 tons
- Dry season paddy	740 tons	453 tons	443 tons	751 tons
Total	1,516 tons	1,005 tons	1,018 tons	1,581 tons

Remarks :
1) Harvested paddy is calculated at dried clean paddy and reduced post havest losses (ref. in ANNEX VII).
2) Marketable paddy is excluded paddy for food consumption and seed.

Table 5.4-1 REQUIREMENT OF MACHINERY AND FACILITIES

Pilot Area/ Items	Telagasari	Bagor	Mattiro Bulu	Trimurjo
A. Harvesting Area				
- Wet season paddy	119 ha	98 ha	105 ha	157 ha
- Dry season paddy	119 ha	87 ha	84 ha	157 ha
B. Production (GKP)				
- Wet season paddy	1,011 tons	823 tons	787 tons	1,083 tons
- Dry season paddy	987 tons	669 tons	571 tons	973 tons
Total	1,998 tons	1,492 tons	1,358 tons	2,056 tons
C. Home Consumption Paddy (GKG)				
- Wet season paddy	79 tons	107 tons	47 tons	120 tons
- Dry season paddy	78 tons	106 tons	46 tons	119 tons
Total	157 tons	213 tons	93 tons	239 tons
D. Paddy of Required Seed (GKG)				
- Wet season paddy	4 tons	3 tons	4 tons	6 tons
- Dry season paddy	4 tons	3 tons	3 tons	5 tons
Total	8 tons	6 tons	7 tons	11 tons
E. Required Serrated Sickles				
- Daily working area (GKP)	7.9 ha/day	6.5 ha/ha	7.0 ha/day	10.4 ha/day
- Serrated sickles (0.043ha/day)	183	151	162	241
F. Required Thresher				
- Harvested paddy (GKP)	67 t/day	50 t/day	45 t/day	68 t/day
- Pedal threser (1.62 t/day)	41	-	28	-
- Power thresher (4.05 t/day)	-	12	-	17
G. Required Drying Floor				
- Drying paddy (GKG)	52 t/ 2 days	37 t/ 2 days	38 t/ 2 days	55 t/ 2 days
- Net drying floor (27.5 kg/m2)	1,891 m2	1,345 m2	1,382 m2	2,000 m2
- Gross drying floor (x 1.1)	2,100 m2	1,500 m2	1,600 m2	2,300 m2
H. Required Winnower				
- Cleaning paddy before milling	8.1 t/day	5.4 t/day	5.4 t/day	8.1 t/day
- Power winnower (4.05 t/day)	2	1	1	2
I. Required Rice Mill Unit				
- Milling Paddy	8.4 t/day	6.1 t/day	5.6 t/day	9.1 t/day
- Rice mill unit (2.7 t/day)	3	2	2	3
J. Required Warehouse for Paddy				
- Storing Paddy (wet season)	776 tons	552 tons	575 tons	830 tons
- Milling paddy in harvesting period				
(10 hr/day x 15 days)	203 tons	135 tons	135 tons	203 tons
Net storing paddy	573 tons	417 tons	440 tons	627 tons
- Net warehouse (0.75 t/m2)	764 m2	556 m2	587 m2	836 m2
- Gross warehouse (x 1.1)	850 m2	620 m2	650 m2	920 m2
K. Warehouse of Rice Mill Unit and Others				
- Rice mill unit (60 m2/unit)	180 m2	120 m2	120 m2	180 m2
- Office and others	40 m2	40 m2	40 m2	40 m2

Remarks :

1) Working capacity of reaping : 15 days/season, 6 hrs/day
0.6m x 0.12 km/hr x 6 hrs = 0.0432 ha/day

2) Working capacity of threshing: 30 days/year, 6 hrs/day
Pedal thresher 0.3 t/hr x 0.9 x 6 hrs/day = 1.62 t/day
Power thresher 0.75 t/hr x 0.9 x 6 Hrs/day = 4.05 t/day

3) Working capacity of drying : Production of paddy(GKP x 0.9=GKG)-Home consumption-Seed
30 days/wet season, 2 days of drying work ; 15 times
Apparent specific gravity of paddy ; 0.55
Thickness of drying paddy ; 5 cm, 27.5 kg/m2 or 36 m2/t

4) Working capacity of cleaning : Max. of milling paddy (10 hrs/day x 0.5 t/hr x 0.9)
Power winnower 0.75 t/hr x 0.9 x 6 hrs = 4.05 t/day,

5) Working capacity of milling : 200 days/year, 6 hrs/day(10 hrs/day in harvesting period)
0.5 t/hr x 0.9 x 6 hrs/day = 2.7 t/day

6) Storage capacity : 75 kg/bag of paddy x 2 x 5 = 10 bags/m2

Table 5.5-1 PROPOSED ORGANIZATION OF FARMER GROUPS IN PILOT AREAS

Irrigation System			Proposed Farmer Groups			
Quarterly Blocks	Paddy Field (ha)	No of Farmers (No.)	Name of Working Unit	Paddy Field (ha)	Member Farmers (No.)	Name of Branch and No. of Group
A. Telagasari Pilot Area						
Block - I						Branch - I
a. 1	9.5	14	WU-I-a	9.5	14	
a. 2	9.0	13	WU-I-b	9.0	13	5 working units
a. 3	9.5	14	WU-I-c	9.5	14	54.0 ha of paddy field
a. 4	14.0	20	WU-I-d	14.0	20	78 member farmers
a. 5	12.0	17	WU-I-e	12.0	17	
Sub-total	54.0	78	Sub-total	54.0	78	
Block - II						Branch - II
b. 1	9.0	13	WU-II-a	9.0	13	
b. 2	9.5	14	WU-II-b	9.5	14	4 working units
b. 3	6.0	9	WU-II-c	6.0	9	31.5 ha of paddy field
b. 4	7.0	10	WU-II-d	7.0	10	46 member farmers
Sub-total	31.5	46	Sub-total	31.5	46	
Block - III						Branch - III
c. 1	9.5	14	WU-III-a	9.5	14	
c. 2	8.0	11	WU-III-b	8.0	11	4 working units
c. 3	7.0	10	WU-III-c	7.0	10	33.5 ha of paddy field
c. 4	9.0	13	WU-III-d	9.0	13	48 member farmers
Sub-total	33.5	48	Sub-total	33.5	48	
Total	119.0	172	13	119.0	172	
C. Mattiro Bulu Pilot Area						
Block - I						Branch - I
a. 1	8.0	7	WU-I-a	8.0	7	
a. 2	6.0	5	WU-I-b	6.0	5	8 working units
a. 3	7.0	6	WU-I-c	7.0	6	57.5 ha of paddy field
a. 4	8.0	7	WU-I-d	8.0	7	49 member farmers
a. 5	8.5	7	WU-I-e	8.5	7	
a. 6	7.0	6	WU-I-f	7.0	6	
a. 7	7.0	6	WU-I-g	7.0	6	
a. 8	6.0	5	WU-I-h	6.0	5	
Sub-total	57.5	49	Sub-total	57.5	49	
Block - II						Branch - II
b. 1	9.5	8	WU-II-a	9.5	8	
b. 2	9.0	7	WU-II-b	9.0	7	6 working units
b. 3	9.5	8	WU-II-c	9.5	8	47.5 ha of paddy field
Sub-total	28.0	23				38 member farmers
Block - III						
c. 1	7.0	6	WU-II-d	7.0	6	
c. 2	5.5	3	WU-II-e	5.5	3	
c. 3	7.0	6	WU-II-f	7.0	6	
Sub-total	19.5	15	Sub-total	47.5	38	
Total	105.0	87	14	105.0	87	

Irrigation System			Proposed Farmer Groups			
Quarterly Blocks	Paddy Field (ha)	No of Farmers (No.)	Name of Working Unit	Paddy Field (ha)	Member Farmers (No.)	Name of Branch and No. of Group
B. Bagor Pilot Area						
Block - I						Branch - I
a. 1	13.0	43	WU-I-a	13.0	43	
a. 2	4.5	15	WU-I-b	14.0	47	2 working units
a. 3	9.5	32				27.0 ha of paddy field
Sub-total	27.0	90	Sub-total	27.0	90	90 member farmers
Block - II						Branch - II
b. 1	7.0	23	WU-II-a	7.0	23	
b. 2	7.0	23	WU-II-b	7.0	23	4 working units
b. 3	8.0	27	WU-II-c	8.0	27	32.0 ha of paddy field
b. 4	10.0	33	WU-II-d	10.0	33	106 member farmers
Sub-total	32.0	106	Sub-total	32.0	106	
Block - III						Branch - III
c. 1	11.0	37	WU-III-a	11.0	37	2 working units
c. 2	13.0	43	WU-III-b	13.0	43	24.0 ha of paddy field
c. 3	10.5	35	Sub-total	24.0	80	80 member farmers
c. 4	10.0	33				
c. 5	5.5	19	WU-IV-a	10.5	35	Branch - IV
Sub-total	50.0	167	WU-IV-b	10.0	33	3 working units
			WU-IV-c	5.5	19	26.0 ha of paddy field
			Sub-total	26.0	87	87 member farmers
Total	109.0	363	11	69.0	363	
D. Trimurjo Pilot Area						
Block - I						Branch - I
a. 1	14.0	23	WU-I-a	14.0	23	
a. 2	9.0	14	WU-I-b	9.0	14	4 working units
a. 3	9.0	14	WU-I-c	9.0	14	43.5 ha of paddy field
a. 4	8.0	13	WU-I-d	11.5	19	70 member farmers
a. 5	3.5	6				
Sub-total	43.5	70	Sub-total	43.5	70	
Block - II						Branch - II
b. 1	13.5	22	WU-II-a	13.5	22	
b. 2	11.0	18	WU-II-b	11.0	18	3 working units
b. 3	8.0	13	WU-II-c	10.5	17	35.0 ha of paddy field
b. 4	2.5	4				57 member farmers
Sub-total	35.0	57	Sub-total	35.0	57	
Block - III						Branch - III
c. 1	6.0	10	WU-III-a	10.0	16	
c. 2	4.0	6				3 working units
c. 3	6.0	10	WU-III-b	11.0	18	34.5 ha of paddy field
c. 4	5.0	8				56 member farmers
c. 5	9.0	15	WU-III-c	13.5	22	
c. 6	4.5	7				
Sub-total	34.5	56	Sub-total	34.5	56	
Block - IV						
a. 1	6.0	10				Branch - IV
a. 2	9.5	15	WU-IV-a	15.5	25	
Sub-total	15.5	25				4 working units
Block - V						42.0 ha of paddy field
b. 1	10.0	16	WU-IV-b	10.0	16	71 member farmers
b. 2	8.5	14	WU-IV-c	8.5	14	
b. 3	10.0	16	WU-IV-d	10.0	16	
Sub-total	28.5	46	Sub-total	44.0	71	
Total	157.0	254	14	157.0	254	

Note : Number of member farmers are estimated based on total paddy area and present member farmers.

Table 6.2-1 FINANCIAL PROJECT COST FOR PILOT PLANS

Cost Items	Unit Cost (Rp'000)	Telagasari Q'ty (No)	Telagasari Amount (Rp'000)	Bagor Q'ty (No)	Bagor Amount (Rp'000)
1. Machinery					
- Threshing Mat (larger than 5m x 5m)	20	41	820	12	240
- Pedal Thresher (300 kg/hr)	100	41	4,100	-	-
- Power Thresher (750 kg/hr)	1,397	-	-	12	16,764
- Power Winnower (750 kg/hr)	1,147	2	2,294	1	1,147
- Rice Mill Unit (500 kg/hr)	7,600	3	22,800	2	15,200
sub-total			30,014		33,351
2. Construction/1		(m2)		(m2)	
- Drying Floor	5.08	2,100	10,668	1,500	7,620
- Warehouse	56	850	47,600	620	34,720
- Milling House	56	220	12,320	160	8,960
Sub-Total			70,588		51,300
3. Total (1+2)			100,602		84,651

Cost Items	Unit Cost (Rp'000)	Mattiro Bulu Q'ty (No)	Mattiro Bulu Amount (Rp'000)	Trimurjo Q'ty (No)	Trimurjo Amount (Rp'000)
1. Machinery					
- Threshing Mat (larger than 5m x 5m)	20	28	560	17	340
- Pedal Thresher (300 kg/hr)	100	28	2,800	-	-
- Power Thresher (750 kg/hr)	1,397	-	-	17	23,749
- Power Winnower (750 kg/hr)	1,147	1	1,147	2	2,294
- Rice Mill Unit (500 kg/hr)	7,600	2	15,200	3	22,800
sub-total			19,707		49,183
2. Construction/1		(m2)		(m2)	
- Drying Floor	5.08	1,600	8,128	2,300	11,684
- Warehouse	56	650	36,400	920	51,520
- Milling House	56	160	8,960	220	12,320
Sub-Total			53,488		75,524
3. Total (1+2)			73,195		124,707

Note ; /1: Indicating by m2.

Table 6.2-2 FINANCIAL REPLACEMENT COST

Description	Useful Life (Year)	Financial Cost Telagasari (Rp'000)	Bagor (Rp'000)	Mattiro Bulu (Rp'000)	Trimurjo (Rp'000)
1. Replacement in 4th year					
Threshing Mat	3	820	240	560	340
Pedal Thresher	3	4,100	0	2,800	0
Total		4,920	240	3,360	340
2. Replacement in 6th year					
Power Thresher	5	0	16,764	0	23,749
Power Winnower	5	2,294	1,147	1,147	2,294
Rice Mill Unit	5	22,800	15,200	15,200	22,800
Total		25,094	33,111	16,347	48,843
3. Replacement in 21th year					
Drying Floor	20	10,668	7,620	8,128	11,684
Warehouse	20	47,600	34,720	36,400	51,520
Milling House	20	12,320	8,960	8,960	12,320
Total		70,588	51,300	53,488	75,524

Table 6.3-1 PRELIMINARY COST ESTIMATE FOR THE SERVICE CENTER

Items	Required Area and Number	Amount (Rp '000)
A. Building/ Facilities		
1) Display room	100 m2	25,000
2) Meeting/ lecture room	100 m2	25,000
3) Service center office	60 m2	15,000
4) Monitoring/ marketing information room	60 m2	15,000
5) Inspection/ laboratory for rice and paddy	100 m2	25,000
6) Farm machinery warehouse (rice mill, dryer, winnower, etc.)	150 m2	22,500
7) Garage for farm machinery (reaper, binder, truck, etc.)	50 m2	5,000
Sub-total		132,500
B. Equipment for Rice/ Paddy Inspection Service		
1) Grain moisture tester	3 sets	3,400
2) Test husker	1 set	8,600
3) Test mill unit	1 set	10,000
4) Test dryer	1 set	12,600
5) Test thickness grader	1 set	8,000
6) Test grader	1 set	8,000
7) Beam balance	1 set	700
8) Grain volume-weight tester	1 set	700
9) Digital rigidity tester	1 set	2,000
10) Digital witheness tester	1 set	5,700
11) Grain thermometer	1 set	80
12) Tachometer	1 set	700
13) Sample divider	1 set	300
14) Grain shape tester	1 set	700
15) Sampler, others	L.S.	7,000
Sub-total		68,480
C. Farm machinery and Equipment for Demonstratio		
-Ordinery machinery for common practices		
1) Rice mill unit	1 set	7,600
2) Power winnower	2 sets	2,400
3) Power thresher	2 sets	2,800
-Modernized machinery for advanced practices		
4) Reaper	5 sets	32,000
5) Binder/ harvester	2 sets	24,400
6) Mechanical dryer	2 sets	12,000
7) Other equipment	L.S.	5,000
Sub-total		86,200
D. Equipment for Marketing Information and Monitoring		
1) Photo copy/ printing machine	1 set	5,200
2) White board	2 sets	1,300
3) Furniture and equipment	L.S.	3,000
Sub-total		9,500
E. Office Equipment		
1) Truck (3 tons)	1	26,000
2) Jeep	1	30,000
3) Motor cycle	6	31,200
4) Micro computer/ typewriters	L.S.	13,000
5) Telecommunication equipment*	L.S.	15,000
6) Table, chair/ cabinets and others	L.S.	13,000
Sub-total		128,200
Total		424,880

Note : *; Side single band (SSB) wireless radio, telephones and handy talkies

Table 7.1-1 FINANCIAL PRICES OF FARM INPUTS AND CUSTOM CHARGES

Item	Unit	Without Project Condition	With Project Condition	
Labor charge	Rp/day			
Java (Telagasari/Bagor)		2,500	2,500	
Outside of Java (Mattiro Bulu/Trimurjo)		2,000	2,000	
Hired animal power	Rp/day	12,000	12,000	
Custom Charges/Cost				
-Hand tractor	Rp/day			
Telagasari		27,500	27,500	
Bagor		25,000	25,000	
Outside of Java		32,500	32,500	
-Thresher	Rp/kg (Paddy)		1st to 5th Year	After 6th Year
Telagasari (Manual)		-	8	6
Bagor (Power)		-	10	6
Mattiro Bulu (Manual)		-	7	5
Trimurjo (Power)		-	9	6
-Processing/Marketing	Rp/kg (Rice)			
Drying (Concrete Floor)		-	4 - 5	3
Ceaning (Winnower)		-	4 - 5	4
Milling		20	20	13
Storage		-	13 - 14	13 - 14
Transportation		-	2	2
Total		20	43 - 46	35 - 36

Table 7.2-1 CROP BUDGET IN WITH AND WITHOUT PROJECT CONDITIONS

(Unit:'000Rs/ha)

	TELAGASARI						BAGOR					
	Without		With				Without		With			
			1st-5th Year		After 6th Year				1st-5th Year		After 6th Year	
	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.
A. Gross Income	1,400	1,682	1,829	2,098	1,829	2,098	1,253	1,478	1,710	1,971	1,710	1,971
1) Yield(t/ha)												
-Paddy	7.0	6.7	7.4	7.1	7.4	7.1	6.7	6.4	6.9	6.7	6.9	6.7
-Rice	-	-	4.8	4.6	4.8	4.6	-	-	4.5	4.4	4.5	4.4
2) Unit price (Rp/kg)												
-Paddy	200	251	-	-	-	-	187	231	-	-	-	-
-Rice	-	-	381	456	381	456	-	-	380	448	380	448
B. Production Cost												
1) Farm input	143	143	143	143	143	143	159	159	159	159	159	159
2) Cost for pre harvest												
-Labor	150	150	150	150	150	150	140	140	140	140	140	140
-Animal	0	0	0	0	0	0	0	0	0	0	0	0
-Machinery	55	55	55	55	55	55	50	50	50	50	50	50
3) Harvesting cost /1	195	233	136	126	125	115	207	205	145	140	113	108
4) Processing/Marketing charge	-	-	240	230	202	193	-	-	239	233	203	198
5) Irrigation fee	2	3	2	3	2	3	2	2	2	2	2	2
6) Land tax	23	23	23	23	23	23	20	20	20	20	20	20
7) Land rent	700	841	914	1,049	914	1,049	626	739	855	986	855	986
8) Total												
-Owner	568	606	749	729	699	681	578	576	754	745	686	677
-Tenant	1,174	1,353	1,569	1,684	1,520	1,636	1,105	1,216	1,510	1,631	1,442	1,563
C. Net Return (A-B)												
-Owner	832	1,076	1,080	1,369	1,130	1,416	675	902	956	1,227	1,024	1,294
-Tenant	227	329	260	414	309	462	148	262	200	341	268	408

(Unit:'000Rs/ha)

	MATTIRO BULU						TRIMURJO					
	Without		With				Without		With			
			1st-5th Year		After 6th Year				1st-5th Year		After 6th Year	
	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.	W.S.	D.S.
A. Gross Income	1,027	1,145	1,416	1,664	1,416	1,664	1,021	1,293	1,576	1,647	1,576	1,647
1) Yield(t/ha)												
-Paddy	5.9	5.9	6.2	6.2	6.2	6.2	5.8	5.3	6.2	5.7	6.2	5.7
-Rice	-	-	4.0	4.0	4.0	4.0	-	-	4.0	3.7	4.0	3.7
2) Unit price (Rp/kg)												
-Paddy	174	194	-	-	-	-	176	244	-	-	-	-
-Rice	-	-	354	416	354	416	-	-	394	445	394	445
B. Production Cost												
1) Farm Input	113	113	113	113	113	113	131	131	131	131	131	131
2) Cost for pre harvest												
-Labor	6	6	6	6	6	6	4	4	4	4	4	4
-Animal	36	36	36	36	36	36	24	24	24	24	24	24
-Machinery	33	33	33	33	33	33	0	0	0	0	0	0
3) Harvesting cost /1	63	82	70	72	60	62	63	92	86	91	60	65
4) Processing/Marketing charge	-	-	204	204	176	176	-	-	196	181	168	155
5) Irrigation fee	2	2	2	2	2	2	2	2	2	2	2	2
6) Land tax	15	15	15	15	15	15	15	15	15	15	15	15
7) Land rent	513	572	708	832	708	832	510	647	788	823	788	823
8) Total												
-Owner	267	287	478	481	440	443	239	268	458	449	404	397
-Tenant	709	787	1,115	1,241	1,077	1,203	669	835	1,165	1,191	1,111	1,140
C. Net Return (A-B)												
-Owner	759	858	938	1,184	976	1,222	782	1,025	1,118	1,198	1,172	1,250
-Tenant	318	357	301	423	339	461	352	459	411	455	465	507

Note: This budget is for paddy in without project condition, and for rice in with project condition.
/1= See Table XI 3-1

Table 7.2-2 FARM BUDGET IN WITH AND WITHOUT PROJECT CONDITIONS (1/2)

Item	TELAGASARI						BAGOR					
	Without		With				Without		With			
			1st-5th Year		After 6th Year				1st-5th Year		After 6th Year	
	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant
Family Size	4.1	4.1	4.1	4.1	4.1	4.1	4.3	4.3	4.3	4.3	4.3	4.3
Farm Size(ha)												
Operated	0.69	0.69	0.69	0.69	0.69	0.69	0.30	0.30	0.30	0.30	0.30	0.30
Leased to other farmer(s)	0.29	-	0.29	-	0.29	-	1.00	-	1.00	-	1.00	-
Cropping Intensity (%)												
Paddy (WS)	100	100	100	100	100	100	90	90	90	90	90	90
Paddy (DS)	100	100	100	100	100	100	80	80	80	80	80	80
Palawija	0	0	0	0	0	0	70 /2	70 /2	70 /2	70 /2	70 /2	70 /2
Sugarcane	-	-	-	-	-	-	10	10	10	10	10	10
I. Farm Income												
a. Paddy												
-Gross income	2,127	2,127	2,710	2,710	2,710	2,710	693	693	935	935	935	935
-Production cost	810	1,744	1,020	2,245	952	2,178	294	590	382	799	348	764
-Net income	1,317	383	1,690	465	1,757	532	399	103	552	136	587	170
b. Palawija												
-Net income	-	-	-	-	-	-	145	145	145	145	145	145
c. Sugarcane												
-Net income	-	-	-	-	-	-	71	20	71	20	71	20
II. Land rent from tenant	405	-	569	-	569	-	1,207	-	1,841	-	1,841	-
III Income from On-farm Employment	-	-	-	-	-	-	-	-	-	-	-	-
IV. Non-farm income	419	412	419	412	419	412	451	489	451	489	451	489
V. Total Income (I + II + III + IV)	2,141	795	2,678	877	2,746	944	2,273	756	3,060	789	3,095	824
VI. Living Expense	2,065	749	2,065	749	2,065	749	1,480	667	1,480	667	1,480	667
a. Food	846	476	846	476	846	476	659	440	659	440	659	440
-Rice	206	206	206	206	206	206	159	159	159	159	159	159
-Other food	640	270	640	270	640	270	500	281	500	281	500	281
b. Other items	1,219	273	1,219	273	1,219	273	821	227	821	227	821	227
VII Net Reserve(V-VI)	76	46	613	128	681	195	793	89	1,580	122	1,615	157

Note: /1 A.L = Agricultural Laborer
/2 10% as dry season crop and 60% as third crop

Table 7.2-2 FARM BUDGET IN WITH AND WITHOUT PROJECT CONDITIONS (2/2)

Item	MATTIRO BULU						TRIMURJO					
	Without		With				Without		With			
			1st-5th Year		After 6th Year				1st-5th Year		After 6th Year	
	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant
Family Size	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Farm Size(ha)												
Operated	1.21	1.21	1.21	1.21	1.21	1.21	0.62	0.62	0.62	0.62	0.62	0.62
Leased to other farmer	1.35	-	1.35	-	1.35	-	0.14	-	0.14	-	0.14	-
Cropping Intensity (%)												
Paddy (WS)	100	100	100	100	100	100	100	100	100	100	100	100
Paddy (DS)	80	80	80	80	80	80	100	100	100	100	100	100
Palawija	50	50	50	50	50	50	0	0	0	0	0	0
Sugarcane	-	-	-	-	-	-	-	-	-	-	-	-
I. Farm Income												
a. Paddy												
-Gross income	2,351	2,351	3,324	3,324	3,324	3,324	1,435	1,435	1,998	1,998	1,998	1,998
-Production cost	601	1,620	1,044	2,550	961	2,468	314	932	562	1,461	497	1,396
-Net income	1,750	731	2,280	774	2,363	856	1,120	502	1,436	538	1,502	603
b. Palawija												
-Net income	417	417	417	417	417	417	-	-	-	-	-	-
c. Sugarcane												
-Net income	-	-	-	-	-	-	-	-	-	-	-	-
II Land rent from tenant	1,314	-	2,079	-	2,079	-	144	-	226	-	226	-
III Income from On-farm Employment	-	-	-	-	-	-	-	-	-	-	-	-
IV Non-farm income	18	30	18	30	18	30	24	162	24	162	24	162
V. Total Income (I + II + III + IV)	3,499	1,178	4,794	1,220	4,877	1,303	1,288	664	1,685	700	1,751	765
VI Living Expense	2,145	925	2,145	925	2,145	925	1,184	662	1,184	662	1,184	662
a. Food	890	585	890	585	890	585	687	423	687	423	687	423
-Rice	200	200	200	200	200	200	198	198	198	198	198	198
-Other food	690	385	690	385	690	385	489	225	489	225	489	225
b. Other items	1,255	340	1,255	340	1,255	340	497	239	497	239	497	239
VII Net Reserve(V-VI)	1,354	253	2,649	295	2,732	378	104	2	501	38	567	103

Table 7.2-3 CASH FLOW STATEMENT FOR FARMER GROUP ACTIVITIES, TELAGASARI PILOT PLAN AREA (1/4)

(Unit : Rp'000)

Item / Year	1	2	3	4	5	6	7	8	9	10
I. Inflow										
(1) Custom Threshing Charges										
1. Pedal Thresher/Equipment	15,984	15,984	15,984	15,984	15,984	11,988	11,988	11,988	11,988	11,988
2. Power Thresher/Equipment	0	0	0	0	0	0	0	0	0	0
(2) Processing/Marketing Charges	51,850	51,850	51,850	51,850	51,850	43,146	43,146	43,146	43,146	43,146
(3) Rice Sales Income	411,406	411,406	411,406	411,406	411,406	411,406	411,406	411,406	411,406	411,406
(4) Loan /_1										
1. Machinery	30,014	0	0	0	0	0	0	0	0	0
2. Facilities	100,602	0	0	0	0	0	0	0	0	0
Sub-total	130,616	0	0	0	0	0	0	0	0	0
Total Inflow	609,856	479,240	479,240	479,240	479,240	466,540	466,540	466,540	466,540	466,540
II. Outflow										
(1) Investment Cost /_1										
1. Machinery	30,014	0	0	0	0	0	0	0	0	0
2. Facilities	100,602	0	0	0	0	0	0	0	0	0
Sub-total	130,616	0	0	0	0	0	0	0	0	0
(2) Operating Cost										
1. Machinery /_2										
Pedal or power thresher	574	574	574	574	574	574	574	574	574	574
Power winnower	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
Rice mill	5,022	5,022	5,022	5,022	5,022	5,022	5,022	5,022	5,022	5,022
2. Facilities /_2										
Driyng	533	533	533	533	533	533	533	533	533	533
Warehouse and others	1,798	1,798	1,798	1,798	1,798	1,798	1,798	1,798	1,798	1,798
3. Personnel Cost	20,501	20,501	20,501	20,501	20,501	20,501	20,501	20,501	20,501	20,501
4. Transportation Cost	1,972	1,972	1,972	1,972	1,972	1,972	1,972	1,972	1,972	1,972
5. Rice Procurement	411,406	411,406	411,406	411,406	411,406	411,406	411,406	411,406	411,406	411,406
6. Others /_3	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958
Sub-total	446,180	446,180	446,180	446,180	446,180	446,180	446,180	446,180	446,180	446,180
(3) Replacement Cost	0	0	0	4,920	0	25,094	4,920	0	0	4,920
(4) Repayment	19,188	19,188	19,188	19,188	19,188	9,591	9,591	9,591	9,591	9,591
Total Outflow	595,984	465,368	465,368	470,288	465,368	480,865	460,691	455,771	455,771	460,691
III.Cash Surplus										
1. Annual Balance (I-II)	13,872	13,872	13,872	8,952	13,872	-14,325	5,849	10,769	10,769	5,849
2. Cumulative	13,872	27,744	41,616	50,568	64,440	50,115	55,964	66,733	77,502	83,351

Note : /_1 ; Income and expenditure for the procurement of machinery and construction of facilities in the previous year.
/_2 ; Cost for fuel, oil, spareparts and repair excluding personnel costs.
/_3 ; Cost for bagging of marketable rice.

Table 7.2-3 CASH FLOW STATEMENT FOR FARMER GROUP ACTIVITIES, BAGOR PILOT PLAN AREA (2/4)

(Unit : Rp'000)

Item / Year	1	2	3	4	5	6	7	8	9	10
I. Inflow										
(1) Custom Threshing Charges										
1. Pedal Thresher/Equipment	0	0	0	0	0	0	0	0	0	0
2. Power Thresher/Equipment	14,920	14,920	14,920	14,920	14,920	8,952	8,952	8,952	8,952	8,952
(2) Processing/Marketing Charges	38,031	38,031	38,031	38,031	38,031	31,703	31,703	31,703	31,703	31,703
(3) Rice Sales Income	267,602	267,602	267,602	267,602	267,602	267,602	267,602	267,602	267,602	267,602
(4) Loan /_1										
1. Machinery	33,351	0	0	0	0	0	0	0	0	0
2. Facilities	51,300	0	0	0	0	0	0	0	0	0
Sub-total	84,651	0	0	0	0	0	0	0	0	0
Total Inflow	405,204	320,553	320,553	320,553	320,553	308,257	308,257	308,257	308,257	308,257
II. Outflow										
(1) Investment Cost /_1										
1. Machinery	33,351	0	0	0	0	0	0	0	0	0
2. Facilities	51,300	0	0	0	0	0	0	0	0	0
Sub-total	84,651	0	0	0	0	0	0	0	0	0
(2) Operating Cost										
1. Machinery /_2										
Pedal or power thresher	2,904	2,904	2,904	2,904	2,904	2,904	2,904	2,904	2,904	2,904
Power winnower	1,031	1,031	1,031	1,031	1,031	1,031	1,031	1,031	1,031	1,031
Rice mill	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658
2. Facilities /_2										
Driyng	381	381	381	381	381	381	381	381	381	381
Warehouse and others	1,310	1,310	1,310	1,310	1,310	1,310	1,310	1,310	1,310	1,310
3. Personnel Cost	9,708	9,708	9,708	9,708	9,708	9,708	9,708	9,708	9,708	9,708
4. Transportation Cost	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304
5. Rice Procurement	267,602	267,602	267,602	267,602	267,602	267,602	267,602	267,602	267,602	267,602
6. Others /_3	1,956	1,956	1,956	1,956	1,956	1,956	1,956	1,956	1,956	1,956
Sub-total	289,854	289,854	289,854	289,854	289,854	289,854	289,854	289,854	289,854	289,854
(3) Replacement Cost	0	0	0	240	0	33,111	240	0	0	240
(4) Repayment	17,635	17,635	17,635	17,635	17,635	6,970	6,970	6,970	6,970	6,970
Total Outflow	392,140	307,489	307,489	307,729	307,489	329,935	297,064	296,824	296,824	297,064
III.Cash Surplus										
1. Annual Balance (I-II)	13,064	13,064	13,064	12,824	13,064	-21,678	11,193	11,433	11,433	11,193
2. Cumulative	13,064	26,128	39,192	52,016	65,080	43,402	54,595	66,028	77,461	88,654

Note : /_1 ; Income and expenditure for the procurement of machinery and construction of facilities in the previous year.
/_2 ; Cost for fuel, oil, spareparts and repair excluding personnel costs.
/_3 ; Cost for bagging of marketable rice.

Table 7.2-3 CASH FLOW STATEMENT FOR FARMER GROUP ACTIVITIES, MATTIRO BULU PILOT PLAN AREA (3/4)

(Unit : Rp'000)

Item / Year	1	2	3	4	5	6	7	8	9	10
I. Inflow										
(1) Custom Threshing Charges										
1. Pedal Thresher/Equipment	9,506	9,506	9,506	9,506	9,506	6,790	6,790	6,790	6,790	6,790
2. Power Thresher/Equipment	0	0	0	0	0	0	0	0	0	0
(2) Processing/Marketing Charges	35,175	35,175	35,175	35,175	35,175	30,121	30,121	30,121	30,121	30,121
(3) Rice Sales Income	251,631	251,631	251,631	251,631	251,631	251,631	251,631	251,631	251,631	251,631
(4) Loan /_1										
1. Machinery	19,707	0	0	0	0	0	0	0	0	0
2. Facilities	53,488	0	0	0	0	0	0	0	0	0
Sub-total	73,195	0	0	0	0	0	0	0	0	0
Total Inflow	369,507	296,312	296,312	296,312	296,312	288,542	288,542	288,542	288,542	288,542
II. Outflow										
(1) Investment Cost /_1										
1. Machinery	19,707	0	0	0	0	0	0	0	0	0
2. Facilities	53,488	0	0	0	0	0	0	0	0	0
Sub-total	73,195	0	0	0	0	0	0	0	0	0
(2) Operating Cost										
1. Machinery /_2										
Pedal or power thresher	392	392	392	392	392	392	392	392	392	392
Power winnower	937	937	937	937	937	937	937	937	937	937
Rice mill	3,334	3,334	3,334	3,334	3,334	3,334	3,334	3,334	3,334	3,334
2. Facilities /_2										
Driyng	406	406	406	406	406	406	406	406	406	406
Warehouse and others	1,361	1,361	1,361	1,361	1,361	1,361	1,361	1,361	1,361	1,361
3. Personnel Cost	11,664	11,664	11,664	11,664	11,664	11,664	11,664	11,664	11,664	11,664
4. Transportation Cost	1,322	1,322	1,322	1,322	1,322	1,322	1,322	1,322	1,322	1,322
5. Rice Procurement	251,631	251,631	251,631	251,631	251,631	251,631	251,631	251,631	251,631	251,631
6. Others /_3	1,983	1,983	1,983	1,983	1,983	1,983	1,983	1,983	1,983	1,983
Sub-total	273,030	273,030	273,030	273,030	273,030	273,030	273,030	273,030	273,030	273,030
(3) Replacement Cost	0	0	0	3,360	0	16,347	3,360	0	0	3,360
(4) Repayment	13,570	13,570	13,569	13,569	13,569	7,267	7,267	7,267	7,267	7,267
Total Outflow	286,626	286,626	286,625	289,985	286,625	296,670	283,683	280,323	280,323	283,683
III.Cash Surplus										
1. Annual Balance (I-II)	82,881	9,686	9,687	6,327	9,687	-8,128	4,859	8,219	8,219	4,859
2. Cumulative	82,881	92,567	102,254	108,581	118,268	110,140	114,999	123,218	131,437	136,296

Note : /_1 ; Income and expenditure for the procurement of machinery and construction of facilities in the previous year.
/_2 ; Cost for fuel, oil, spareparts and repair excluding personnel costs.
/_3 ; Cost for bagging of marketable rice.

Table 7.2-3 CASH FLOW STATEMENT FOR FARMER GROUP ACTIVITIES, TRIMURJO PILOT PLAN AREA (4/4)

(Unit : Rp'000)

Item / Year	1	2	3	4	5	6	7	8	9	10
I. Inflow										
(1) Custom Threshing Charges										
1. Pedal Thresher/Equipment	0	0	0	0	0	0	0	0	0	0
2. Power Thresher/Equipment	18,504	18,504	18,504	18,504	18,504	12,336	12,336	12,336	12,336	12,336
(2) Processing/Marketing Charges	54,116	54,116	54,116	54,116	54,116	45,828	45,828	45,828	45,828	45,828
(3) Rice Sales Income	429,931	429,931	429,931	429,931	429,931	429,931	429,931	429,931	429,931	429,931
(4) Loan /_1										
1. Machinery	49,183	0	0	0	0	0	0	0	0	0
2. Facilities	75,524	0	0	0	0	0	0	0	0	0
Sub-total	124,707	0	0	0	0	0	0	0	0	0
Total Inflow	627,258	502,551	502,551	502,551	502,551	488,095	488,095	488,095	488,095	488,095
II. Outflow										
(1) Investment Cost /_1										
1. Machinery	49,183	0	0	0	0	0	0	0	0	0
2. Facilities	75,524	0	0	0	0	0	0	0	0	0
Sub-total	124,707	0	0	0	0	0	0	0	0	0
(2) Operating Cost										
1. Machinery /_2										
Pedal or power thresher	3,978	3,978	3,978	3,978	3,978	3,978	3,978	3,978	3,978	3,978
Power winnower	1,534	1,534	1,534	1,534	1,534	1,534	1,534	1,534	1,534	1,534
Rice mill	5,469	5,469	5,469	5,469	5,469	5,469	5,469	5,469	5,469	5,469
2. Facilities /_2										
Driyng	584	584	584	584	584	584	584	584	584	584
Warehouse and others	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915
3. Personnel Cost	12,598	12,598	12,598	12,598	12,598	12,598	12,598	12,598	12,598	12,598
4. Transportation Cost	2,056	2,056	2,056	2,056	2,056	2,056	2,056	2,056	2,056	2,056
5. Rice Procurement	429,931	429,931	429,931	429,931	429,931	429,931	429,931	429,931	429,931	429,931
6. Others	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084
Sub-total	461,149	461,149	461,149	461,149	461,149	461,149	461,149	461,149	461,149	461,149
(3) Replacement Cost	0	0	0	340	0	48,843	340	0	0	340
(4) Repayment	25,990	25,989	25,989	25,989	25,989	10,261	10,261	10,261	10,261	10,261
Total Outflow	487,139	487,138	487,138	487,478	487,138	520,253	471,750	471,410	471,410	471,750
III.Cash Surplus										
1. Annual Balance (I-II)	140,119	15,413	15,413	15,073	15,413	-32,158	16,345	16,685	16,685	16,345
2. Cumulative	140,119	155,532	170,945	186,018	201,431	169,273	185,618	202,303	218,988	235,333

Note : /_1 ; Income and expenditure for the procurement of machinery and construction of facilities in the previous year.
/_2 ; Cost for fuel, oil, spareparts and repair excluding personnel costs.
/_3 ; Cost for bagging of marketable rice.

Table 7.3-1 ESTIMATION OF ECONOMIC BENEFIT FOR PILOT PLAN

Item	Operation	Unit	Telagasari	Bagor	Mattiro Bulu	Trimurjo
I. Quantitative Benefit						
(A) Decrease in Field Losses						
1) Production of paddy for use		t				
a. Without condition			1,582	1,177	1,020	1,759
b. With condition			1,681	1,224	1,118	1,831
c. Decrease in losses			99	47	98	72
2) Milling rate in without condition		%	60	60	60	60
3) Increase in rice		t	59	28	59	43
4) Price of C class rice		Rp'000/t	328	328	328	328
5) Benefit	3*4	Rp'000/t	19,352	9,184	19,352	14,104
(B) Decrease in Milling Losses						
6) Increase in milling rate(60% to 65%)		%	5	5	5	5
7) Paddy milled in the New Rice Mill		t	1,673	1,218	1,111	1,820
8) Decrease in milling losses	6*7	t	84	61	56	91
9) Price of rice in without condition		Rp'000/t	328	328	328	328
10) Benefit	8*9	Rp'000	27,552	20,008	18,368	29,848
(C) Quantitative Benefit	A+B	Rp'000	46,904	29,192	37,720	43,952
II. Qualitative Benefit						
(A) Class B Rice Production						
1) Production in with		t	1,034	754	690	1,127
2) Price of rice						
a. Class C rice		Rp'000/t	328	328	328	328
b. Class B rice		Rp'000/t	350	350	350	350
c. Price difference		Rp'000/t	22	22	22	22
3) Benefit	1*2c	Rp'000	22,748	16,588	15,180	24,794
(B) Class A Rice Production						
4) Production in with		t	40	27	24	42
5) Price of rice						
a. Class C rice		Rp'000/t	328	328	328	328
b. Class A rice		Rp'000/t	393	393	393	393
c. Price difference		Rp'000/t	65	65	65	65
6) Benefit	4*5c	Rp'000	2,600	1,755	1,560	2,730
(C) Qualitative Benefit	A+B	Rp'000	25,348	18,343	16,740	27,524

Table 7.3-2 ECONOMIC COST AND BENEFIT FLOW FOR PILOT PLAN (1/2)

TELAGASARI PILOT PLAN (WEST JAVA)

IRR : 25% (Unit : Rp '000)

Year in Order	Cost Flow: Project Cost: Drying Floor	Project Cost: Building /_1	Project Cost: Total	Machine Cost	O & M Cost /_2	Replacement Cost	Change of Cost for Harvesting /_3	Total	Benefit Flow: Quantitative Benefit	Benefit Flow: Qualitative Benefit	Benefit Flow: Total	Benefit minus Cost
1	9,597	53,928	63,525	28,864	0	0	0	92,389	0	0	0	-92,389
2	0	0	0	0	19,137	0	1,353	20,490	9,381	5,070	14,451	-6,039
3	0	0	0	0	19,137	1,852	1,353	22,342	18,762	10,139	28,901	6,559
4	0	0	0	0	19,137	0	1,353	20,490	28,142	15,209	43,351	22,861
5	0	0	0	0	19,137	6,280	1,353	26,770	37,523	20,278	57,801	31,031
6	0	0	0	0	19,137	0	1,353	20,490	46,904	25,348	72,252	51,762
7	0	0	0	0	19,137	24,436	1,353	44,926	46,904	25,348	72,252	27,326
8	0	0	0	0	19,137	4,428	1,353	24,918	46,904	25,348	72,252	47,334
9	0	0	0	0	19,137	1,852	1,353	22,342	46,904	25,348	72,252	49,910
10	0	0	0	0	19,137	0	1,353	20,490	46,904	25,348	72,252	51,762
11	0	0	0	0	19,137	6,280	1,353	26,770	46,904	25,348	72,252	45,482
12	0	0	0	0	19,137	22,584	1,353	43,074	46,904	25,348	72,252	29,178
13	0	0	0	0	19,137	1,852	1,353	22,342	46,904	25,348	72,252	49,910
14	0	0	0	0	19,137	4,428	1,353	24,918	46,904	25,348	72,252	47,334
15	0	0	0	0	19,137	1,852	1,353	22,342	46,904	25,348	72,252	49,910
16	0	0	0	0	19,137	0	1,353	20,490	46,904	25,348	72,252	51,762
17	0	0	0	0	19,137	28,864	1,353	49,354	46,904	25,348	72,252	22,898
18	0	0	0	0	19,137	0	1,353	20,490	46,904	25,348	72,252	51,762
19	0	0	0	0	19,137	1,852	1,353	22,342	46,904	25,348	72,252	49,910
20	0	0	0	0	19,137	4,428	1,353	24,918	46,904	25,348	72,252	47,334

Note :/_1 ; Construction cost for warehouse, milling house, garage and community house.
/_2 ; O & M cost for processing and marketing by winnower, rice mill, and building.
/_3 ; Incremental production cost for post harvest activities at field level.

BAGOR PILOT PLAN (EAST JAVA)

IRR : 18% (Unit : Rp '000)

Year in Order	Cost Flow: Project Cost: Drying Floor	Project Cost: Building /_1	Project Cost: Total	Machine Cost	O & M Cost /_2	Replacement Cost	Change of Cost for Harvesting /_3	Total	Benefit Flow: Quantitative Benefit	Benefit Flow: Qualitative Benefit	Benefit Flow: Total	Benefit minus Cost
1	6,855	39,312	46,167	31,432	0	0	0	77,599	0	0	0	-77,599
2	0	0	0	0	13,430	0	2,271	15,701	5,838	3,669	9,507	-6,194
3	0	0	0	0	13,430	1,420	2,271	17,121	11,677	7,337	19,014	1,893
4	0	0	0	0	13,430	0	2,271	15,701	17,515	11,006	28,521	12,820
5	0	0	0	0	13,430	1,636	2,271	17,337	23,354	14,674	38,028	20,691
6	0	0	0	0	13,430	0	2,271	15,701	29,192	18,343	47,535	31,834
7	0	0	0	0	13,430	31,216	2,271	46,917	29,192	18,343	47,535	618
8	0	0	0	0	13,430	216	2,271	15,917	29,192	18,343	47,535	31,618
9	0	0	0	0	13,430	1,420	2,271	17,121	29,192	18,343	47,535	30,414
10	0	0	0	0	13,430	0	2,271	15,701	29,192	18,343	47,535	31,834
11	0	0	0	0	13,430	1,636	2,271	17,337	29,192	18,343	47,535	30,198
12	0	0	0	0	13,430	29,796	2,271	45,497	29,192	18,343	47,535	2,038
13	0	0	0	0	13,430	1,420	2,271	17,121	29,192	18,343	47,535	30,414
14	0	0	0	0	13,430	216	2,271	15,917	29,192	18,343	47,535	31,618
15	0	0	0	0	13,430	1,420	2,271	17,121	29,192	18,343	47,535	30,414
16	0	0	0	0	13,430	0	2,271	15,701	29,192	18,343	47,535	31,834
17	0	0	0	0	13,430	31,432	2,271	47,133	29,192	18,343	47,535	402
18	0	0	0	0	13,430	0	2,271	15,701	29,192	18,343	47,535	31,834
19	0	0	0	0	13,430	1,420	2,271	17,121	29,192	18,343	47,535	30,414
20	0	0	0	0	13,430	216	2,271	15,917	29,192	18,343	47,535	31,618

Note :/_1 ; Construction cost for warehouse, milling house, garage and community house.
/_2 ; O & M cost for processing and marketing by winnower, rice mill, and building.
/_3 ; Incremental production cost for post harvest activities at field level.

Table 7.3-2 ECONOMIC COST AND BENEFIT FLOW FOR PILOT PLAN (2/2)

MATTIRO BULU PILOT PLAN (SOUTH SULAWESI)

IRR : 24% (Unit : Rp '000)

Year in Order	Cost Flow: Project Cost: Drying Floor	Project Cost: Building /_1	Project Cost: Total	Machine Cost	O & M Cost /_2	Replacement Cost	Change of Cost for Harvesting /_3	Total	Benefit Flow: Quantitative Benefit	Benefit Flow: Qualitative Benefit	Benefit Flow: Total	Benefit minus Cost
1	7,312	40,824	48,136	19,181	0	0	0	67,317	0	0	0	-67,317
2	0	0	0	0	13,033	0	1,062	14,095	3,621	1,607	5,228	-8,867
3	0	0	0	0	13,033	1,445	1,062	15,540	7,242	3,214	10,456	-5,084
4	0	0	0	0	13,033	0	1,062	14,095	18,106	8,035	26,141	12,046
5	0	0	0	0	13,033	4,469	1,062	18,564	30,176	13,392	43,568	25,004
6	0	0	0	0	13,033	0	1,062	14,095	37,720	16,740	54,460	40,365
7	0	0	0	0	13,033	16,157	1,062	30,252	37,720	16,740	54,460	24,208
8	0	0	0	0	13,033	3,024	1,062	17,119	37,720	16,740	54,460	37,341
9	0	0	0	0	13,033	1,445	1,062	15,540	37,720	16,740	54,460	38,920
10	0	0	0	0	13,033	0	1,062	14,095	37,720	16,740	54,460	40,365
11	0	0	0	0	13,033	4,469	1,062	18,564	37,720	16,740	54,460	35,896
12	0	0	0	0	13,033	14,712	1,062	28,807	37,720	16,740	54,460	25,653
13	0	0	0	0	13,033	1,445	1,062	15,540	37,720	16,740	54,460	38,920
14	0	0	0	0	13,033	3,024	1,062	17,119	37,720	16,740	54,460	37,341
15	0	0	0	0	13,033	1,445	1,062	15,540	37,720	16,740	54,460	38,920
16	0	0	0	0	13,033	0	1,062	14,095	37,720	16,740	54,460	40,365
17	0	0	0	0	13,033	19,181	1,062	33,276	37,720	16,740	54,460	21,184
18	0	0	0	0	13,033	0	1,062	14,095	37,720	16,740	54,460	40,365
19	0	0	0	0	13,033	1,445	1,062	15,540	37,720	16,740	54,460	38,920
20	0	0	0	0	13,033	3,024	1,062	17,119	37,720	16,740	54,460	37,341

Note :/_1 ; Construction cost for warehouse, milling house, garage and community house.
/_2 ; O & M cost for processing and marketing by winnower, rice mill, and building.
/_3 ; Incremental production cost for post harvest activities at field level.

TRIMURJO PILOT PLAN (LAMPUNG)

IRR : 19% (Unit : Rp '000)

Year in Order	Cost Flow: Project Cost: Drying Floor	Project Cost: Building /_1	Project Cost: Total	Machine Cost	O & M Cost /_2	Replacement Cost	Change of Cost for Harvesting /_3	Total	Benefit Flow: Quantitative Benefit	Benefit Flow: Qualitative Benefit	Benefit Flow: Total	Benefit minus Cost
1	10,511	57,456	67,967	46,241	0	0	0	114,208	0	0	0	-114,208
2	0	0	0	0	20,537	0	3,122	23,659	8,790	5,505	14,295	-9,364
3	0	0	0	0	20,537	1,982	3,122	25,641	17,581	11,010	28,591	2,950
4	0	0	0	0	20,537	0	3,122	23,659	26,371	16,514	42,885	19,226
5	0	0	0	0	20,537	2,288	3,122	25,947	35,162	22,019	57,181	31,234
6	0	0	0	0	20,537	0	3,122	23,659	43,952	27,524	71,476	47,817
7	0	0	0	0	20,537	45,935	3,122	69,594	43,952	27,524	71,476	1,882
8	0	0	0	0	20,537	306	3,122	23,965	43,952	27,524	71,476	47,511
9	0	0	0	0	20,537	1,982	3,122	25,641	43,952	27,524	71,476	45,835
10	0	0	0	0	20,537	0	3,122	23,659	43,952	27,524	71,476	47,817
11	0	0	0	0	20,537	2,288	3,122	25,947	43,952	27,524	71,476	45,529
12	0	0	0	0	20,537	43,953	3,122	67,612	43,952	27,524	71,476	3,864
13	0	0	0	0	20,537	1,982	3,122	25,641	43,952	27,524	71,476	45,835
14	0	0	0	0	20,537	306	3,122	23,965	43,952	27,524	71,476	47,511
15	0	0	0	0	20,537	1,982	3,122	25,641	43,952	27,524	71,476	45,835
16	0	0	0	0	20,537	0	3,122	23,659	43,952	27,524	71,476	47,817
17	0	0	0	0	20,537	46,241	3,122	69,900	43,952	27,524	71,476	1,576
18	0	0	0	0	20,537	0	3,122	23,659	43,952	27,524	71,476	47,817
19	0	0	0	0	20,537	1,982	3,122	25,641	43,952	27,524	71,476	45,835
20	0	0	0	0	20,537	306	3,122	23,965	43,952	27,524	71,476	47,511

Note :/_1 ; Construction cost for warehouse, milling house, garage and community house.
/_2 ; O & M cost for processing and marketing by winnower, rice mill, and building.
/_3 ; Incremental production cost for post harvest activities at field level.

FIGURES

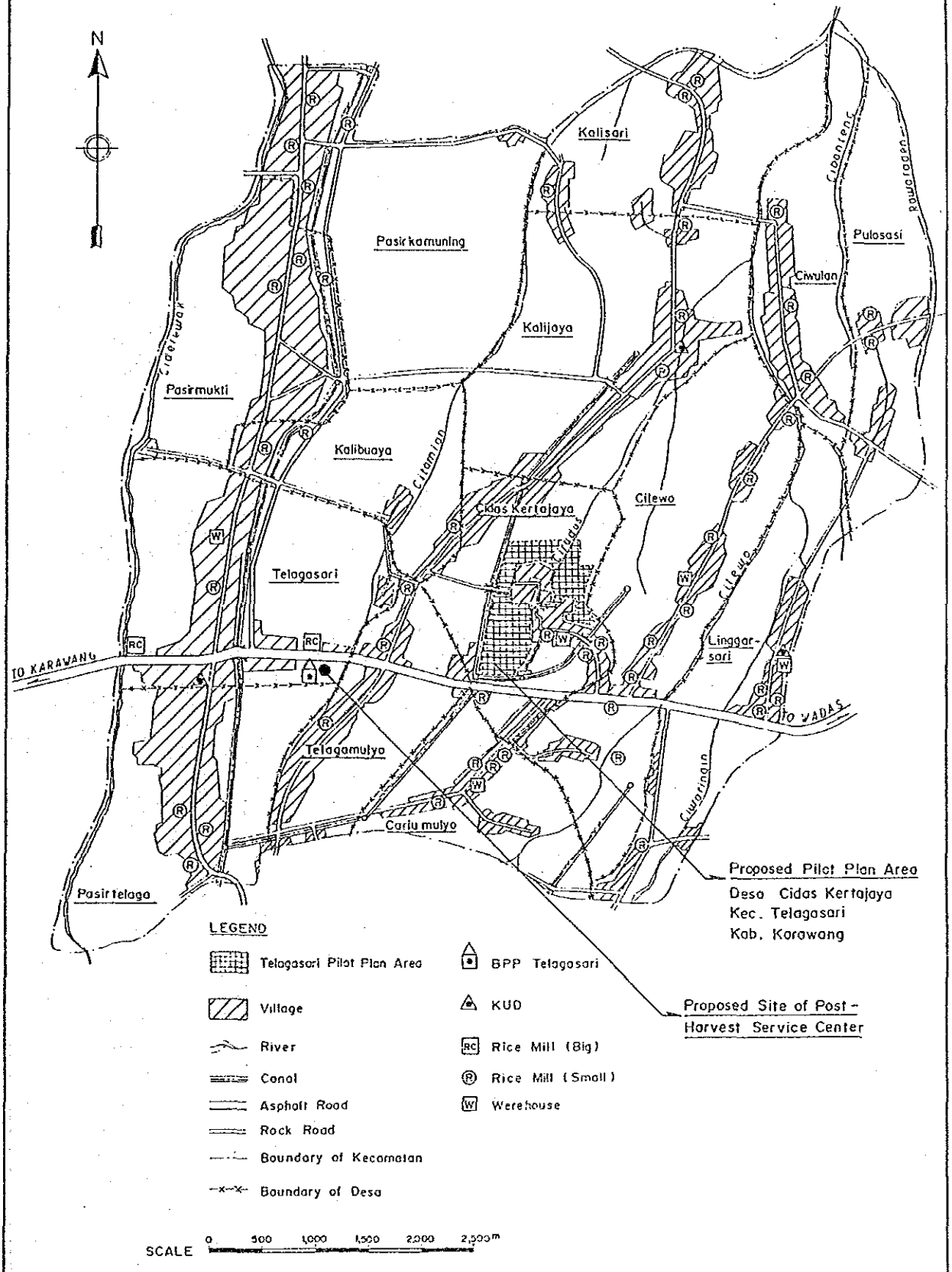


Fig. 3.1-1 GENERAL MAP OF SURVEY AREA (1/4), TELAGASARI

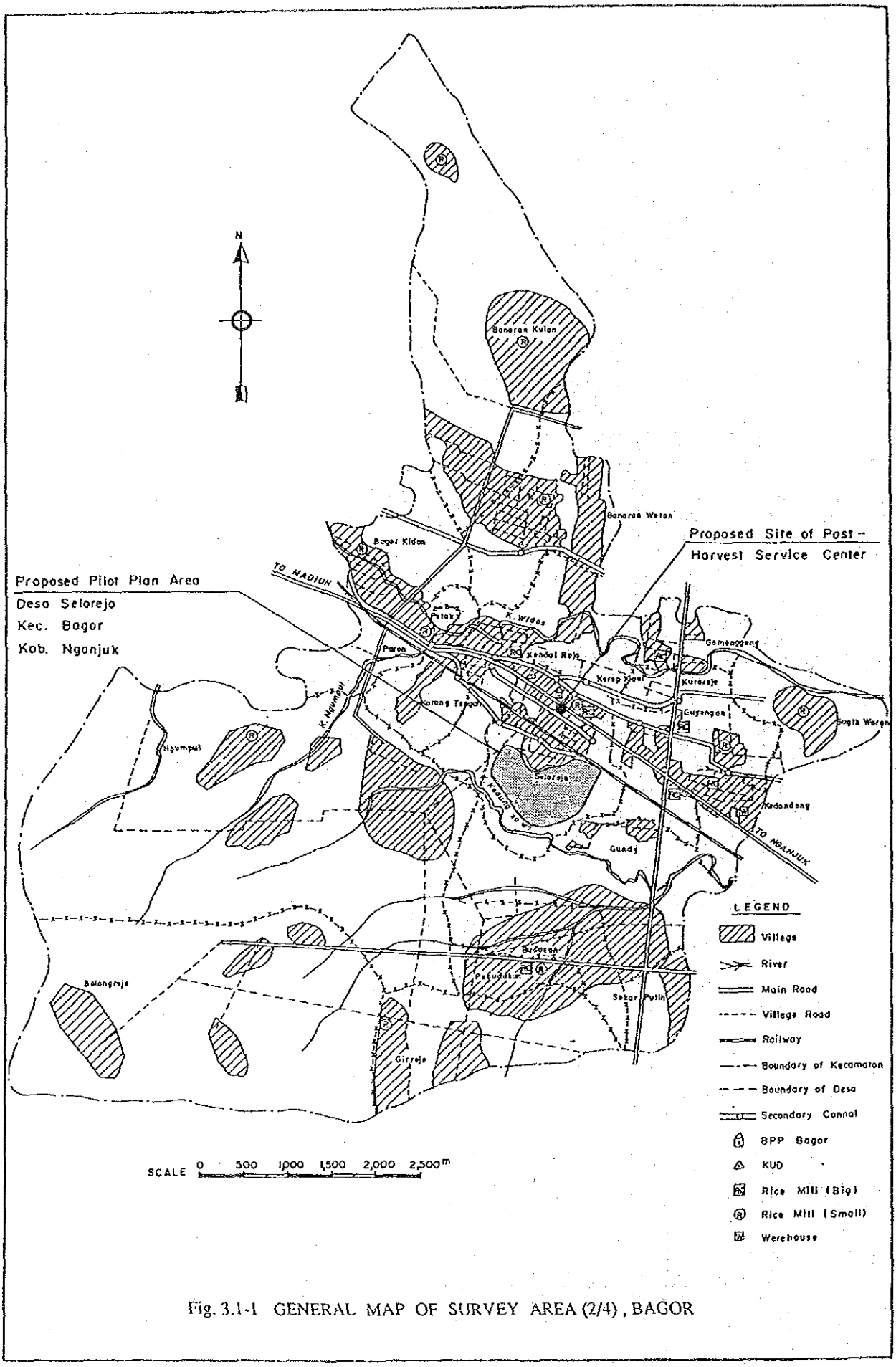


Fig. 3.1-1 GENERAL MAP OF SURVEY AREA (2/4), BAGOR

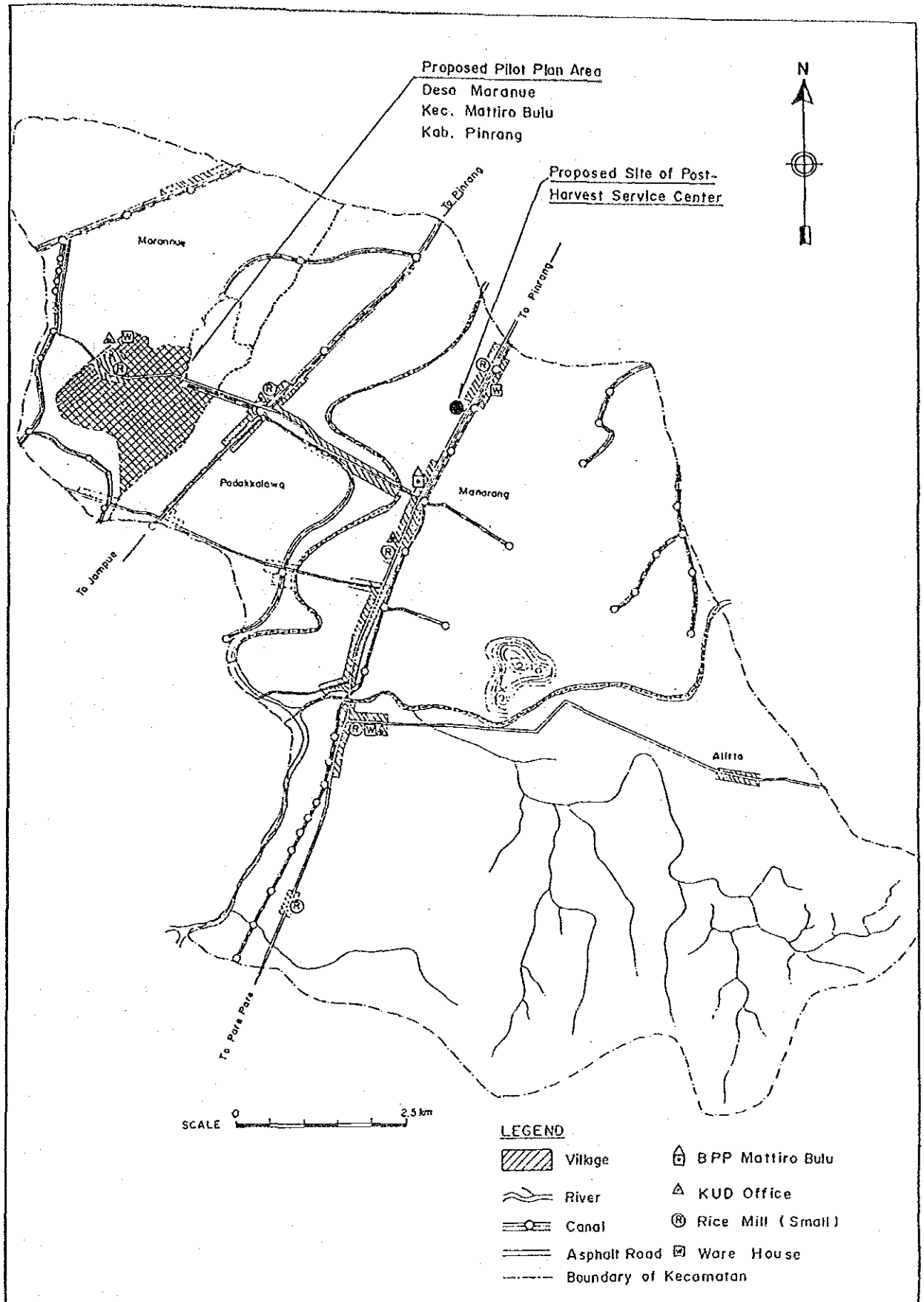


Fig. 3.1-1 GENERAL MAP OF SURVEY AREA (3/4), MATTIRO BULU

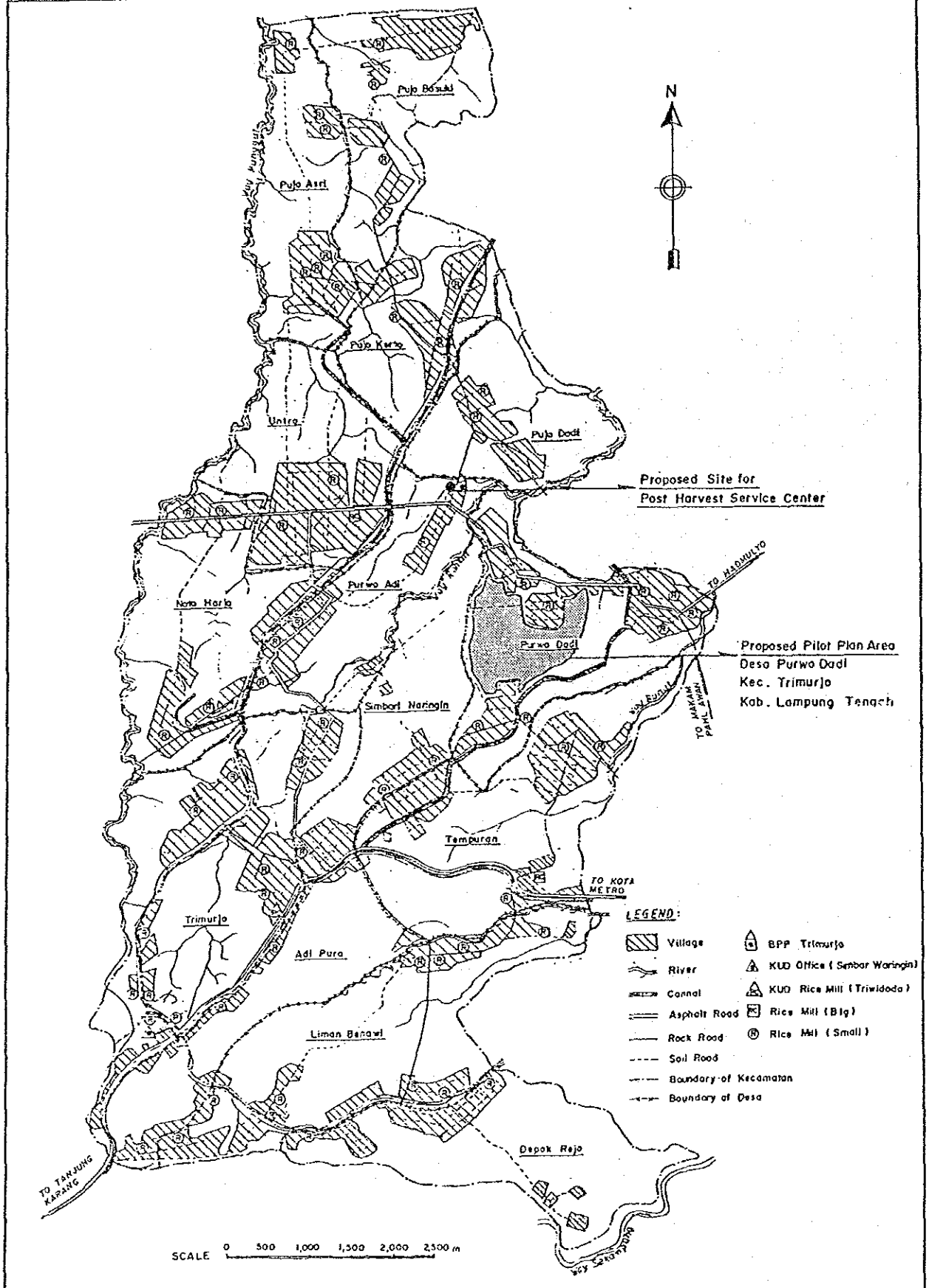


Fig. 3.1-1 GENERAL MAP OF SURVEY AREA (4/4), TRIMURJO

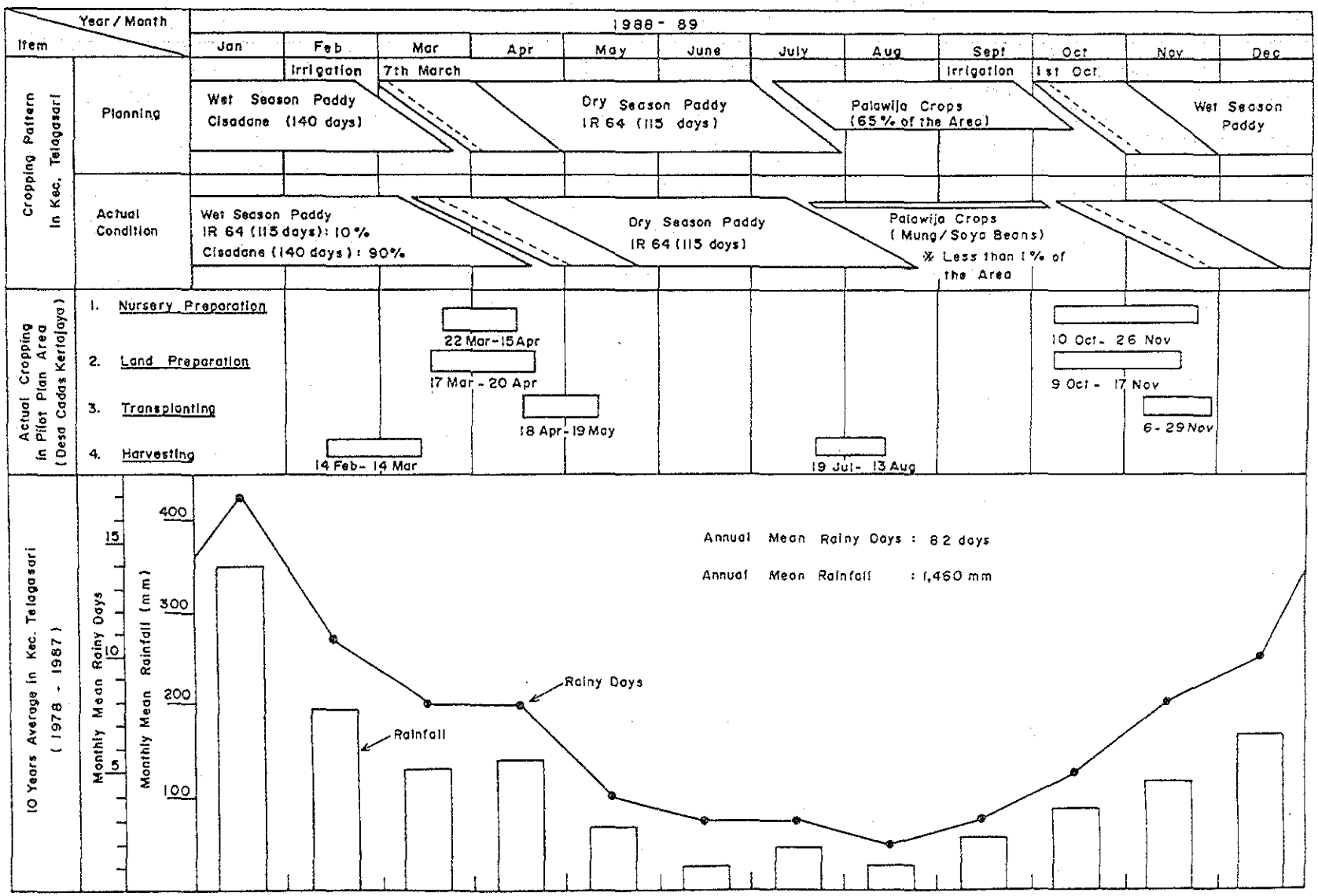


Fig. 3.2-1 CROPPING PATTERN AND RAINFALL IN SURVEY AREA (1/4) , TELAGASARI

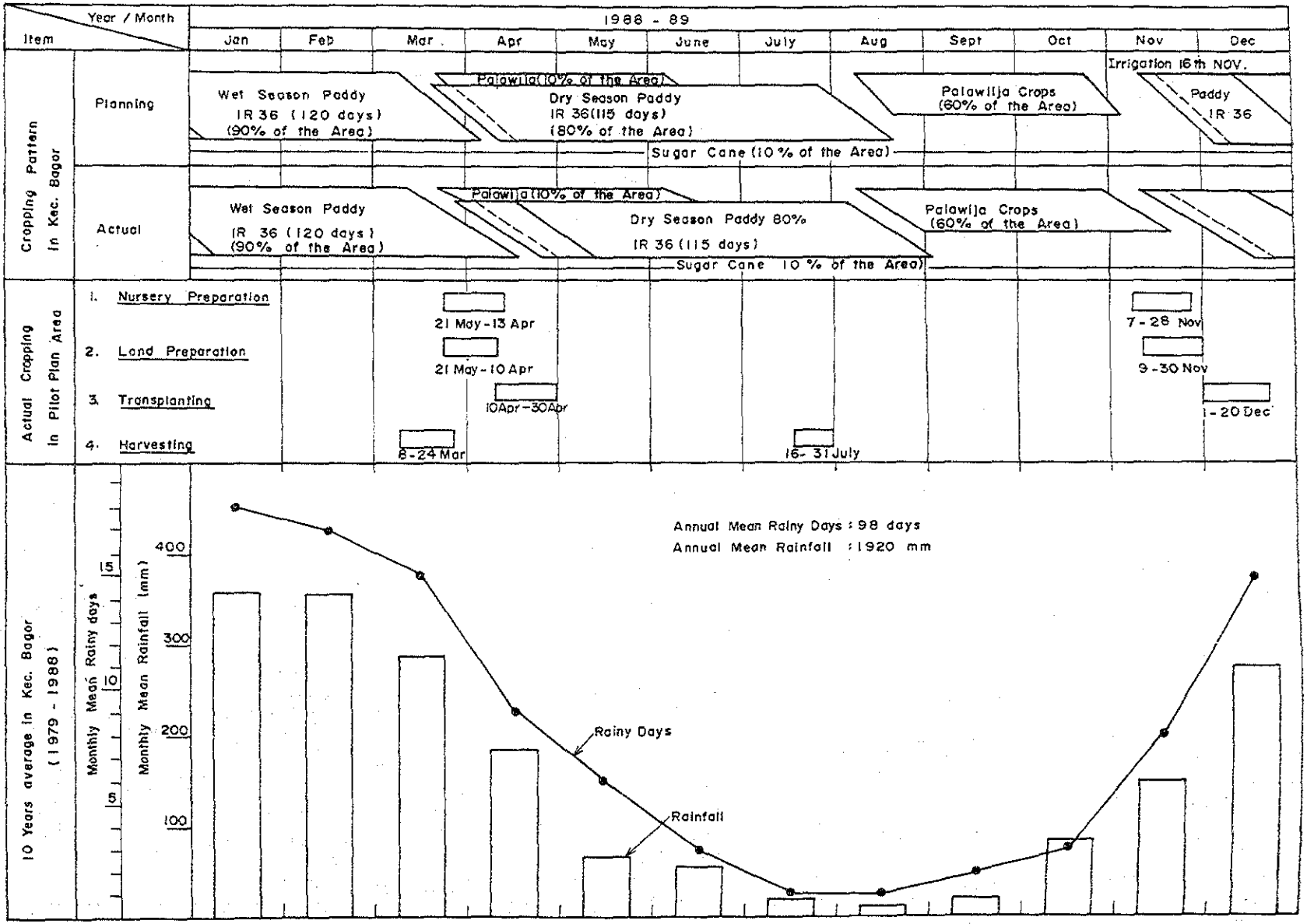


Fig. 3.2-1 CROPPING PATTERN AND RAINFALL IN SURVEY AREA (2/4) , BAGOR

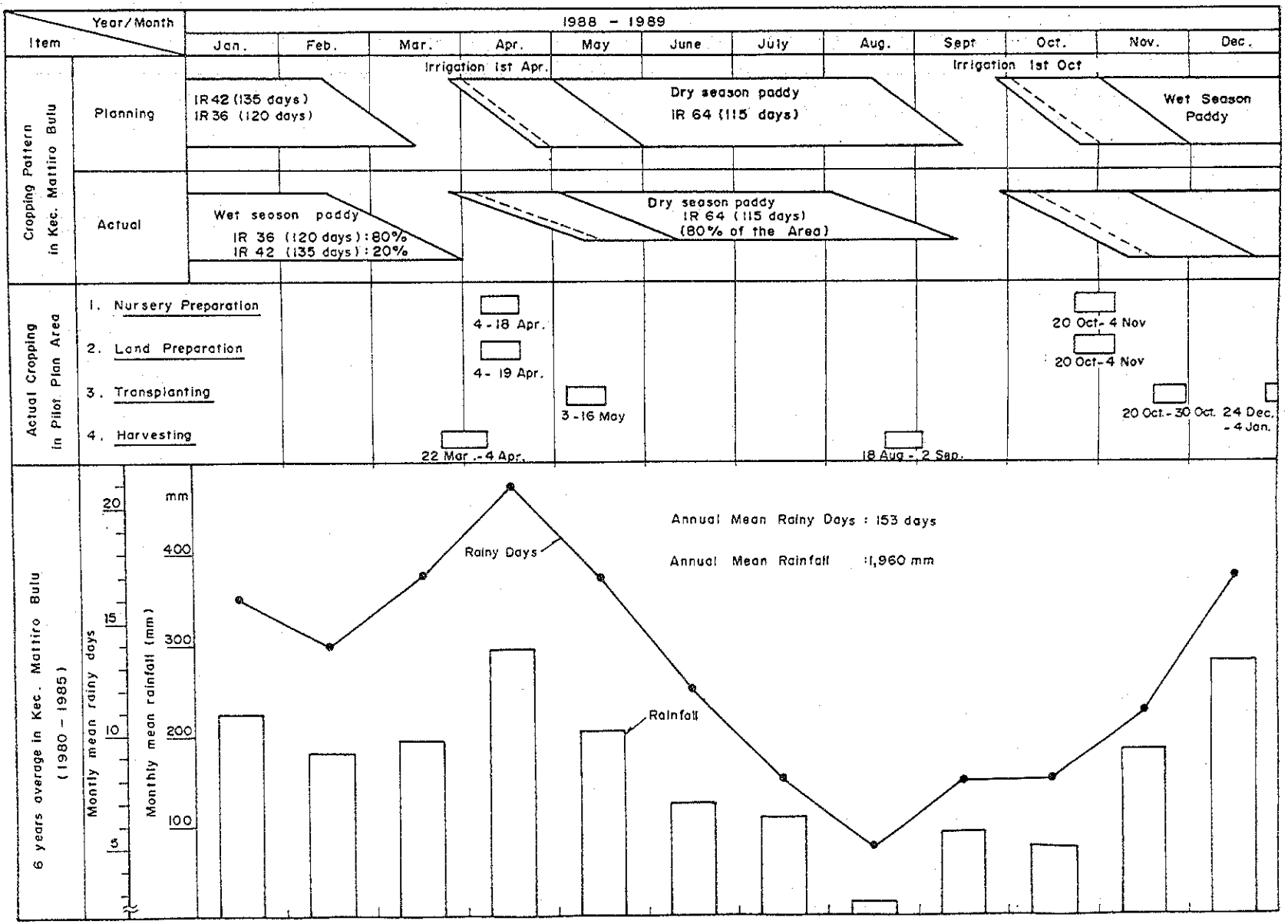


Fig. 3.2-1 CROPPING PATTERN AND RAINFALL IN SURVEY AREA (3/4), MATTIRO BULU

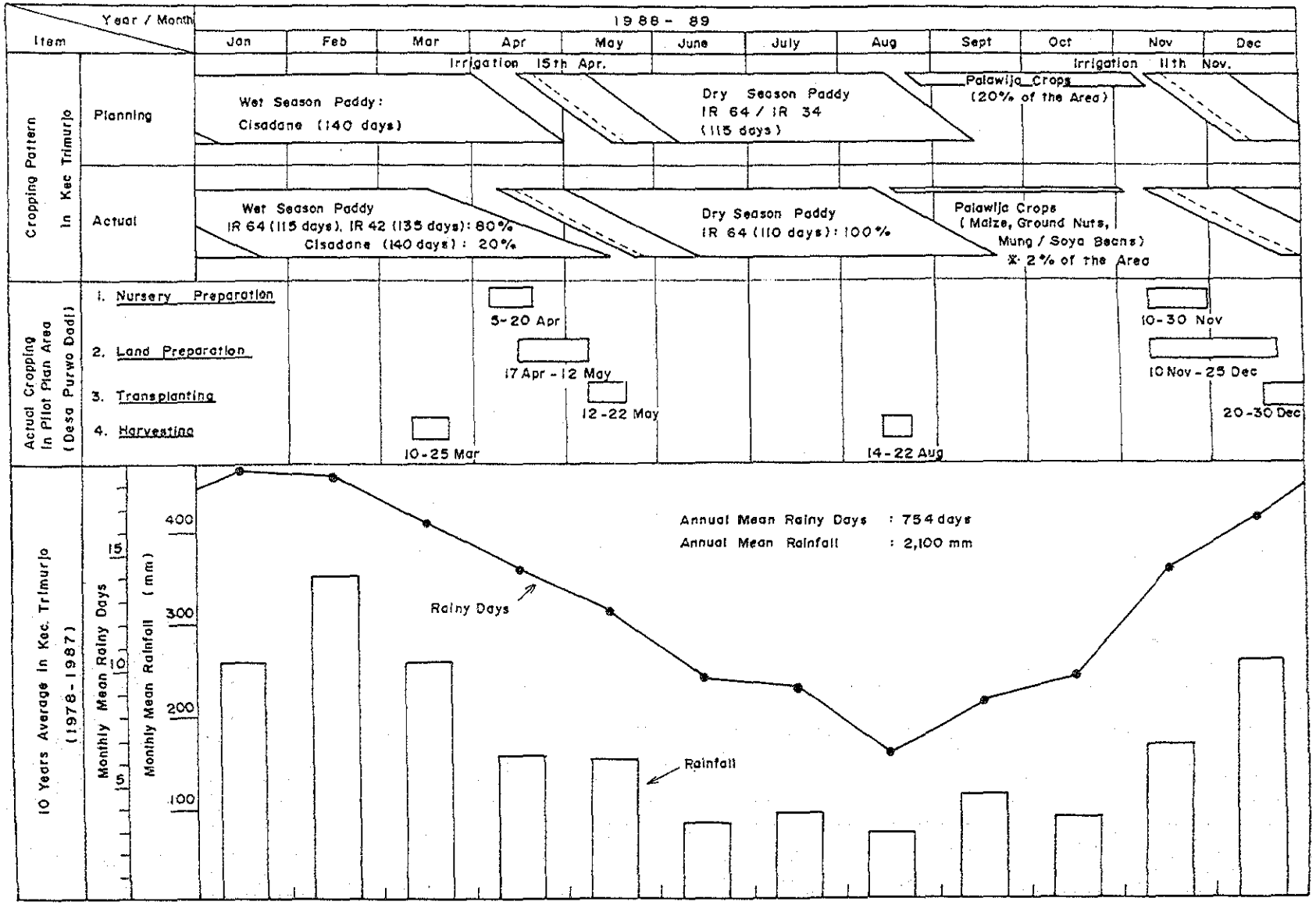


Fig. 3.2-1 CROPPING PATTERN AND RAINFALL IN SURVEY AREA (4/4), TRIMURJO

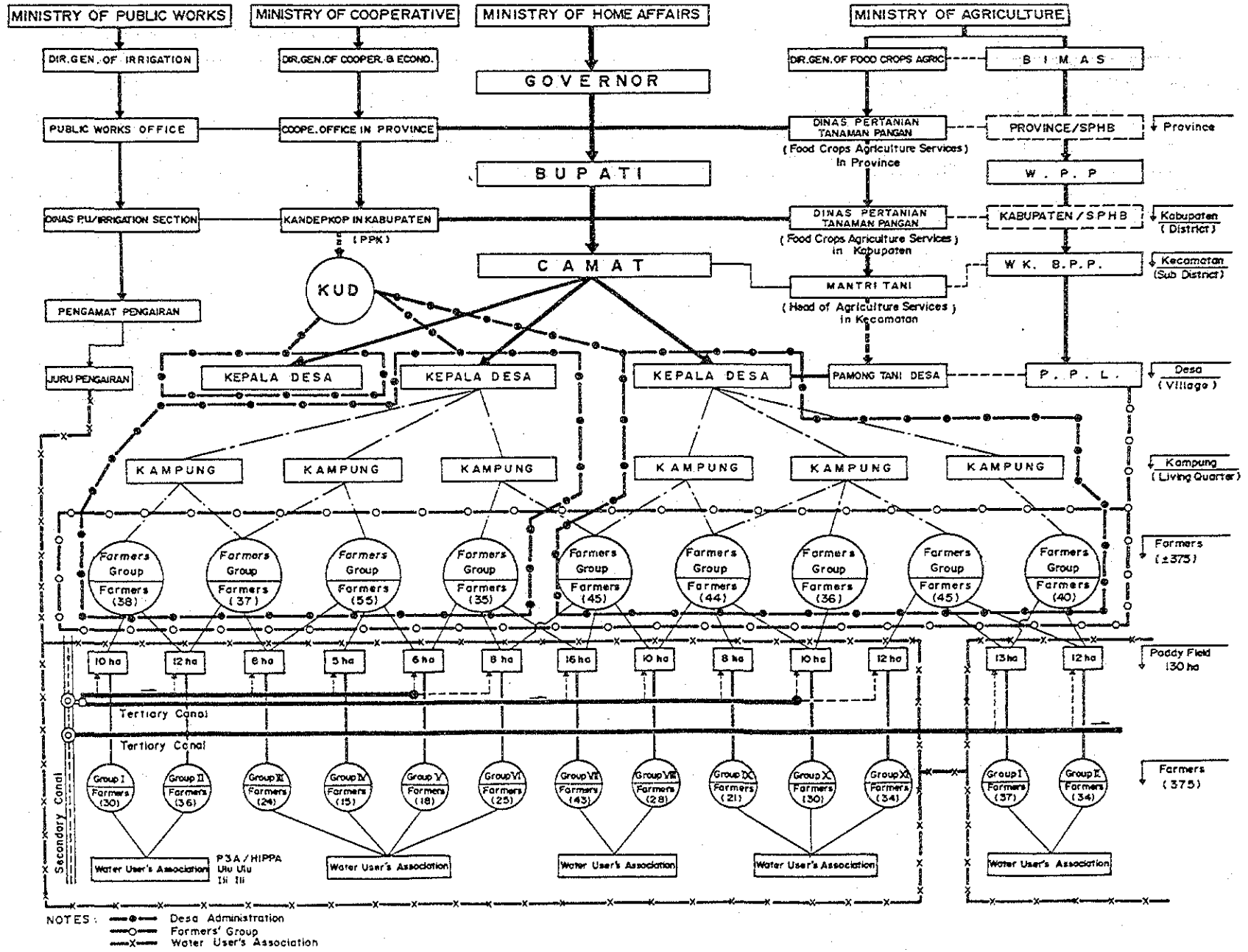


Fig. 3.4-1 PRESENT STRUCTURE OF GOVERNMENT ORGANIZATION AND FARMER ORGANIZATION

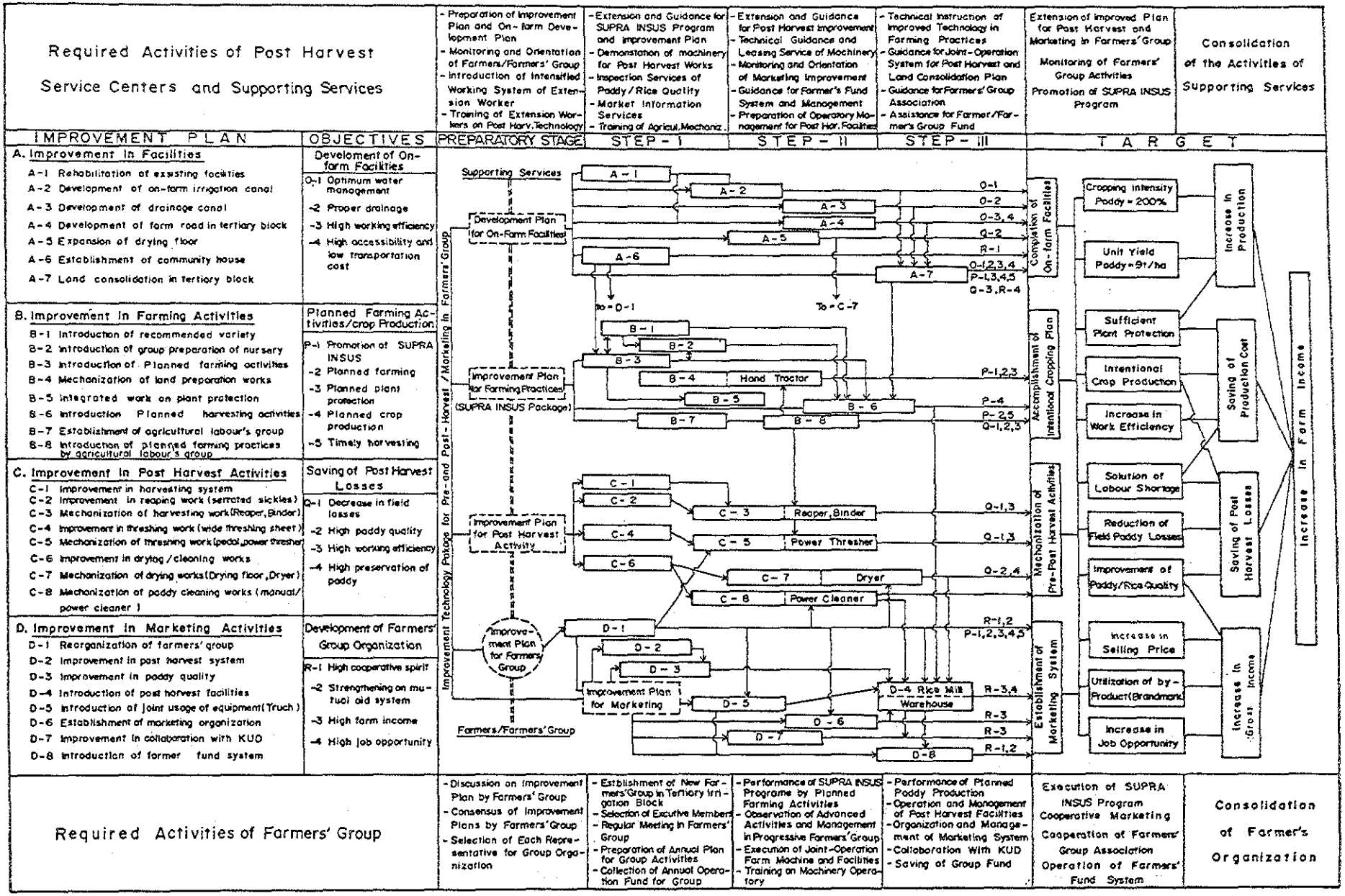


Fig. 4.5-1 IMPROVEMENT TECHNOLOGY PACKAGE FOR PRE AND POST HARVEST/MARKETING IN FARMER GROUPS

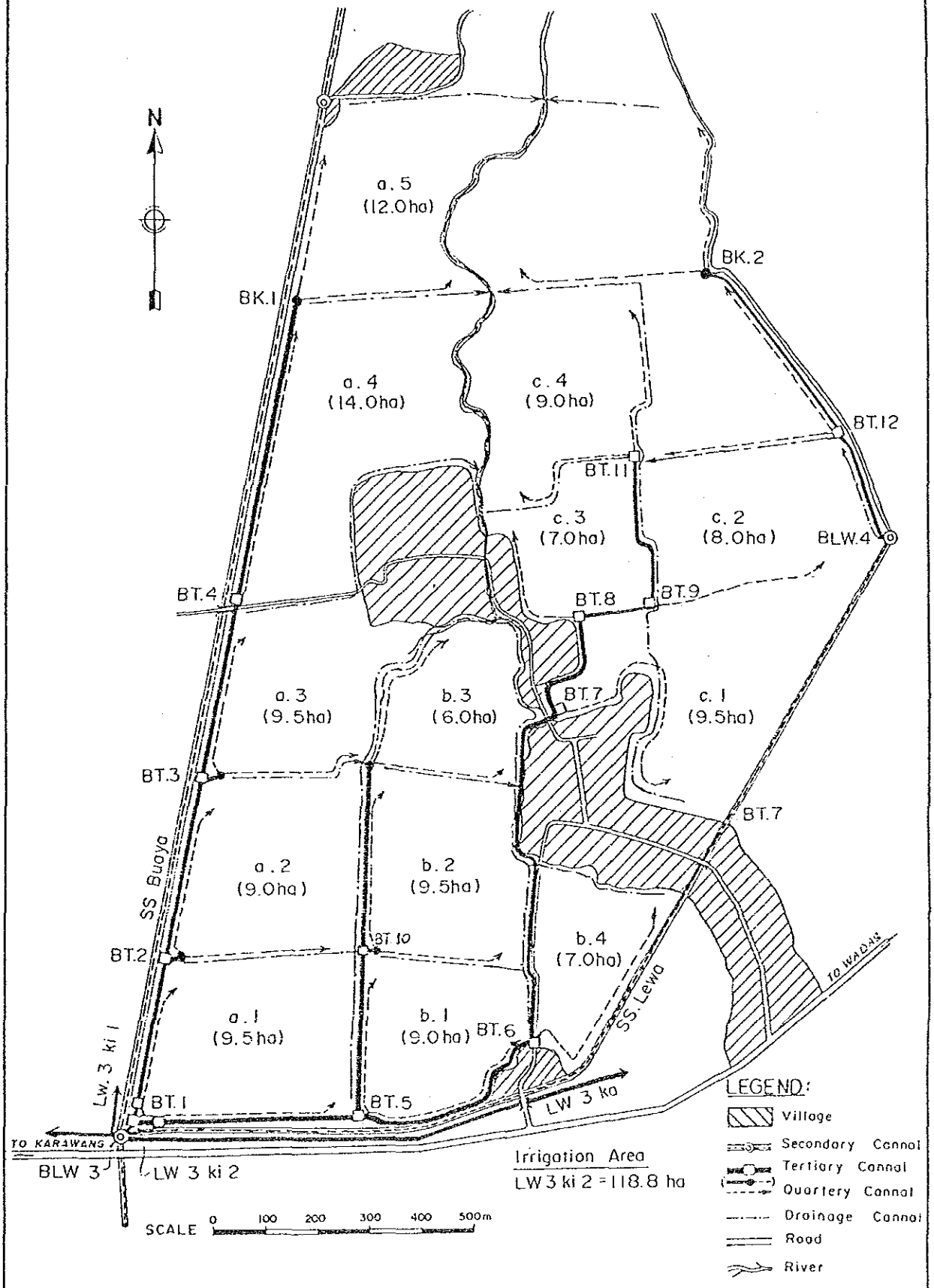


Fig. 5.1-1 GENERAL MAP OF PILOT AREA (1/4), TELAGASARI

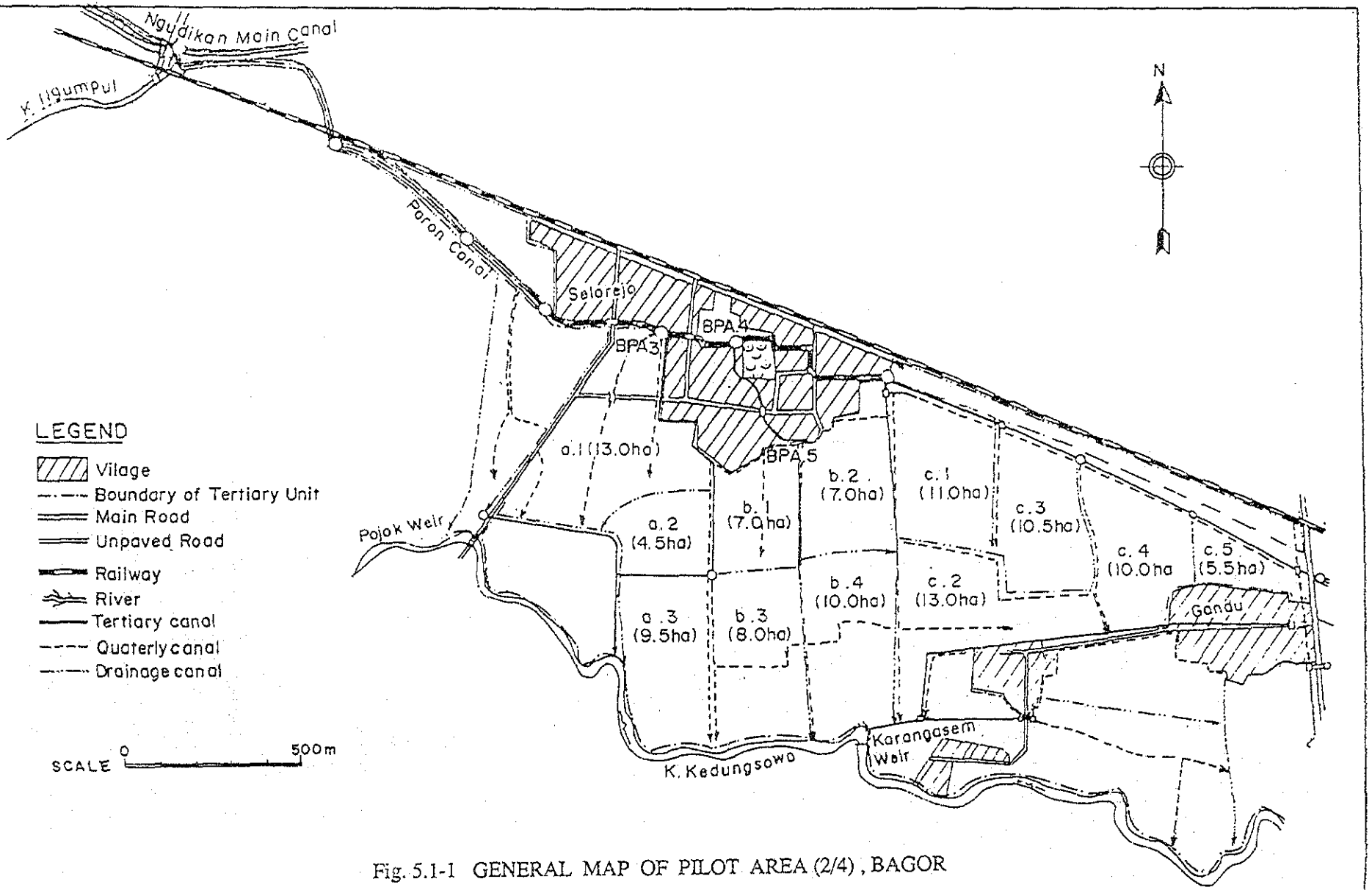


Fig. 5.1-1 GENERAL MAP OF PILOT AREA (2/4), BAGOR

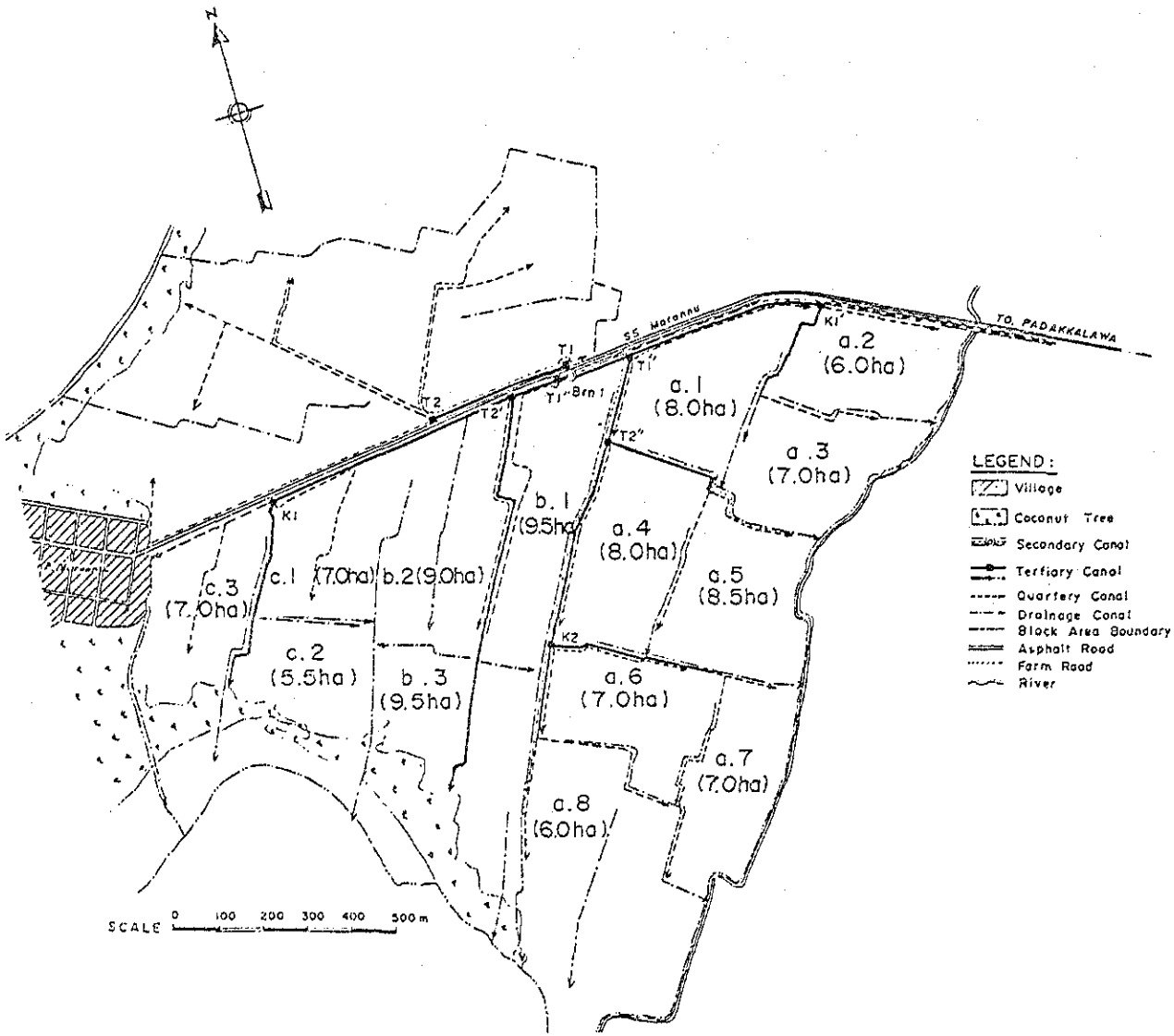


Fig. 5.1-1 GENERAL MAP OF PILOT AREA (3/4), MATTIRO BULU

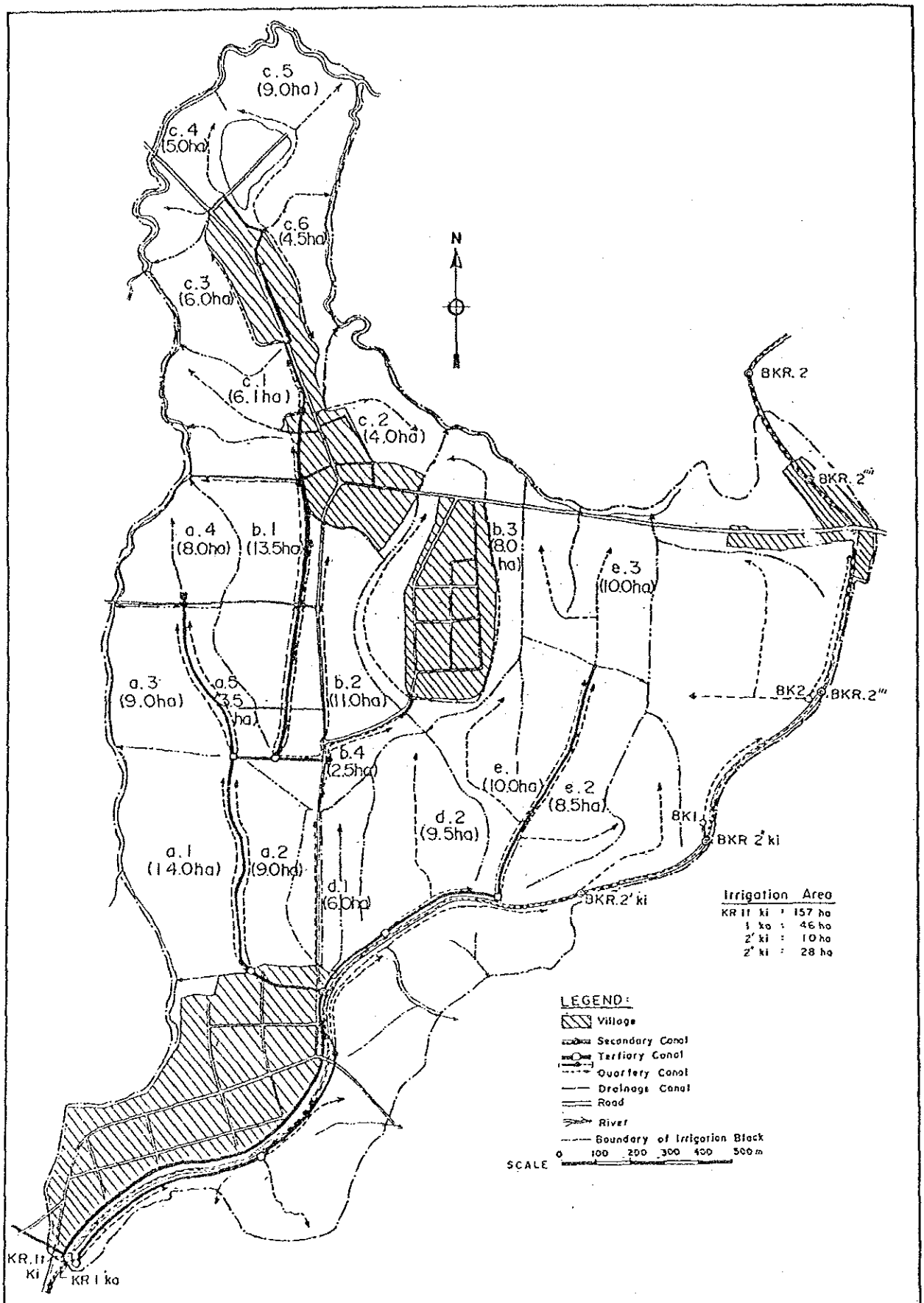


Fig. 5.1-1 GENERAL MAP OF PILOT AREA (4/4), TRIMURJO

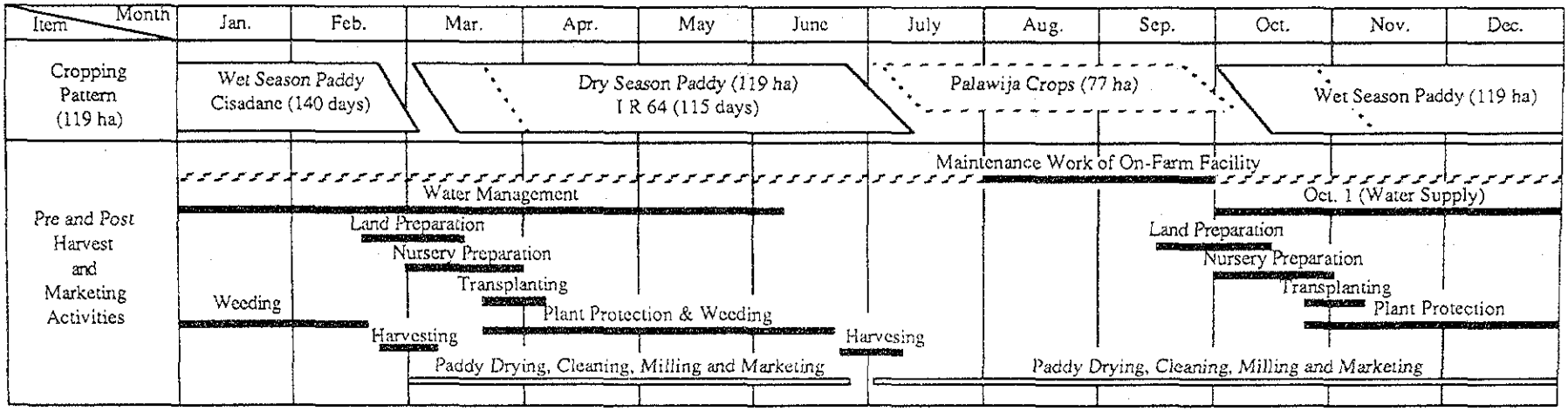


Fig. 5.3-1 CROPPING PATTERN AND WORK SCHEDULE IN WITH PROJECT CONDITION (1/4) (TELAGASARI PILOT PLAN AREA)

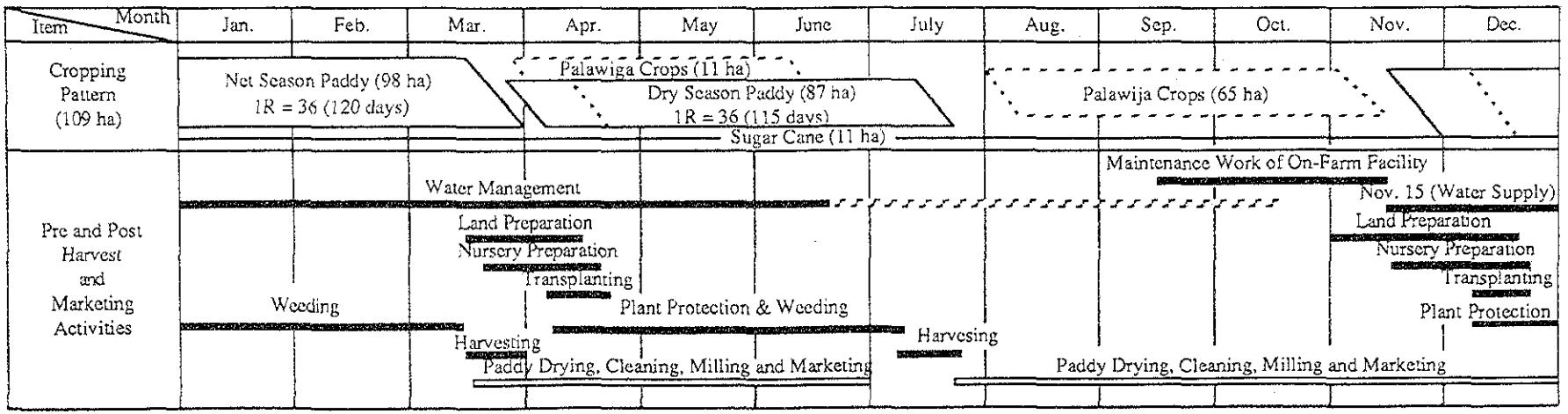


Fig. 5.3-1 CROPPING PATTERN AND WORK SCHEDULE IN WITH PROJECT CONDITION (2/4) (BAGOR PILOT PLAN AREA)

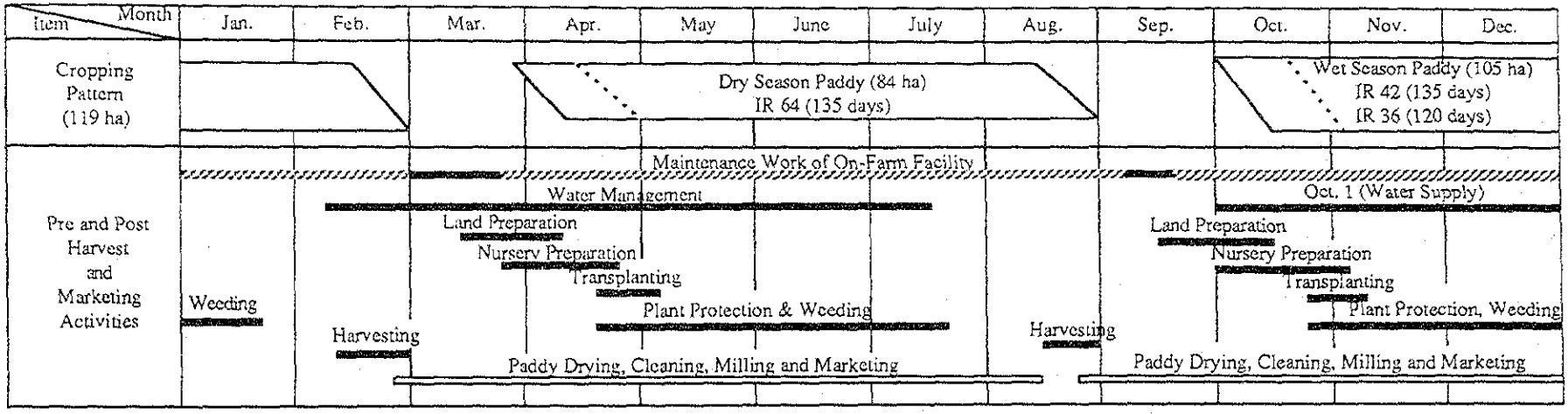


Fig. 5.3-1 CROPPING PATTERN AND WORK SCHEDULE IN WITH PROJECT CONDITION (3/4) (MATTIRO BULU PILOT PLAN AREA)

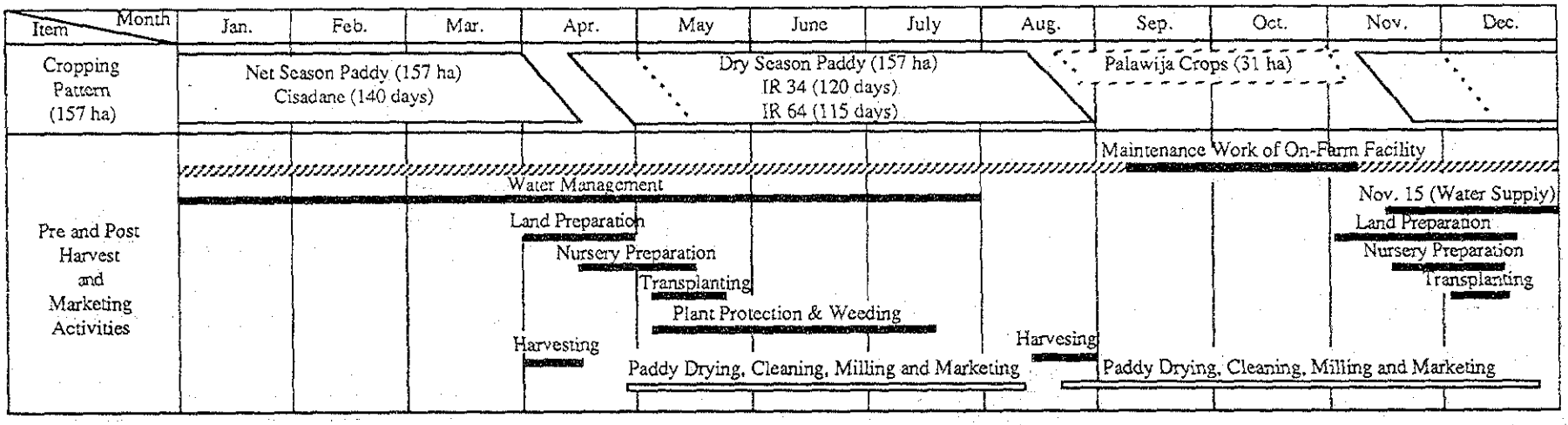


Fig. 5.3-1 CROPPING PATTERN AND WORK SCHEDULE IN WITH PROJECT CONDITION (4/4) (TRIMURJO PILOT PLAN AREA)

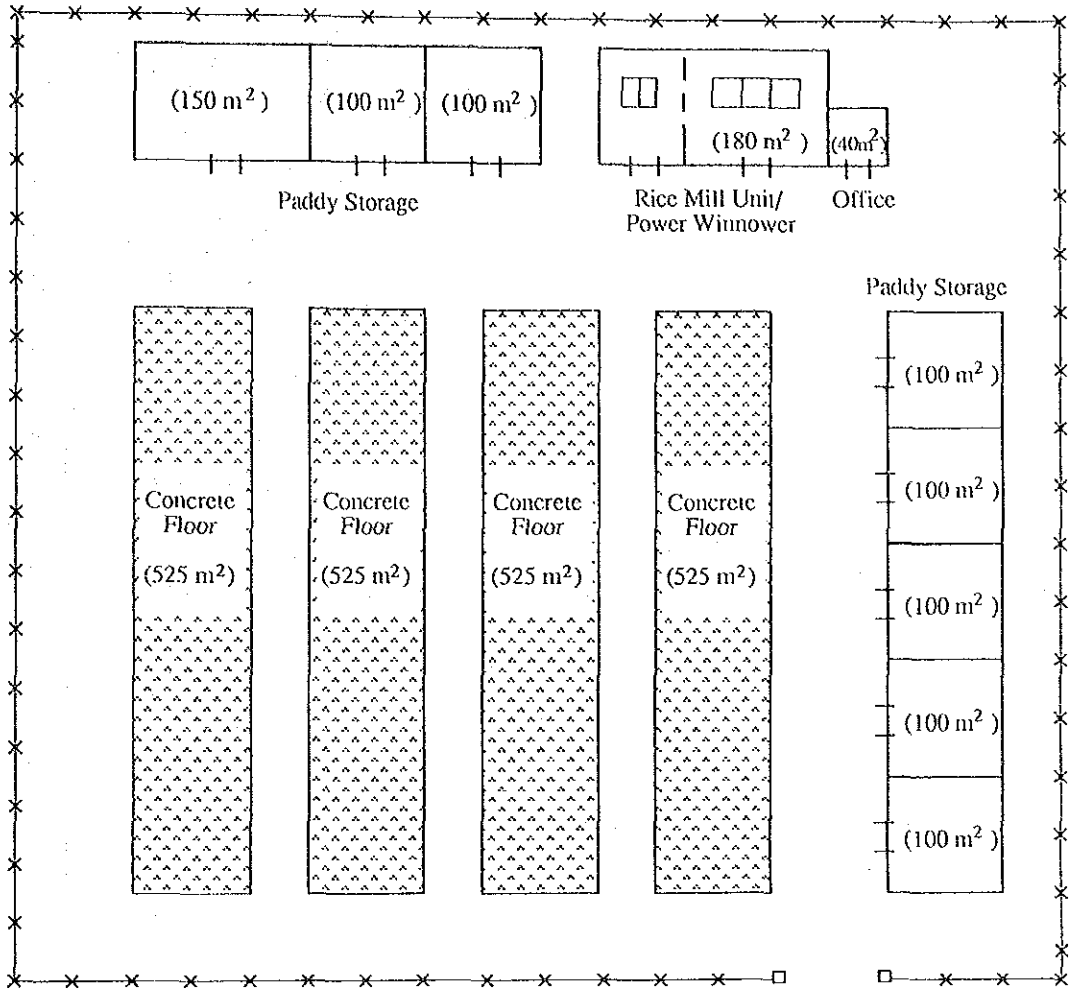


Fig. 5.4-1 TYPICAL LAYOUT OF RICE MILL FACILITY

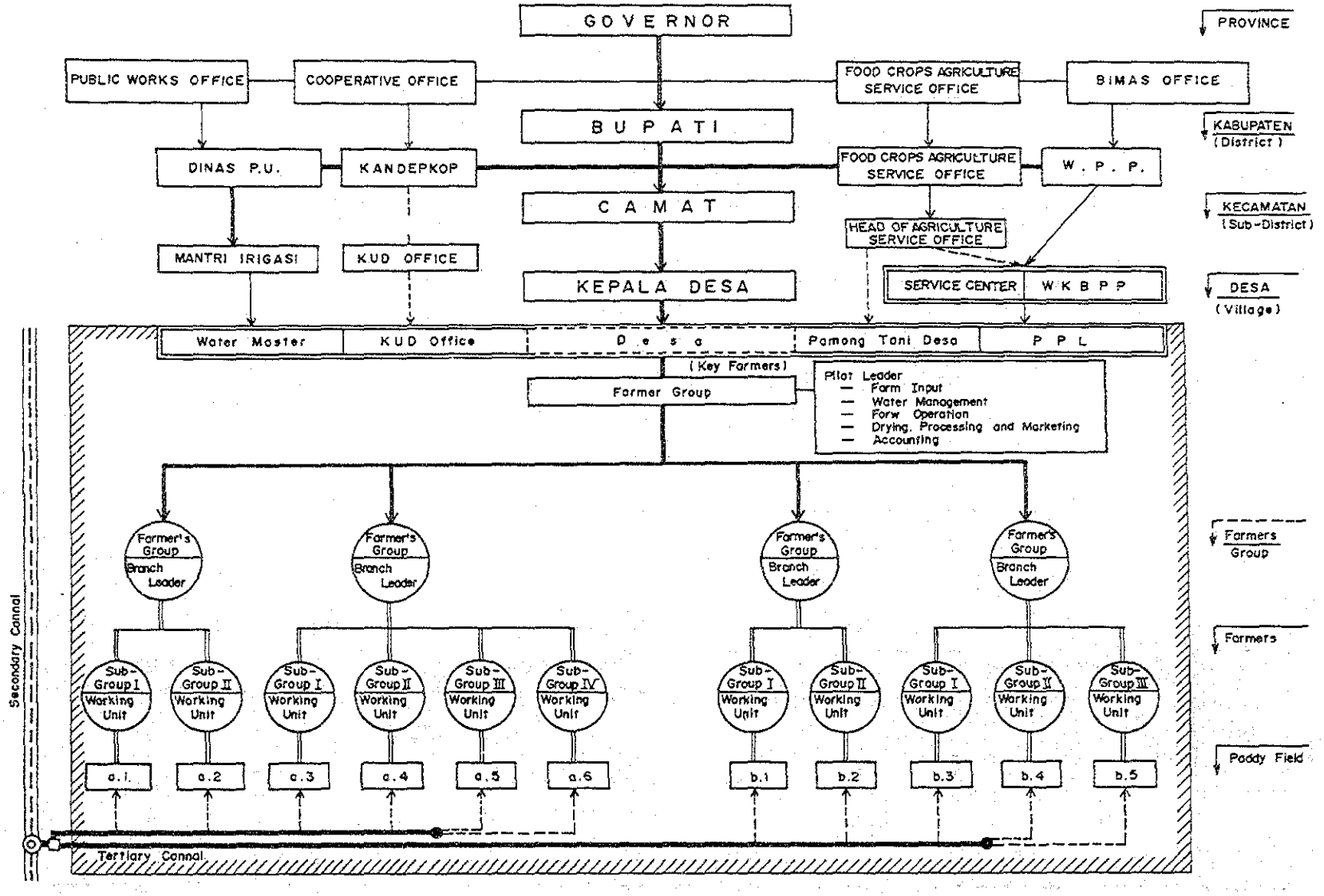


Fig. 5.5-1 PROPOSED ORGANIZATION OF PILOT PLAN

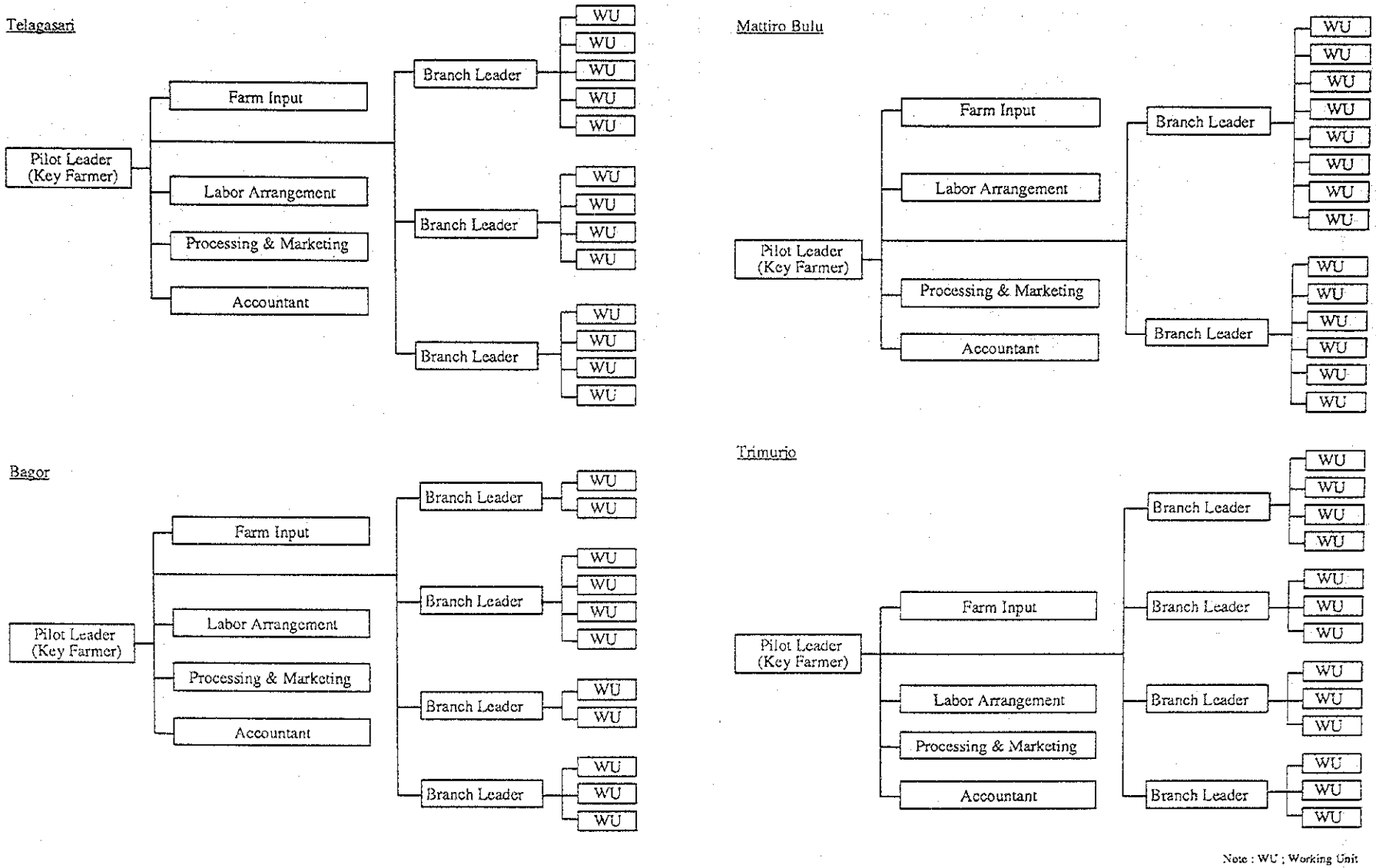


Fig. 5.5-2 PROPOSED ORGANIZATION OF FARMER GROUP

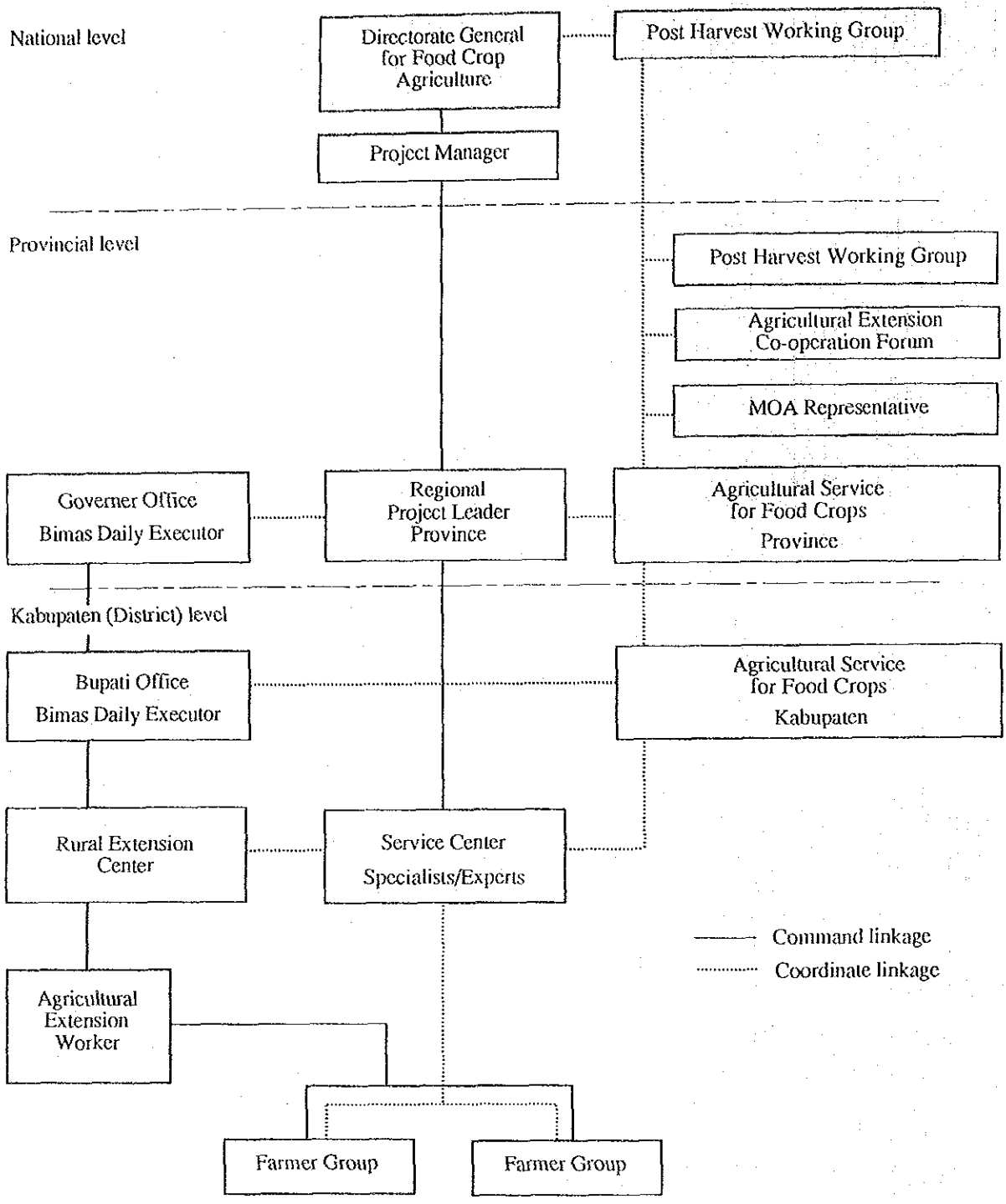


Fig. 5.6-1 PROPOSED ORGANIZATION STRUCTURE OF THE SERVICE CENTER

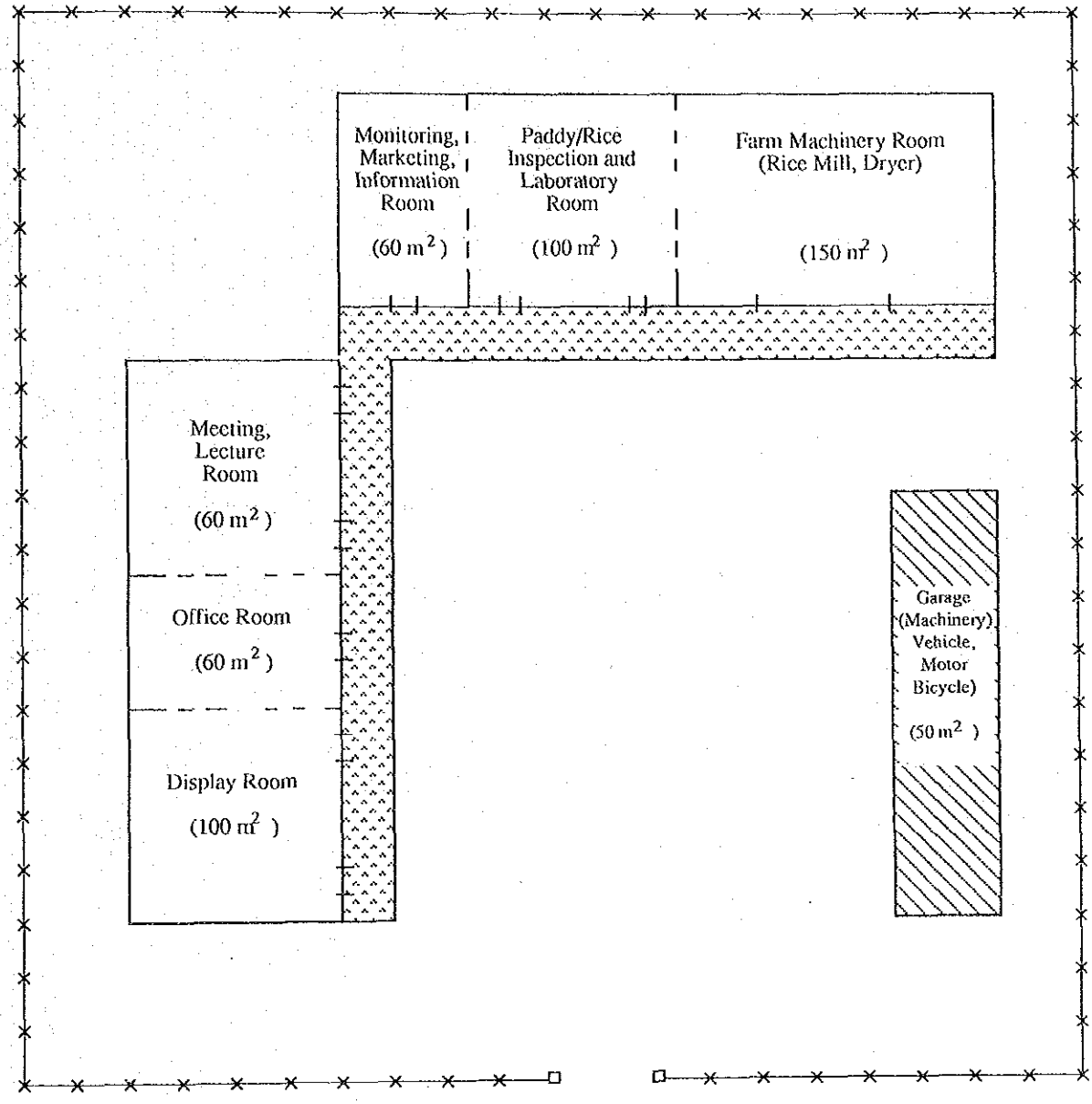
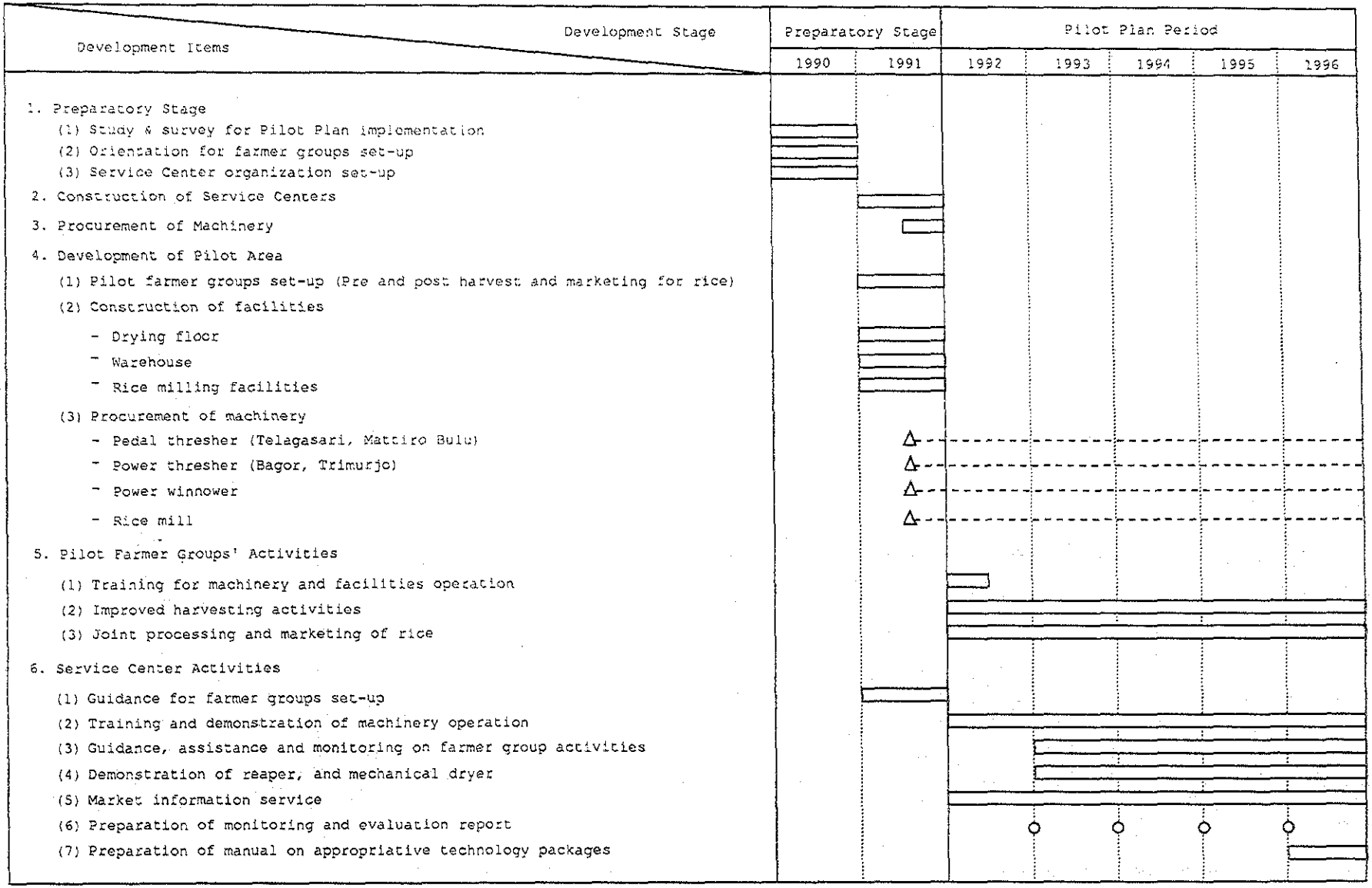


Fig. 5.6-2 GENERAL LAYOUT OF POST HARVEST SERVICE CENTER

Fig. 6.1-1 IMPLEMENTATION SCHEDULE OF PILOT PLAN



ATTACHMENTS

ATTACHMENT-1 SCOPE OF WORK FOR THE STUDY ON IMPROVEMENT OF RICE POST HARVEST AND MARKETING IN FARMER GROUPS

SCOPE OF WORK
FOR
THE STUDY
ON
IMPROVEMENT OF RICE POST HARVEST AND MARKETING IN FARMER GROUPS
IN
THE REPUBLIC OF INDONESIA

AGREED UPON BETWEEN
DIRECTORATE GENERAL OF FOOD CROPS AGRICULTURE
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Jakarta, June 23, 1988

Dr. A. Muin Pabinru
Director General
Directorate General of Food Crops Agriculture
Ministry of Agriculture

小松清明

Mr. Kiyoaki Komatsu
Leader
Preliminary Survey Team
Japan International Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia, Government of Japan has decided to conduct the Study for Improvement of Rice Post Harvest and Marketing in Farmer Groups (hereinafter referred to as "the Study") and in accordance with the relevant laws and regulations in force in Japan.

Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities of the Republic of Indonesia.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are;

(1) to study the possibility of improvement of post harvest and marketing activities in farmers groups,

(2) to suggest improved post harvest and marketing packages for farmers/ farmer groups, and

(3) to formulate pilot plans for improved post harvest and marketing packages for selected farmers groups.

III. SCOPE OF THE STUDY

1. Study Area

The study covers East Java, West Java, South Sulawesi and Lampung provinces.

2. Target Group

Farmers/farmer groups participating in SUPRA INSUS Program shall be the target group of the Study.

3. Target Crop

The crop subject to the Study shall be rice.

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4. Outline of the Study

The Study to be undertaken shall comprise the followings,

4-1 Data Collection and Field Survey

Data and information relevant to the Study shall be collected, and a field survey shall be carried out on the following items.

(1) General condition
   a) Development policy for rice production
   b) Major programs for intensification of rice production
   c) Agro-climatology
   d) Others

(2) Rice production
   a) Harvested area
   b) Yield and production
   c) Varieties and seeds
   d) Cultivation method
   e) Harvesting method
   f) Agricultural supporting system
   g) Others

(3) Post harvest
   a) Quantitative and qualitative losses and their causes at;
      Farmer level
      Farmers' group level
      Collector level
      Processor level
      KUD level
      BULOG level
   b) Post harvest technique of farmer/farmers' groups
      Harvesting
      Threshing
      Preparation
      Drying
      Milling
      Storage
      Transportation
   c) Tools, equipment, machinaries and facilities
   d) Post harvest supporting system
   e) Others

(4) Socio-economics of post harvest

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(5) Agro-economy and marketing
   a) Farm household economy
   b) Pricing mechanism
   c) Regional demand and supply balance
   d) Marketing system
   e) Grading system
   f) Consumer's preference
   g) Others
(6) Organization and institution
   a) Laws and regulations for post harvest activities
   b) Farmers' organization
   c) Others

4-2 Plan formulation

Based on the analysis of collected data and the findings of the field survey, the followings will be worked out.

(1) Appropriate post harvest and marketing packages for target groups
(2) Pilot plans for improvement of post harvest and marketing packages for selected farmers/farmers' groups including;
   a) Tools, equipment and machinaries
   b) Facilities
   c) Institutions and organizations
   d) Supporting systems
   e) Evaluation of the plans

IV. STUDY SCHEDULE

The Study will be executed in accordance with the attached tentative work schedule.

V. REPORTS

JICA shall prepare and submit the following reports in English to the Government of the Republic of Indonesia.

(1) Inception Report
   Thirty (30) copies at the commencement of the first field work
(2) Interim Report
   Thirty (30) copies at the end of the second field work

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(3) Draft Final Report

Thirty (30) copies within one (1) month after the end of the home office work.

The Government of Indonesia is requested to provide its comments on the draft final report with one (1) month after its receipt.

(4) Final Report

Fifty (50) copies within one (1) month after receiving the comments on the draft final report

VI. UNDERTAKING OF THE GOVERNMENT OF INDONESIA

1. To facilitate smooth conduct of the Study, the Government of the Republic of Indonesia shall take necessary measures:

   (1) To secure the safety of the Japanese study team,
   (2) To permit the members of the Japanese study team to enter, leave and sojourn in Indonesia for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
   (3) To exempt the members of the Japanese study team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into Indonesia for the conduct of the Study,
   (4) To exempt the members of the Japanese study team from income tax and other charges of any kind imposed on or in connection with any emoluments or allowance paid to the members of the Japanese study team for their services in connection with the implementation of the Study,
   (5) To provide necessary facilities to the Japanese study team for remittances as well as utilization of the funds introduced into Indonesia from Japan in connection with implementation of the Study,
   (6) To secure permission for entry into private properties for the conduct of the Study, unless prohibited by laws/regulations,
   (7) To secure permission to take all data and documents related to the Study out of Indonesia to Japan by the Japanese study team, and
   (8) To provide the medical services as needed. Its expenses will be chargeable on the members of the Japanese study team.

2. The Government of Indonesia shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in

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the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.

3. The Directorate General of Food Crops Agriculture shall act as counterpart agency to the Japanese study team and also as coordinating body to other relevant organization for the smooth implementation of the Study.

4. The Directorate General of Food Crops Agriculture shall, at its own expense, provide the Japanese study team with the following, in cooperation with other agencies concerned, if necessary.
   (1) Available data and information to the Study,
   (2) Counterpart personnel,
   (3) Suitable office with necessary equipment,

VII. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take following measures:

1. To dispatch, at its own expense, study teams in accordance with the attached tentative work schedule, and
2. To pursue technology transfer to the Indonesian counterpart personnel in the course of the Study.

VIII. OTHERS

JICA and the Directorate General of Food Crops Agriculture will consult with each other in respect of any matter that is not agreed upon in this document and may arise from or in connection with the Study.

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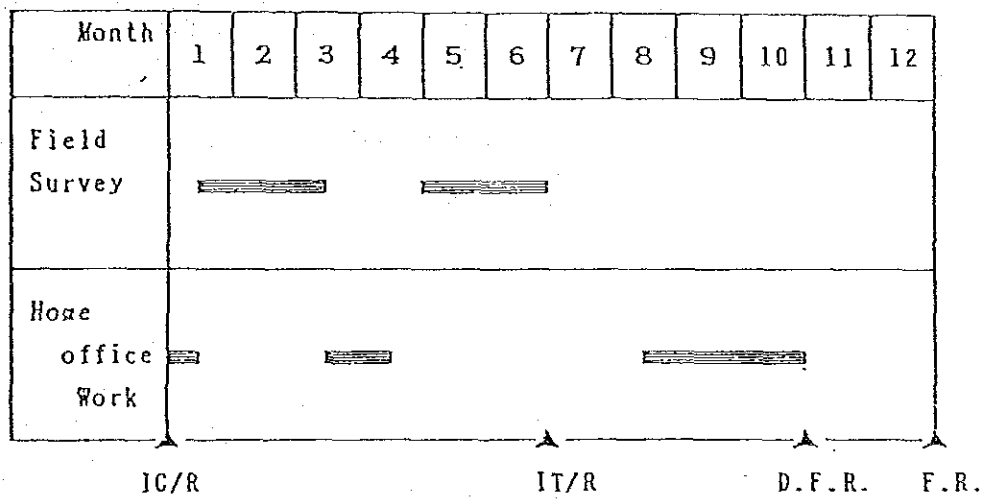
ATTACHMENT

TENTATIVE WORK SCHEDULE



IC/R : Inception Report
IT/R : Interia Report
D.F.R.: Draft Final Report
F.R. : Final Report

MINUTES OF MEETING
ON
THE INCEPTION REPORT
OF
STUDY ON IMPORVEMENT OF
RICE POST HARVEST AND MARKETING
IN
FARMER GROUPS

Jakarta, 2 December 1988

Dr. A. Muin PABINRU
Director General
Directorate General of
Food Crops Agriculture
Ministry of Agriculture
Government of Indonesia

Mr. Masashi SHONO
Team Leader
JICA Study Team

Witnessed by :

Dr. Atsunobu TOMOMATSU
Advisory Committee
JICA

MEETING OF THE INCEPTION REPORT

Date : December 01, 1988
Place : Meeting Room of Food Crops Economic and Processing of MOA
Attendance : As per attached

The meeting on the Inception Report for the Study on Improvement of Rice Post Harvest and Marketing in Farmer Groups was held on December 1, 1988. The team leader of the JICA Study Team, Mr. Shono explained the content of the Inception Report. Discussion was made between Sub Working Group on Food Crops Post Harvest consisting of DGFCA, Ministry of Cooperative, BIMAS, BULOG and Agency for Agricultural Research and Development, and the JICA Study Team.

Both sides agreed with the content of the Inception Report in general.

The salient results of the meeting other than the Scope of work are as follows :

1. The most important issues of the post-harvest for improvement of farm income are, not only the improvement in drying to milling activities but also harvesting and threshing, because harvesting losses at the field level occupy major part of post-harvest losses.

2. The sampling of cultivators according to the land holding size is very important, because the farmers' social and economic situation by land size will be different.

3. Integrated technical improvement measures at the farmers' level will be indespensable for the saving of post harvest losses and quality improvement.

4. The correct name of the Post-Harvest Regulation Forum mentioned in the Report is "Coordination Forum for Improvement of Post Harvest".

LIST OF ATTENDANT

1. Indonesian Side

Mr. Abdul Halim	Head of Sub-directorate of Post Harvest Development
Mr. S.O. Manurung	Head of Division, Agency for Agricultural Research and Development
Mr. Sutadji	Head of Section, The Directorate General of Food Crops Economic and Processing
Mr. Arifin Ahmad	Head of Section, Sub-directorate of Farm Machinery, CDAAET
Mr. Rachman Madjid	Head of Section, The Directorate General of Food Crops Economic and Processing
Mrs. Martha S.	Head of Section, Directorate of Program Development
Mr. Slamet Purnomo	Senior Researcher, National Logistics Agency
Mr. Wayan Sidhya	Head of Section, Bearou of Planning
Mr. Muchransyah A.	Staff of Directorate General of Food Crops Economic and Processing
Mr. Mochamad Sjai	Staff of Farmer Institution, Directorate of Food Crop Extension
Mrs. Lies Usmanti	Staff of BIMAS
Mr. Y. Yoshizumi	JICA Expert, The Directorate General of Cooperative
Mr. Kiyoshi Sawada	JICA Expert, Directorate General of Food Crops Agriculture

2. Japanese Side

Dr. Atsunobu Tomomatsu	Advisory Committee, Post Harvest Expert, JICA
Mr. Masashi Shono	Team Leader/Institution
Mr. Yuichi Fukasaka	Marketing Expert
Mr. Seiichi Makino	Agricultural Economist

ATTACHMENT-3 MINUTES OF MEETING ON THE PROGRESS REPORT

MINUTES OF MEETING
ON
THE PROGRESS REPORT
OF
STUDY ON IMPROVEMENT OF
RICE POST HARVEST AND MARKETING
IN
FARMER GROUPS

Jakarta, 10 March 1989

Mr. Sugianto
Director of Food Crop
Economics and Processing Development
The Directorate General of Food
Crops Agriculture

M. Shohno

Mr. Masashi SHONO
Team Leader
JICA Study Team

MEETING OF THE PROGRESS REPORT

Date : March 6, 1989

Place : Meeting Room of The Directorate of Food Crop Economics and Processing Development of the DGFCA, the MOA.

Attendance : As per attached

The meeting on the Progress Report for the Study on Improvement of Rice Post Harvest and Marketing in Farmer Groups was held on March 6, 1989. The team leader of the JICA Study Team, Mr. Shono explained the content of the Progress Report. Discussion was made between Indonesian side consisting of DGFCA, BIMAS, and Agency for Agricultural Research and Development, and the JICA Study Team.

The salient results of the meeting are as follows :

1. Present farmers' condition for marketing is very poor without any transportation measures and good outlets. For the promotion of farmers' marketing activities, development on transportation and marketing facilities (assemble centers) will be required to be included in the basic concept.

2. Utilization of appropriative technology and equipment for saving qualitative losses of paddy will be considered as one of items in the basic concept.

3. Extension services for post harvest and marketing improvement will be considered as one of components in the Pilot Plan. Therefore, Pilot Plan and Service Center will be made based on the existing agricultural support organization

4. Extension services should be extended to the agricultural labourers groups organized for post harvest farm activities.

LIST OF ATTENDANT

1. Indonesia Side

Mr. Abdul Halim	Head of Sub Directorate of Post Harvest Development, DGFCA
Mr. Nasrun Hasibuan	Head of Sub Directorate of Marketing Information System, DGFCA
Mr. S.O. Manurung	Agency for Agricultural Research and Developement, Bogor
Mr. Ekowarso	Head of Food Crop Production Control Division, Bimas,
Mr. Sutadji	Head of Section, Sub Directorate of Post Harvest Development, DGFCA
Mr. Arifin Ahmad	Head of Section, Sub Directorate of Post-Harvest development, DGFCA
Mr. Gatot Waluyanto	Staff of Sub Directorate of Inputs & Credit Agriculture, DGFCA
Mr. Bambang Kuncoro	Staff of Food Crops Programme Development , DGFCA
Ms. Budiningsih	Staff of Directorate of Food Crops Extention, DGFCA
Mr. Mochamad Syai	Staff of Directorate of Food Crops Extention, DGFCA

2. Japanese Side

Mr. Masashi Shono	Team Leader/Institution
Mr. Fumihiro Nagao	Agriculture Facilities and Machinery Expert
Mr. Hisashi Ikewada	Post Harvest Expert
Mr. Yuichi Fukasaka	Marketing Expert
Mr. Seiichi Makino	Agricultural Economist

ATTACHMENT-4 MINUTES OF MEETING ON THE INTERIM REPORT

MINUTES OF MEETING
OF THE INTERIM REPORT OF STUDY ON IMPROVEMENT OF
RICE POST HARVEST AND MARKETING IN FARMER GROUPS

Date : April 27, 1989
Place : Meeting Room of The Directorate of Food Crop Economics and Processing Development of the DGFCA, the MOA.
Attendance : As per attached

The meeting on the Interim Report for the Study on Improvement of Rice Post Harvest and Marketing in Farmer Groups, commenced by Mr. Sugianto as a chairman, was held on April 27, 1989. The JICA Study Team explained the content of the Interim Report including outline of the pilot plan formulated. Discussion was made between Indonesian side consisting of DGFCA, BIMAS, Secretariat General, Agency of Agricultural Education, Training and Extension (AAETE) and Agency for Agricultural Research and Development, and the JICA Study Team, and the contents of the Interim Report were basically accepted by Indonesian side. The salient results of the meeting are as follows :

1. Detailed pilot plans including project evaluation, estimation of cost and benefit and implementation programme should be included in the Final Report.

2. The contents of the Interim Report were basically accepted. However, improvement in post harvest activities and marketing should have higher priority than pre harvest improvement in the Final Report.

3. Economic scale of farmer groups for the improvement of post harvest and marketing activities should be identified.

4. Appropriate organization for the pilot plan will be proposed by the Indonesian side and the results will be informed to the study team.

Jakarta, 28 April 1989

Mr. Sugianto
Director of Food Crop
Economics and Processing Development,
The Directorate General of Food
Crops Agriculture

M. Shohno

Mr. Masashi SHONO
Team Leader
JICA Study Team

LIST OF ATTENDANTS

1. Indonesian Side

Mr. Sugianto	Director of Food Crop Economics and Processing Develeopment, DGFCA
Mr. Abdul Halim	Head of Sub Directorate of Post Harvest Development, DGFCA
Mr. Nasrun Hasibuan	Head of Sub Directorate of Marketing Information System, DGFCA
Mr. S.O. Manurung	Agency for Agricultural Research and Developement, Bogor
Mr. Ekowarso	Head of Technology Implementation and Monitoring Division, BIMAS
Mr. Sutadji	Head of Section, Sub Directorate of Post Harvest Development, DGFCA
Mr. Siswanto	Head of Section Sub Directorate of Post Harvest Development, DGFCA
Mr. Muchransyah Achmad	Head of Section, Sub Directorate of Marketing Information System, DGFCA
Mr. Mardojo	Head of Institution Division of Bureau of Legal aspect and Organization Secretariat General, MOA
Ms. Martha S.	Head of Section, Directorate of Program Development
Mr. I. Sunarmo	Staff of Bureau Agrigultural Extension, AAETE
Mr. Suharyo Husen	Head of Bilateral Cooperation Division, MOA
Mr. Mochamad Syai	Staff of Directorate of Food Crops Extention, DGFCA
Mr. Masahito Sato	JICA Expert, Bureau of Planning, MOA
Mr. Kiyoshi Sawada	JICA Expert, Bureau of Planning, MOA

2. Japanese Side

Mr. Masashi Shono	Team Leader/Institution
Mr. Fumihiro Nagao	Agriculture Facilities and Machinery Expert
Mr. Hisashi Ikewada	Post Harvest Expert
Mr. Yuichi Fukasaka	Marketing Expert
Ms. Mihoko Uramoto	Project Economist
Mr. Seiichi Makino	Agricultural Economist

Minutes of Meeting

on

The Draft Final Report for the Study on Improvement of Rice Post Harvest and Marketing in Farmer Groups

Japan International Cooperation Agency (JICA) sent a team on September 6, 1989 to Jakarta for the explanation of the draft final report for the study on improvement of rice post harvest and marketing in farmer groups.

A seminar was held on September 11 in Pola Room, Ministry of Agriculture, on the proposed improvement plans made by the JICA study team for the rice post harvest and marketing in Indonesia. In the seminar various opinions and information were exchanged among participants such as Japanese experts and Indonesian officials concerned, on the rice post harvest and marketing.

The Team and Indonesian Authorities concerned discussed the draft final report on September 12, taking the results of the seminar into consideration, in the headquarter of Directorate General of Food Crops Agriculture. A list of the participants in the meeting is given in a separate paper attached.

The salient results of the seminar and the meeting with the Director General are as follows.

1. Indonesian side principally accepted the draft final report prepared by the JICA study team. However several comments were made by the Indonesian side as shown in a separate paper attached.

2. Both sides agreed that all the comments were made in the present meeting and no additional comments will be made , and that Japanese side would prepare the final report taking the Indonesian comments into consideration,within one (1) month.

3. The Japanese side agreed that JICA will distribute the final reports to only authorized agencies for official purposes and, that the controlled usage of the reports will be for three (3) years after the completion of the reports and that JICA will make receipts and an inventory of the distribution of the reports.

September 12, 1989

M. Shono

Masashi Shono
Leader of JICA Study Team

Dr. Ir. A. Muin Pabinru
Director General of Food
Crops Agriculture

Witnessed by:

K. Komatsu

Kiyoaki Komatsu
Chairman of Advisory
Committee of the study, JICA

Comments of Indonesian Side

1. Not only micro computers but also side single band (SSB) wireless radio, telephones and handy talkies shall be included for using by the Service Centers.

2. Machinery of the Service Center should be classified into ordinary machinery for common practices and modernized machinery for advanced practices.

3 Number of machinery for demonstration in the Service Centers should be increased for surrounding farmer groups of the objective pilot areas within working region of the rural extension centers (BPPs).

4. Experts for the Service Centers should be changed to the following specialities.

- farm machinery
- rice processing
- marketing business
- extension method
- farm management
- rice farming

LIST OF ATTENDANT

1. Indonesia Side

Dr. Ir. A. Muin Pabinru	Director General of Food Crops Agriculture (DGFCA)
Mr. Abdurrahman Daud Rusydi	Secretary of Directorate General of Food Crops Agriculture
Mr. Abdul Halim	Head of Sub Directorate of Post Harvest Development, DGFCA
Mr. Nasrun Hasibuan	Head of Sub Directorate of Food Crops Marketing Information Services
Mr. Arifin Ahmad	Head of Section, Sub Directorate of Post-Harvest development, DGFCA
Mr. Masahito Sato	JICA Expert, Bureau of Planning, MOA
Mr. Kiyoshi Sawada	JICA Expert, Bureau of Planning, MOA

2. Japanese Side

Mr. Kiyoaki Komatsu	Chairman of Advisory Committe of the Study
Mr. Naoyuki Kobayashi	Coordinator, JICA
Mr. Masashi Shono	Leader of the Study Team/Institution
Mr. Hisashi Ikewada	Post Harvest Expert
Mr. Fumihiro Nagao	Agricultural Facilities and Machinery Expert