付　表

表 3.1-1　調査地区の人口および農業概況

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.

表3.2-1　調査地区の農業生産現況（1/6）

項　　目	カラワン県 テラガサリ郡	ガンジュック県 バゴール郡	ピンラン県 マティロブル郡	中部ランボン県 トリムルジョ郡
1．土地利用（平均年／ha）				
(1) 水　田　－灌漑	3,960	1,940	3,950	3,900
－天水	-	160	1,380	300
小計	3,960(79%)	2,100(41%)	5,330(33%)	4,200(72%)
(2) 畑　地	20(0.4%)	160(3%)	10,610(66%)	300(5%)
(3) その他	1,020(21%)	2,860(56%)	160(1%)	1,300(22%)
(4) 合　計	5,000(100%)	5,120(100%)	16,100(100%)	5,800(100%)
(5) スプランスス面積比率	灌漑水田の100%	灌漑水田の70%	灌漑水田の約60%	灌漑水田の約85%

2．米生産（1988／89）	乾期	雨期	合計	乾期	雨期	合計	乾期	雨期	合計	乾期	雨期	合計
(1) 灌漑水田												
収穫面積（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
平均収量（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
生産量（10^3 t）	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) 天水田												
収穫面積（ha）	－	－	－	－	160	160	－	540	540	－	300	300
平均収量（t/ha）	－	－	－	－	2.0	2.0	－	1.5	1.5	－	1.5	1.5
生産量（10^3 t）	－	－	－	－	0.4	0.4	－	0.8	0.8	－	0.5	0.5

3．灌漑水田作付体系	乾期	雨期	合計	乾期	雨期	合計	乾期	雨期	合計	乾期	雨期	合計
(1) 水稲作付率（%）	100	100	200	80	90	170	44	100	144	100	100	200
							*乾期作作付率は、過去3年の平均値を取った。（年々増加の傾向にある）			*乾期は3年に1度作付率が50%となる。		
(2) 畑作物作付率（%）－計画	65	－	65	10	60	70	－	－	－	20	－	20
－実績	0.3	－	0.3	10	60	70	－	－	－	2	－	2
				*砂糖きびが全水田面積の10%に植え付けられている。								
(3) 水稲収穫期－計画	7月	2/25-3/25		7/18-8/5	3/7-3/30		8/15-9/15	2/15-3/15		8/15-9/15	4月	
	(1ヵ月)	(1ヵ月)		(0.8ヵ月)	(0.8ヵ月)		(1.0ヵ月)	(1.0ヵ月)		(1ヵ月)	(1ヵ月)	
－実績	7/10-8/25	2/15-3/30		7/18-8/10	3/4-4/10		8/3-9/15	2/15-3/30		8/7-9/20	3/15-5/15	
	(1.5ヵ月)	(1.5ヵ月)		(0.9ヵ月)	(1.3ヵ月)		(1.4ヵ月)	(1.5ヵ月)		(1.5ヵ月)	(2ヵ月)	

表3.2-1　調査地区の農業生産現況（2/6）

項　目	カラワン県 テラガサリ郡	ガンジュック県 バゴール郡	ビンラン県 マティロブル郡	中部ランポン県 トリムルジョ郡
(4) 総　括	a.約75%の農民は計画にしたがった適期作業の遂行が出来ていない。 b.雨期収穫期の遅れは、作付時期の遅れ（不適切な水管理による用水不足）と収穫労働力の不足の相乗的結果である。	a.約60%の農民は計画にしたがった耕種法、適期作業を行っている。 b.乾期作の耕起と移植が労働力不足によって遅延する。	a.大規模土地所有者は乾期作を計画に従わないでとりやめる例が多く、低作付率の一因となっている。 b.雨期作の作付の遅れは、耕起の労働力不足、前乾期作の遅れ（ネズミの害の回避を目的）に起因する。	a.乾期作の作付の遅れは、主に耕起作業の畜力不足と水不足に起因する。 b.雨期作の作付の遅れは、耕起の畜力不足と灌漑用水不足に起因する。
4. 耕種法	乾期　雨期	乾期　雨期	乾期　雨期	乾期　雨期
(1) 品種－計画	IR64　チサダネ	IR36　IR64	IR64　IR36/42	IR64　チサダネ
－実績	IR64((100%)　チサダネ(90%) IR64　(10%)	IR36(100%)　IR64(100%)	IR64(100%)　IR36(80%) IR42(20%)	IR64　チサダネ(20%) IR64/42 (80%)*
	*雨期の奨励品種は耐病性の高いチサダネである。農民は収量の高いIR64の栽培を好む。			*雨期の奨励品種は耐病性の高いチサダネである。農民は収量の高いIR64の栽培を好む。
－検定種子利用(%)	98　98	59　98	80　90	62　62
(2) 肥　料－実績	約40%の農民は特に硫酸アンモニウム投入が不十分。	ほぼ計画施用量と同量の施用がなされている。雨期作に5ton/ha の有機質肥料の投入が奨励されているが実績は40%程度。	一般に硫安、塩化カリの施用量が不足（計画の8%及び16%）している。	約60%の農民は尿素肥料の投入が不十分
(3) 農　薬－実績	主に農薬配布の遅れのため、農薬投入が不十分。	殺虫剤関係は、ほぼ計画通り施用されている。殺鼠剤は計画通り施用されていない。ホルモン剤はヒトラシルのみ施用。	殺虫剤は、計画施用量の30%程度施用。殺鼠剤は価格が高いため農民が使用していない。殺菌剤は奨励されているが、使用は少ない。ホルモン剤はシトシンのみ使用されている。	a.農薬投入量はほぼ計画通り。約65%の農民は、病害虫の観察が不十分

表3.2-1　調査地区の農業生産現況（3/6）

項　　目	カラワン県 テラガサリ郡	ガンジュック県 パゴール郡	ビンラン県 マティロブル郡	中部ランポン県 トリムルジョ郡
5．作業体系				
(1) 耕起・代かき	ハンドトラクターによる賃耕が大半。 （牛耕はほとんど行われていない。）	ハンドトラクターによる賃耕が大半。 オペレーターは在村の農業労働者である。1haを1日で完了。	ハンドトラクターによる賃耕と動力耕が半々。オペレータは在村の農業労働者である。 作業効率は1日あたり0.6ha。	a.牛耕が大半（一部ハンドトラクターによる賃耕が始まっている）。 b.耕起作業が不十分である（約20%の農民）。
(2) 移植作業	農業労働者グループ（20－40名）の請負い。主に在村労働者グループと自作・小作は契約している。	1ha当り、約20名の女性労働者によって1日で完了する。 契約は農民グループと在村の労働者間で結ばれる。	ゴトンロヨン方式により、家族労働者を提供し合っている。 作業効率は1ha当り約20名の女性を中心とした労働力によって1日で完了する。	在村移植グループ（女性10名と男性 2名。在村の自作、小作、農業労働者で構成）の請負い。 農民・農民グループの相互扶助的性格が大（ゴットンロヨン）。
(3) 除草作業	a.指導通り2回以上の除草を行っている。 b.収穫がチェブロカンの場合、労働者が無償で行う。グロビヨカンの場合、労働者の請負い作業（有償）として行う。 c.自作、小作が自ら行うことは稀。	在村の農業労働者の請負い作業（有償）として実施される。自作、小作農が行うことは稀である。	自作・小作が自ら実施するケースが多い。 労働力不足分は、ゴトンロヨン方式による農家間の労働力交換で補われている。	a.指導通り2回以上の除草を行っている。 b.自作、小作人と、他の在村農民（12名/ha/回）が共同で行う。他の農民には賃金が支払われる。 c.農民・農民グループの相互援助（ゴットンロヨン）の性格大。
(4) 肥料・農薬の投入	農業労働者の請負い作業（有償）が一般的。	自作、小作が自ら行うことが多い。投入方法・時期等手順については、普及所の指導が守られている。	自作、小作が自ら行うことが多い。投入方法・時期等手順については、普及所の指導が守られている。	自作・小作人自身が行っている。

表3.2-1　調査地区の農業生産現況（4/6）

項　　目	カラワン県 テラガサリ郡	ガンジュック県 バゴール郡	ビンラン県 マティロブル郡	中部ランポン県 トリムルジョ郡
(5) 収穫作業				
1) 方式（面積比率）	グロビヨカン（10－20%） チェブロカン（80－90%）	グロビヨカン（50%） 請負い方式（50%）	グロビヨカン（40%） 請負い方式（60%）	グロビヨカン（90%） チェブロカン（10%）
2) 分配率	両システムとも収穫物の1/7 。	グロビヨカンの場合収穫物の1/7 、請負い方式の場合kg当り20RP。	グロビヨカンの場合収穫物の1/11、請負い方式の場合kg当り15RP。	両システムとも収穫物の1/7
3) 作業手順	1.刈取り（中刈り）。 2.稲束（2-3 株分）を切株上に置く。 3.稲束を収集し畔上に集積。 （午前中刈取った場合午後、午後刈取った場合翌日行う。） 4.畔上に集積した稲束を圃場内の脱穀する場所に再び集積。 5.叩きつけによる脱穀。 －ビニールシート（3.6x2.5m）上。 －竹と木で出来た台に叩きつける。 6.ビニールシート上での風選。 －箕の使用。 －不十分で夾雑物が多い。 7.籾の袋締め 8.幹線道への運搬 －背負い －１袋(75-90kg)/回 9.自転車、力車による農家庭先への運搬、庭先での分配。 9'.道端での分配、仲買人への販売	1.刈取りは普通鎌を用いた中～下刈り（切株12-15cm）。男性労働者が行っている。 2.35－40株ごとに仮り置きする（平均７株を一回の刈取で収穫する）。 3.一筆ごとに稲束を収集し、脱穀場（同一圃場中心部）に集積する。 4.その日の内に脱穀。 5.足踏み脱穀機（８割）と叩きつけによる脱穀。全て農業労働者が行っている。 －足踏み脱穀には、5mx5mのシートを使用している。 －足踏脱穀を所有していない農家は、１日500Rp で借用している。 －男性労働者２名が足踏脱穀機一代を利用して作業している。 6.シート上で風選。 7.籾の袋詰め（１袋70～80kgの麻袋）。	1.刈取りは普通鎌を用いた中～下刈り（切株12-15cm）。男性労働者が行っている。 2.120 株ごとに仮り置きする（平均６株を一回の刈取で収穫する）。 3.一筆内の刈取稲束を３～４等分し、同一圃場内に集積する。 4.刈取の翌日に脱穀する。 5.脱穀は叩きつけが主体。主に女性が行っている。 －ビニールシート（2.8mx2.1m） －竹と木で出来た台に叩きつける。 6.シート上で風選。 7.籾の袋詰め（１袋90kgのビニール袋）。 8.幹線道わきに設けられている共同集出荷場まで運搬。 －馬による運搬が主。コストは２km以下で11Rp/km、２km以上で13-15Rp/km。	1.刈取り（中刈り）。 2.稲束（2-3 株分）を切株上に置く。 3.稲束を収集し畔上に集積。 （午前中刈取った場合午後、午後刈取った場合翌日行う。） 4.畔上に集積した稲束を圃場内の脱穀する場所に再び集積。 5.足踏み脱穀機（１割）と叩きつけによる脱穀。 －足踏み脱穀機は木製で自家製。 －収穫労働参加農民個々による脱穀機の所有と利用（家族員のグループで利用）。 －ビニールシート（5x5m） －竹と木で出来た台に叩きつける。 6.ビニールシート上での風選。 －箕の使用。 －不十分で夾雑物が多い。 7.籾の袋詰め。

表3.2-1　調査地区の農業生産現況（5/6）

項　目	カラワン県 テラガサリ郡	ガンジュック県 バゴール郡	ビンラン県 マティロブル郡	中部ランボン県 トリムルジョ郡
		8.圃場から道路へは全て人力で運搬。圃場から農家庭先へは農道の整っている地区（20%）では、500kg容量の人力荷車で、整っていない所は自転車で運搬。 9.1～8までの作業効率は、10人で1日0.3lha（籾2.5 ton）、4人で1日0.125ha籾1.0ton）。	一一回の運搬で4袋（360kgが運べる（馬2頭×2袋×90kg）。 9.共同集出荷場から、直接出荷する例が多い（特に雨期）。	8.幹線道、農家庭先への運搬。 －圃場内の農道を利用し、自転車で運搬（2-3 袋／回） 9.農家庭先での分配。 9'道端での分配、仲買人への販売は少ない。
4）総　括	a.雨期収穫時に、多雨、長雨の影響で労働力不足となる。（適期収穫が困難） b.乾期収穫時は、労働力不足は生じていない。 c.雨期収穫作業は、圃場排水が不良で、各作業が効率的に行えず、収穫損失、籾品質低下の原因となっている。	a.労働者在村地区（47%）では、労働力不足は起こらないが、それ以外は在村地区の各作業が終了してから労働力が有効となるので、特に雨期収穫、乾期耕起時に労働力不足となる。 b.足踏脱穀の導入に伴ない、女性労働力の収穫期作業機会が減少している。	a.大規模土地所有者は、小規模土地所有者・小作人等の労働力を収穫期に確保し、請負方式で報酬を与えている。また、自作農の家族労働力、他村に在住する農業労働者（わずかである）の手を借りる場合がある。農業労働力の絶対数が不足している。 b.耕起作業が遅れがちであり、これは主に、用水不足と労働者不足による。	a.雨期収穫時は慢性的に労働力が不足する（適期収穫が困難）。 b.乾期収穫時は、天水農業地域からの労働力が導入可能となり、労力不足はない（親類縁者が大半）。 c.雨期収穫作業は、圃場排水が不良で、各作業が効率的に行えず、収穫損失、籾品質低下の原因となっている。

表3.2-1　調査地区の農業生産現況（6/6）

項　目	カラワン県 テラガサリ郡	ガンジュック県 バゴール郡	ビンラン県 マティロブル郡	中部ランポン県 トリムルジョ郡
6. 水管理（3次水路以下）				
(1) 責任者	a.村役場の水管理責任者(Uru Uru)と数名の水管理人（農業労働者）。 ※水管理組合(P3A)の組合長は農民が選出。Uru Uruと同一人物の場合が多い。	a.村単位で組織化。村内の農民グループから各1名ずつ水管理責任者を選出。内1名を水管理組合(HIPPA)の代表責任者としている。水管理組合の1ユニットは農民グループの圃場地区と同一。	a.水管理組合(P3A)が組織されている。農民グループ内で水管理責任者を選出している。グループリーダーが責任者となる場合が多い。 b.P3Aは、農民グループと同一組織であるため、農民グループの名称に末端灌漑ブロック名が使われる場合が多い。	a.村役場の水管理責任者(III III)と数名の水管理人（農民）。 ※P3Aは未組織。
(2) 水管理	a.水管理人が3次水路のゲート開閉を行う（4次水路は未整備）。 b.田越し、灌漑地区は、農民間で調整（田越し地区が多く、調整が不十分のため、末端水田は用水不足になりやすい）。	a.水管理人が3次水路のゲートの開閉を実施。 b.各農民グループは、灌漑水田をブロック（5～7ha単位）に分け、作付スケジュールと排水スケジュール（田越しが主体）を計画している。乾期には、ブロックごとに作目を決定し、用水配分を行っている。	a.水管理人が3次水路のゲートの開閉を実施。 b.田越し灌漑。 c.雨期に一部排水不良の田が有る。乾期に一部圃場のレベルが高く、水掛りの悪い地区がある。 d.乾期の用水配分が必ずしも平等でなく、水不足の激しい地区では休閑地が多い。	a.水管理人が3次・4次水路ゲート開閉を行う。 b.田越し灌漑地区は、農民間で調整（地形に起伏があり、田越し地区が限定されているため、農民間の調整も容易）。
(3) 維持管理	a.水管理組合が活発な地区では、農民グループによる3次水路補修が行われている（労働力の無償提供／各シーズン灌漑開始前）。 b.水管理組合の活動は、一般に低調であり、3次水路の補修は不十分。 c.4次水路が建設された地区も、大半の水路が土に埋まり、機能していない。	a.水路（1次～3次）の維持管理は良く行われている。	a.農民グループが自主的に三次、四次水路の維持管理を行っている。	a.3次・4次水路の補修は農民グループによって行われている（労働力の無償提供／各シーズン灌漑開始前と、必要に応じて行う）。 b.3次・4次水路の維持管理は一般的に良好。
(4) 水管理費	a.15－20kg（籾）/シーズン/ha b.毎シーズン収穫期に徴収されている。主に水管理責任者と水管理人の給与として支出。	a.約3,000Rp／年／ha	a.25kg（籾）／ha／年	a.15－20kg（籾）/シーズン/ha b.毎シーズン収穫期に徴収されている。給与の他、補修経費（セメント，石代金）として支出。

表 5.2-1　調査地区における籾生産

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.

表 5.4-1　機器および施設の必要数

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

表 5.5-1　農民グループの組織計画

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						Branch - IV
a. 1	6.0	10				
a. 2	9.5	15	WU-IV-a	15.5	25	4 working units
Sub-total	15.5	25				42.0 ha of paddy field
Block - V						71 member farmers
b. 1	10.0	16	WU-IV-b	10.0	16	
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.

表 6.2-1　パイロット計画の事業費

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.

表 6.2-2　機器および施設の更新費

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

表 6.3-1　サービスセンターの概算事業費

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

表 7.1-1　労働力・畜力および機器利用経費

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

表 7.2-1　事業を実施した場合およびしない場合の作物経済収支

(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

表 7.2-2　事業を実施した場合およびしない場合の農家経済　(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

表 7.2-2　事業を実施した場合およびしない場合の農家経済　(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

表 7.2-3　農民グループの資金繰り表 (1/4) [テラガサリ]

(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.

表 7.2-3　農民グループの資金繰り表 (2/4) [バゴール]

(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.

表 7.2-3　農民グループの資金繰り表 (3/4) [マティロプル]

(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.

表 7.2-3　農民グループの資金繰り表 (4/4) [トリムルジョ]

(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.

表 7.3-1　パイロット計画の経済便益算定

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

表 7.3-2　パイロット計画の内部経済収益率計算表 (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	Quantitative Benefit	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	Quantitative Benefit	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.

表 7.3-2　パイロット計画の内部経済収益率計算表 (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.

付　図

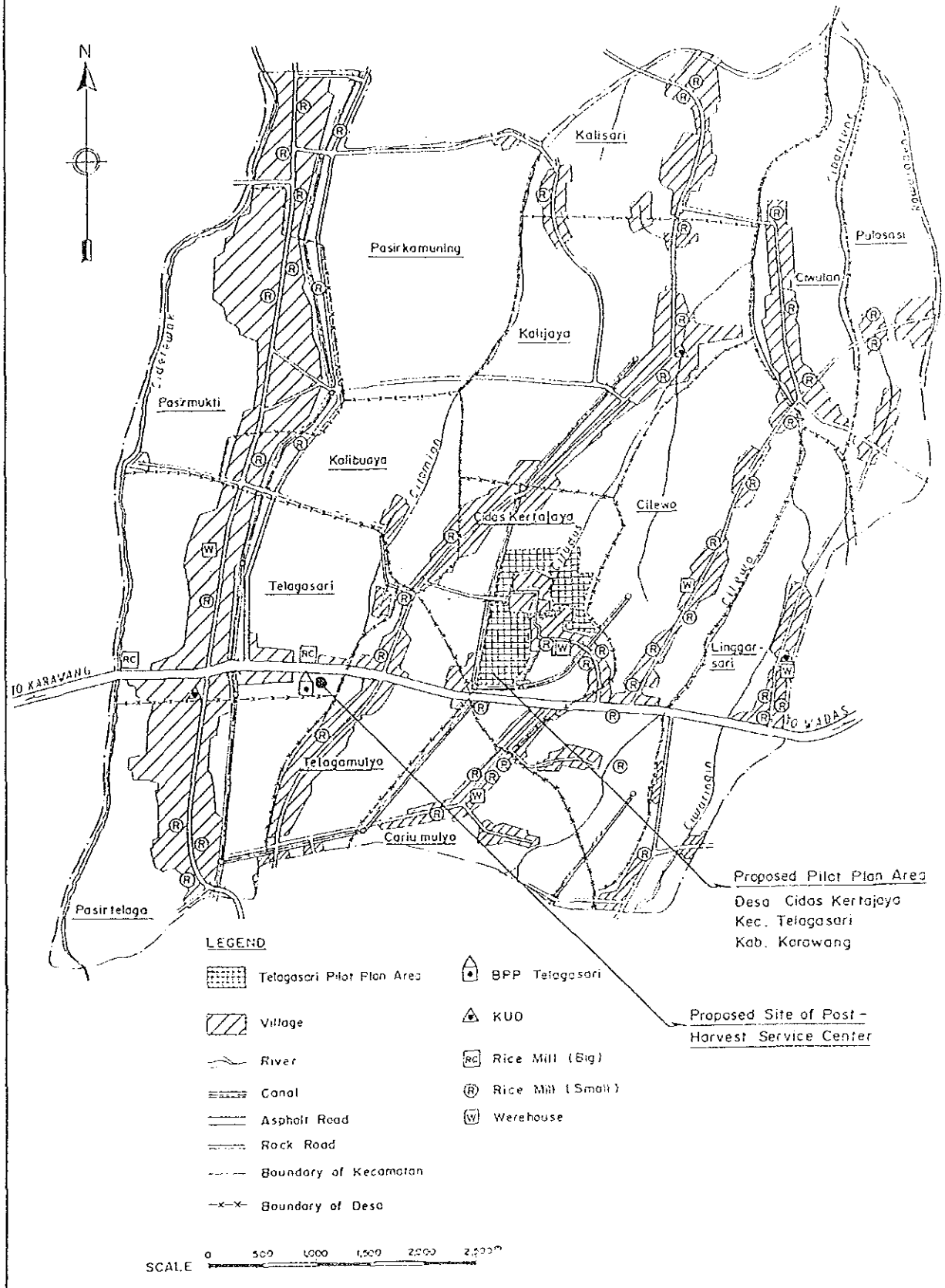


図 3.1-1　調 査 地 区 概 要 図 (1/4) [テラガサリ]

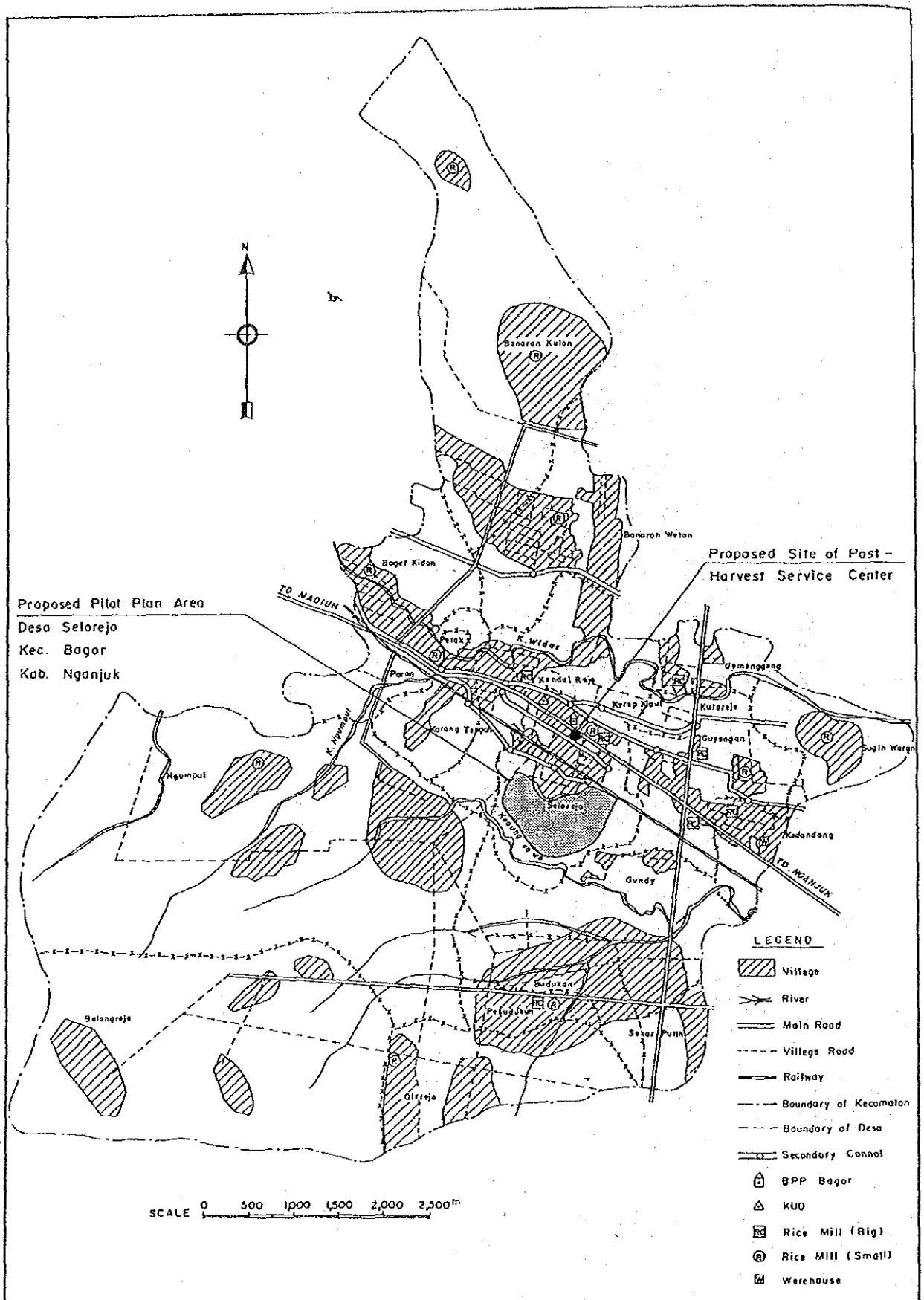


図 3.1-1　調 査 地 区 概 要 図 (2/4) [バ ゴ ー ル]

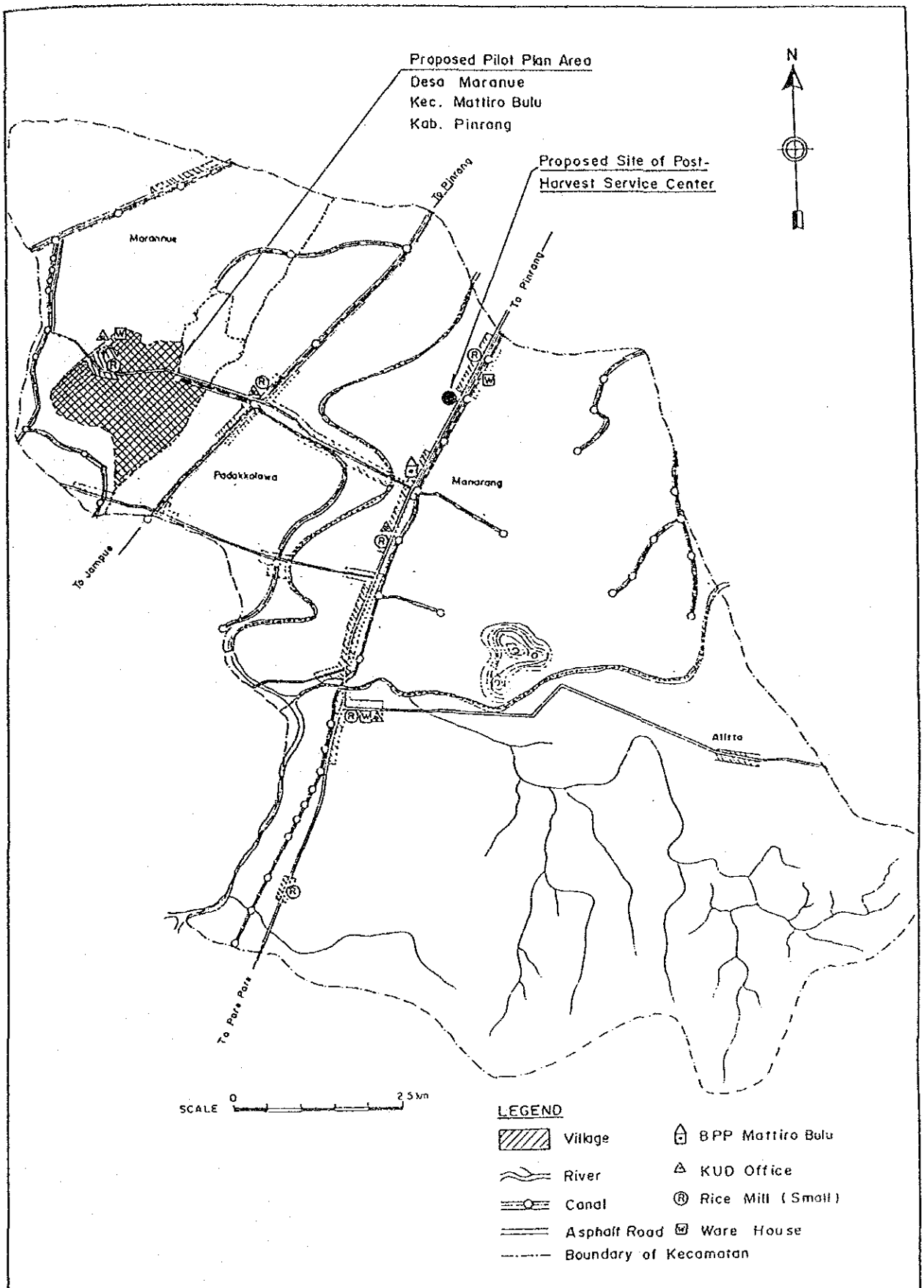


図 3.1-1　調 査 地 区 概 要 図 (3/4) [マティロブル]

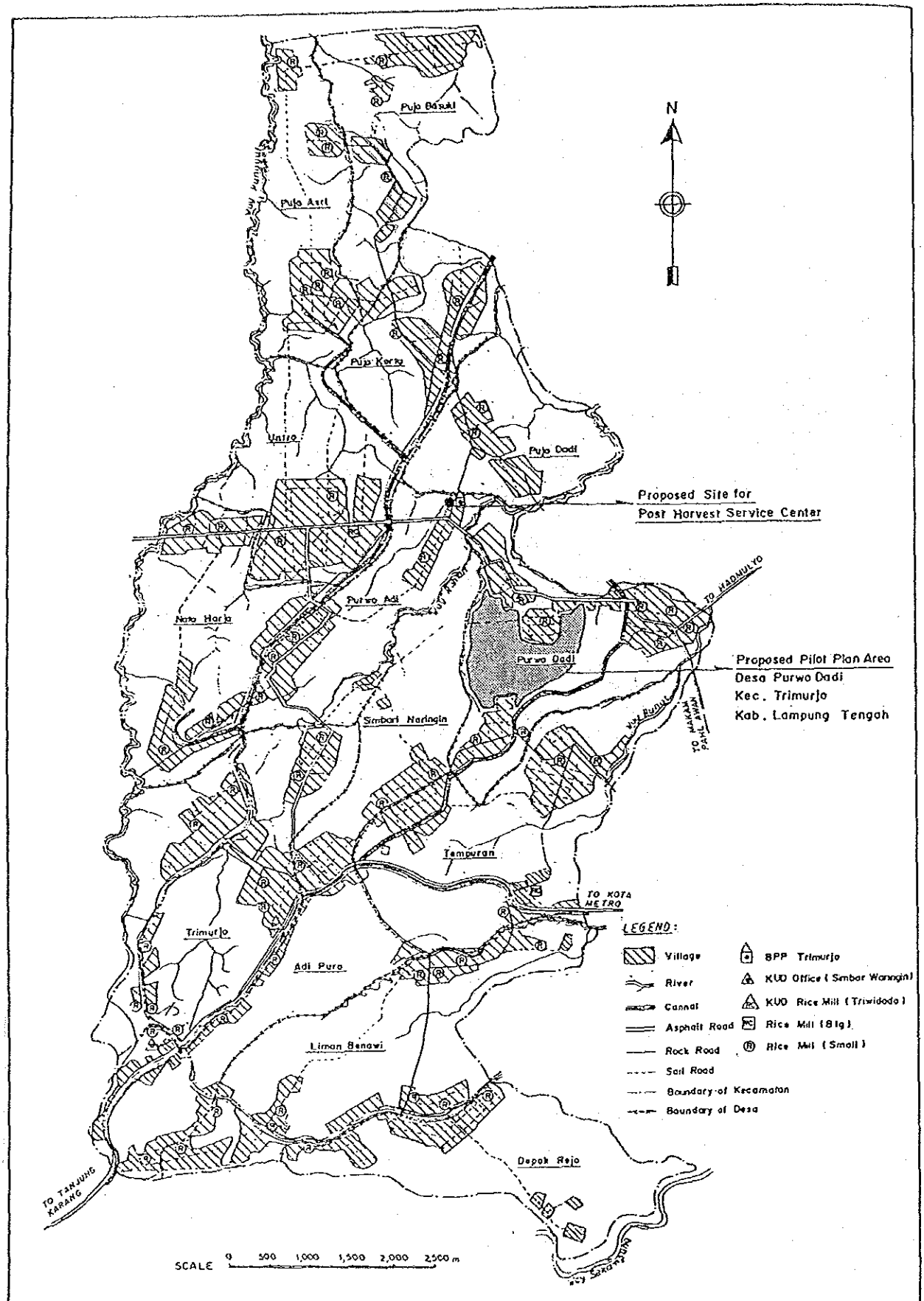


図 3.1-1　調 査 地 区 概 要 図 (4/4) [トリムルジョ]

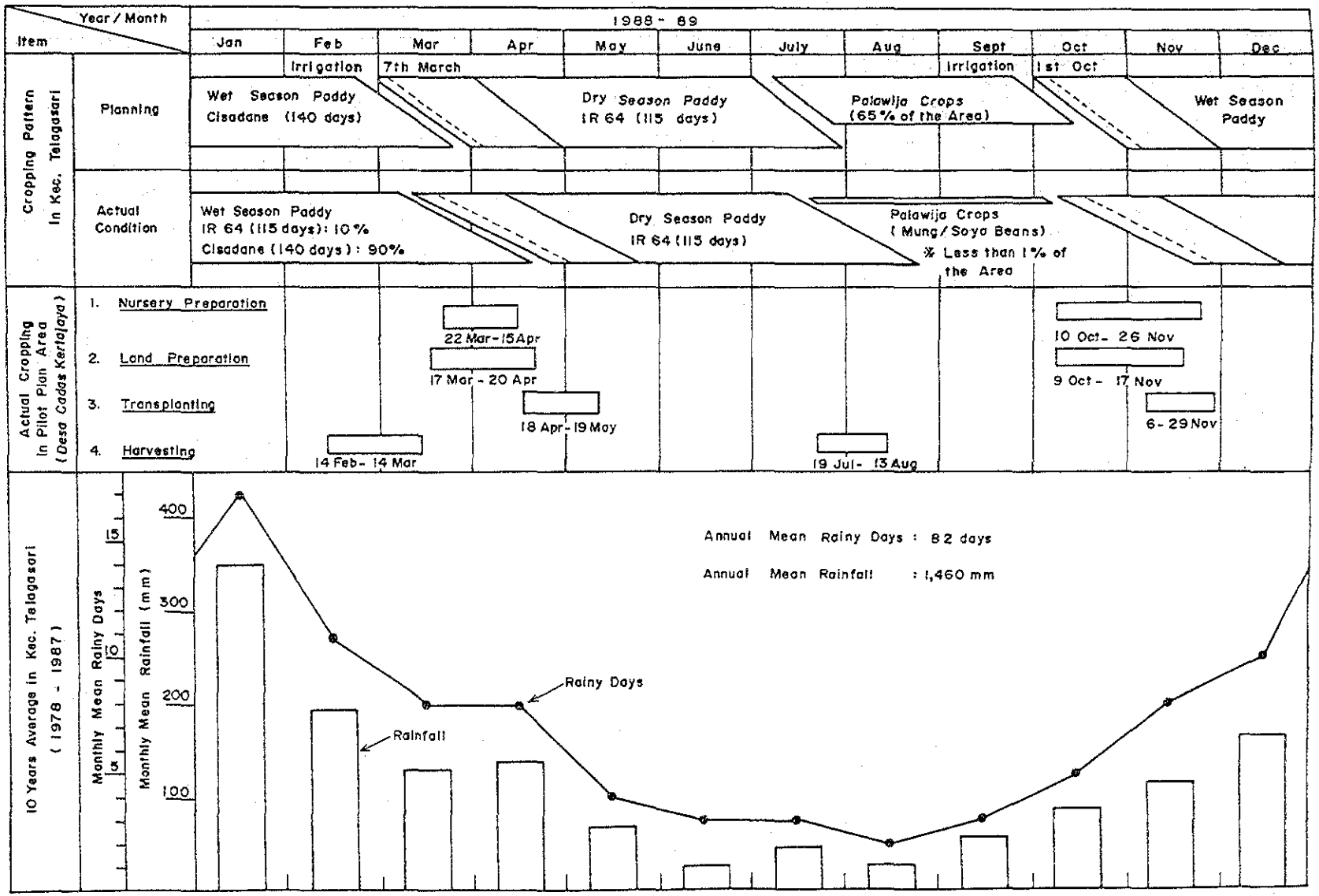


図 3.2-1　調査地区における作付体系および降雨状況 (1/4) [テラガサリ]

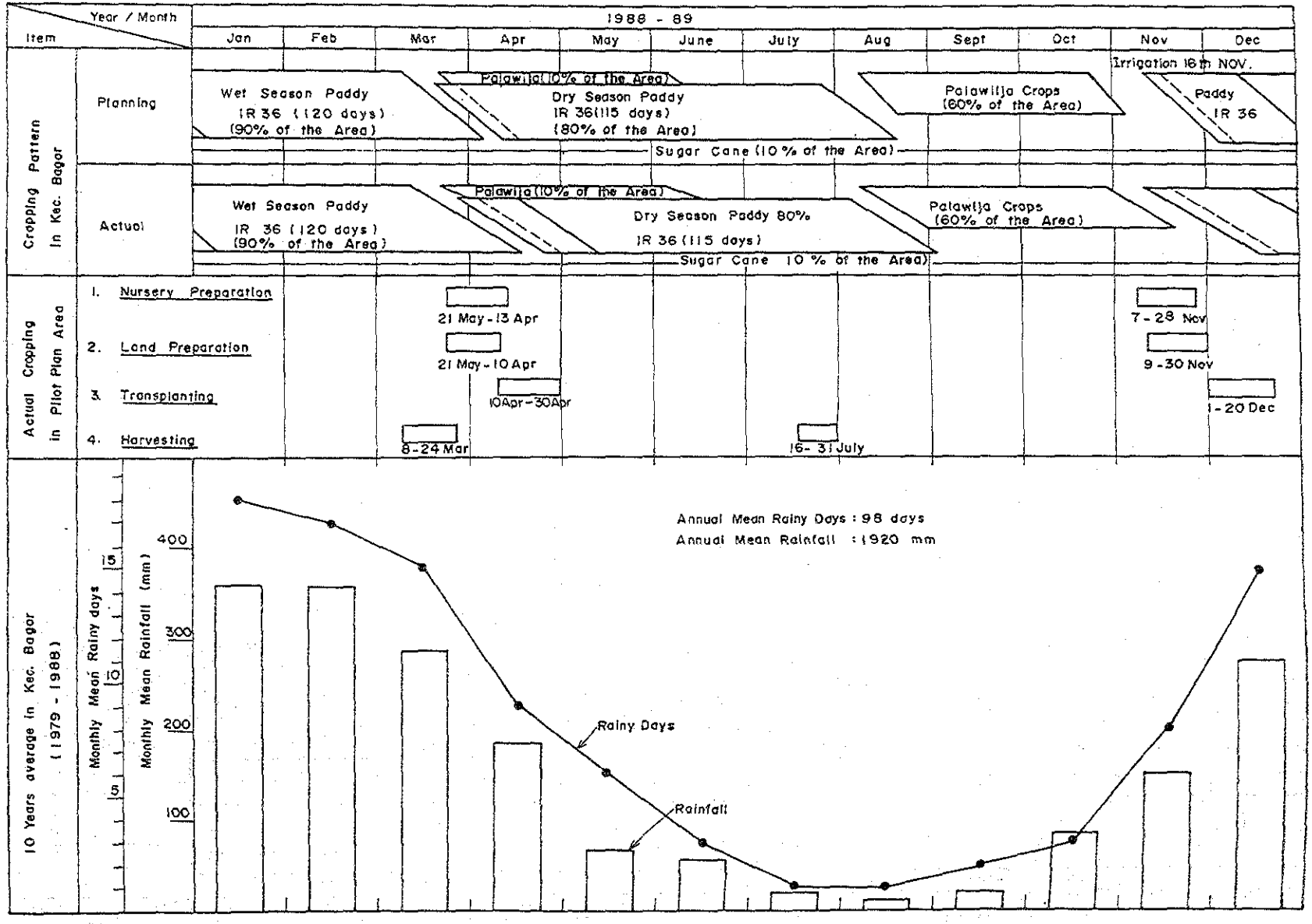


図 3.2-1　調査地区における作付体系および降雨状況 (2/4) [バ ゴ ー ル]

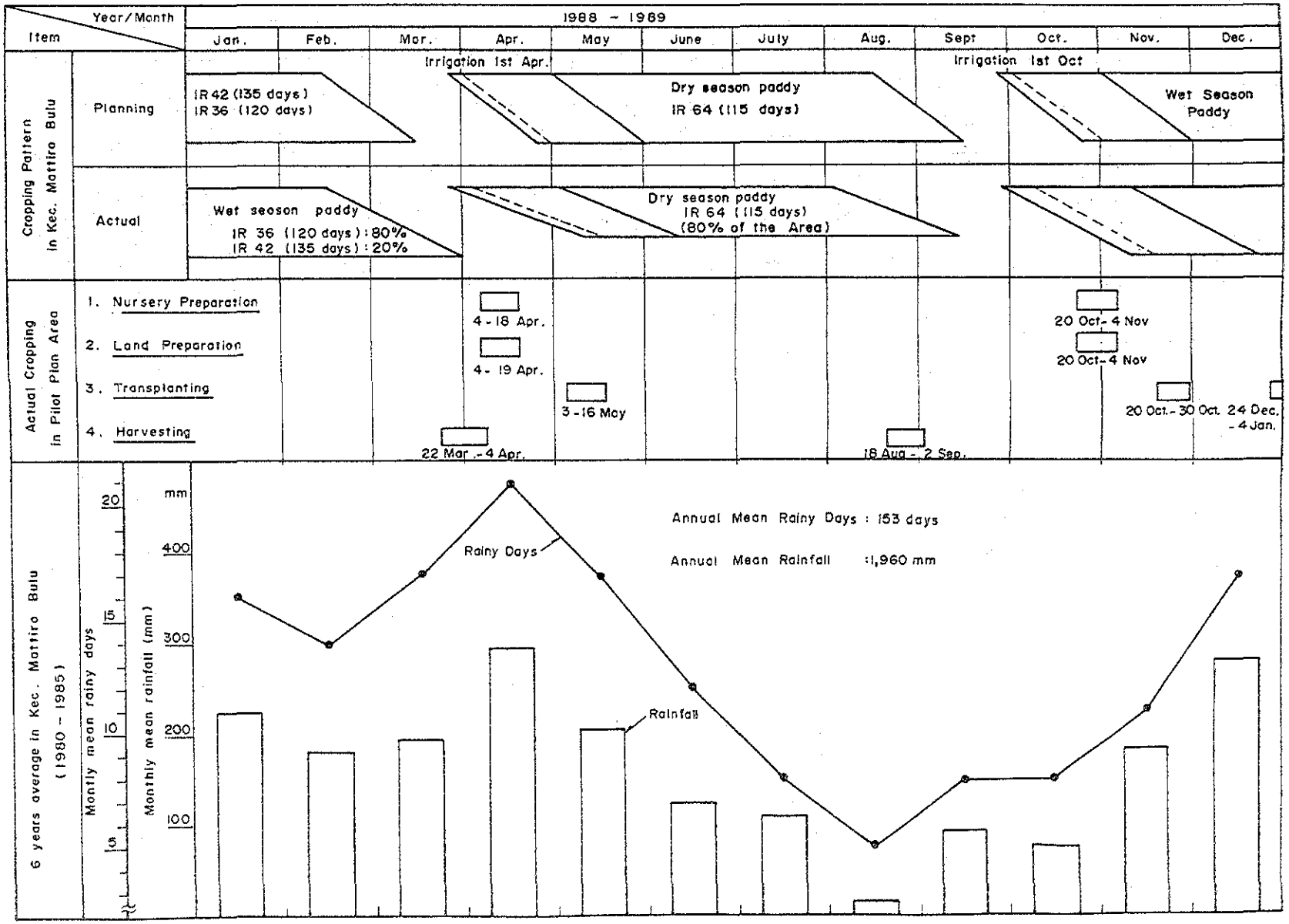


図 3.2-1　調査地区における作付体系および降雨状況 (3/4) ［マティロプル］

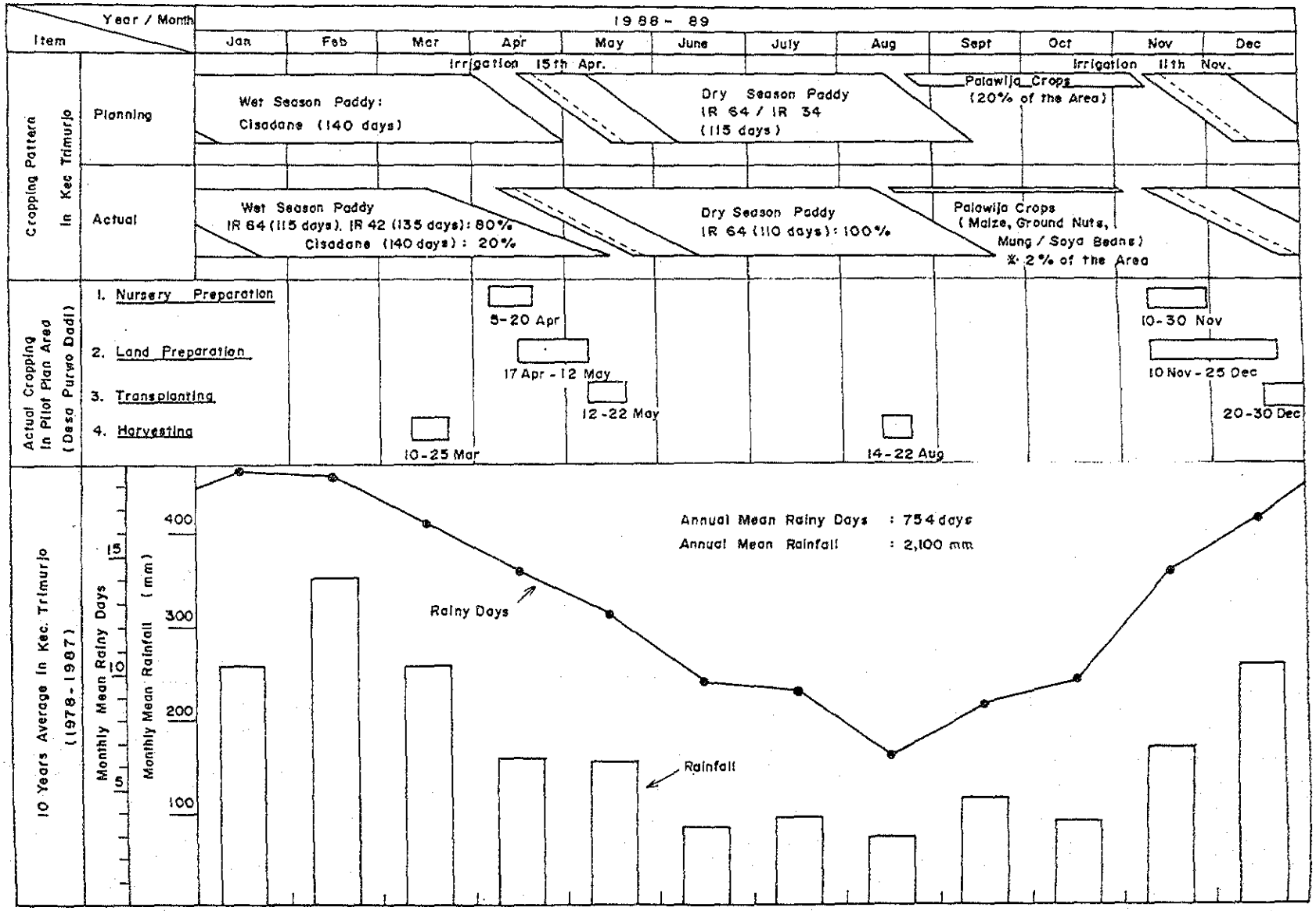


図 3.2-1　調査地区における作付体系および降雨状況 (4/4) [トリムルジョ]

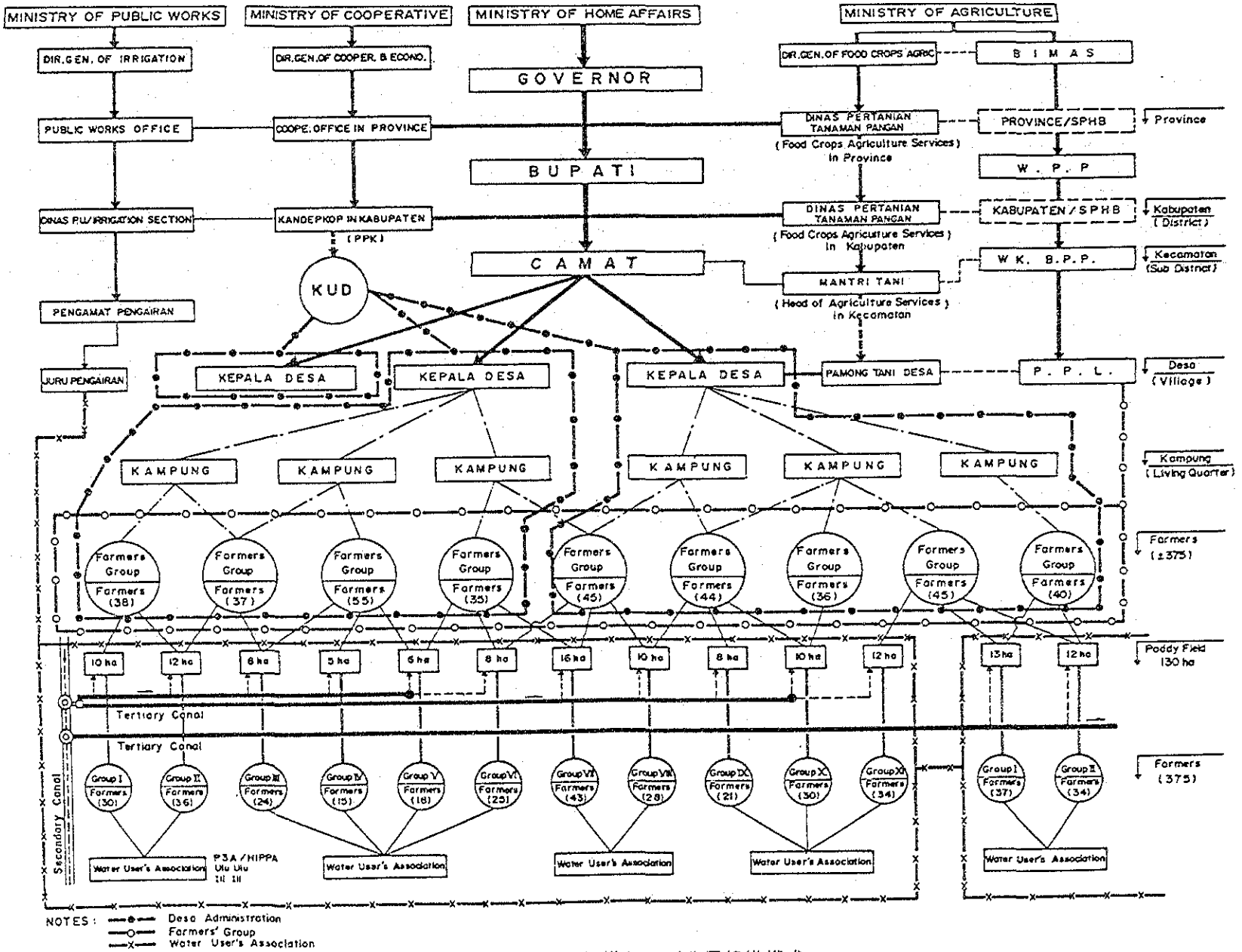


図 3.4-1　政府関連組織および農民組織構成

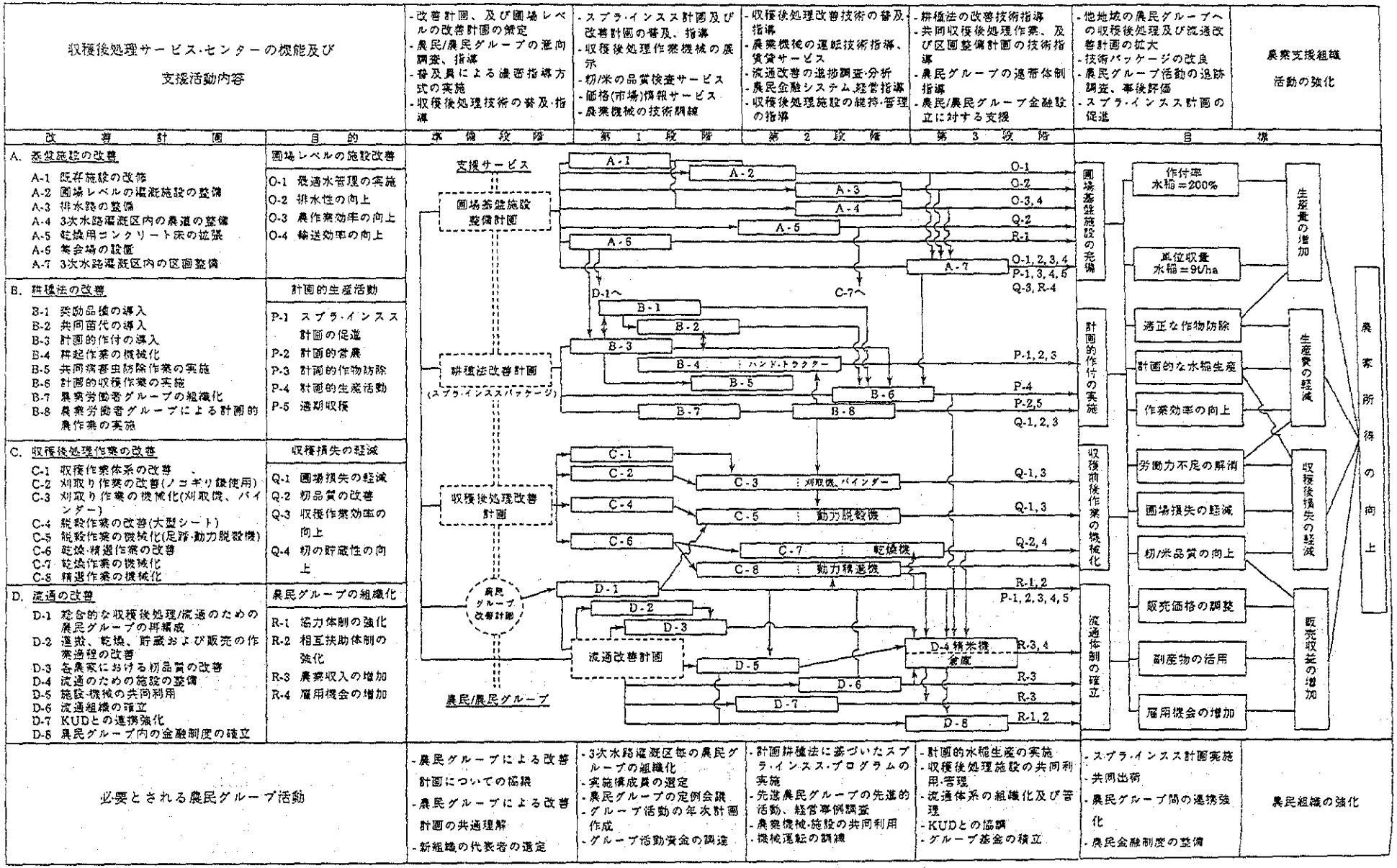


図 4.5-1 農民グループの収穫前/後処理及び流通改善技術パッケージ

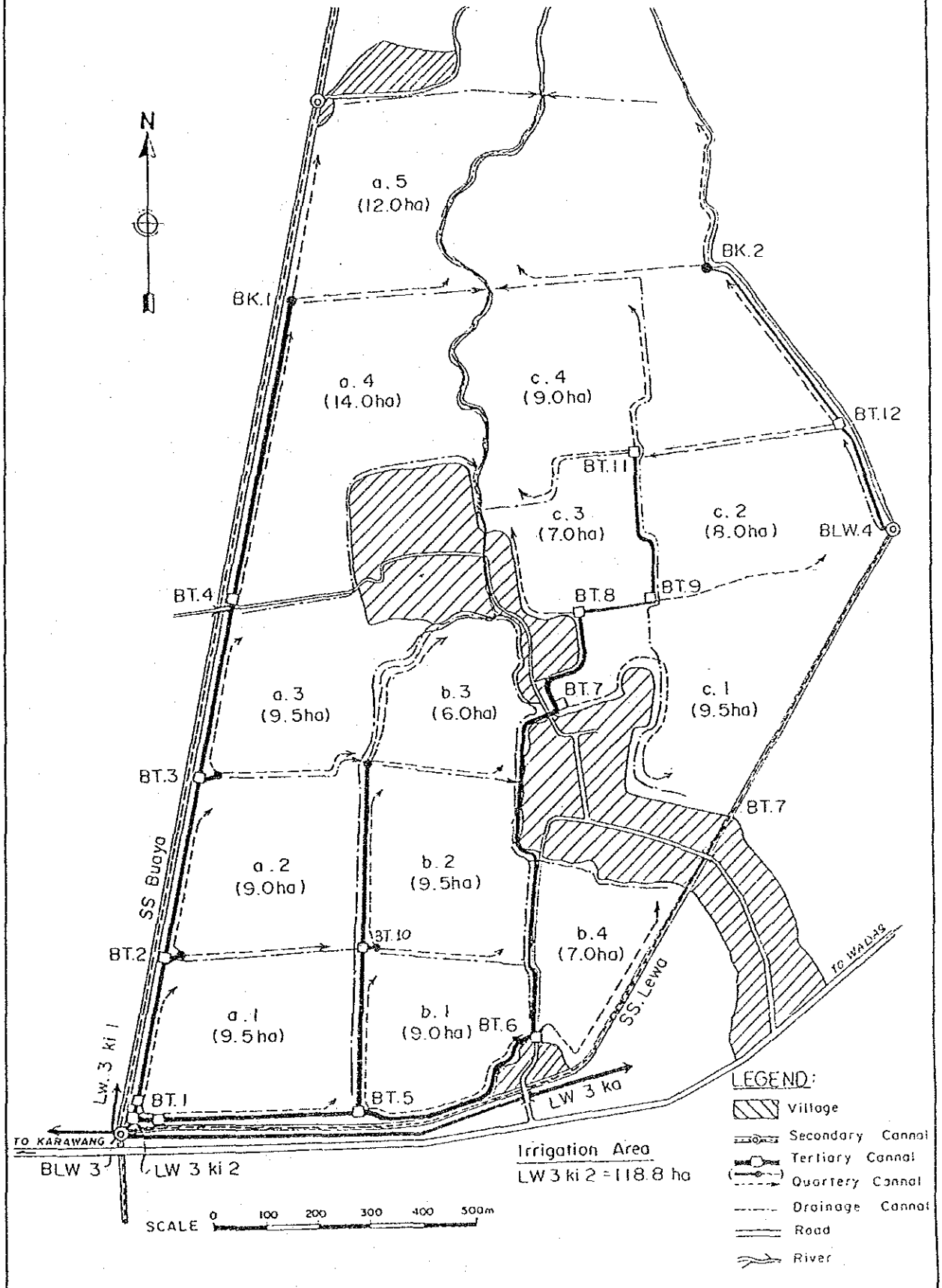


図 5.1-1　パイロット地区概要図 (1/4) [テラガサリ]

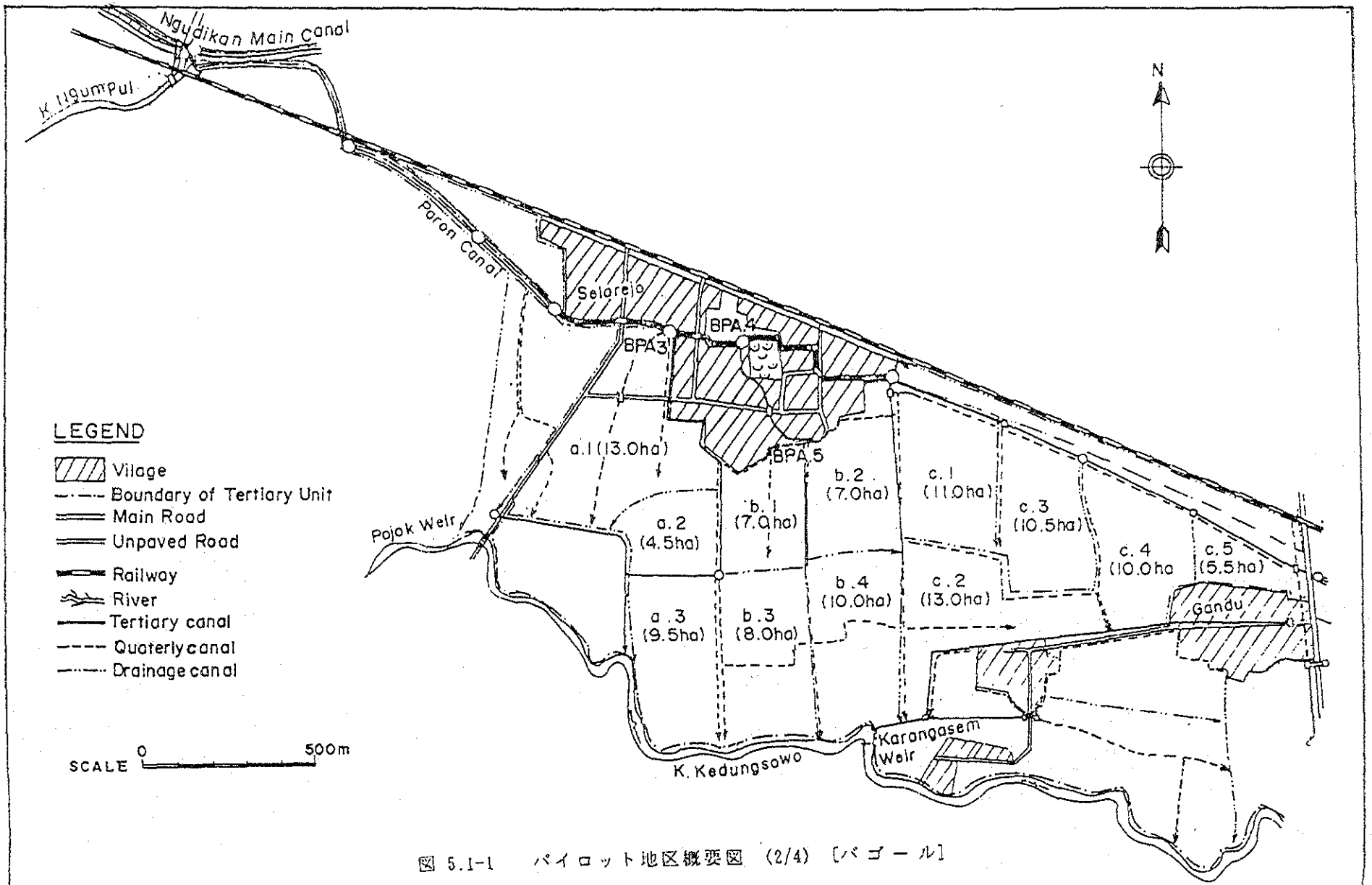


図 5.1-1　パイロット地区概要図 (2/4) [パゴール]

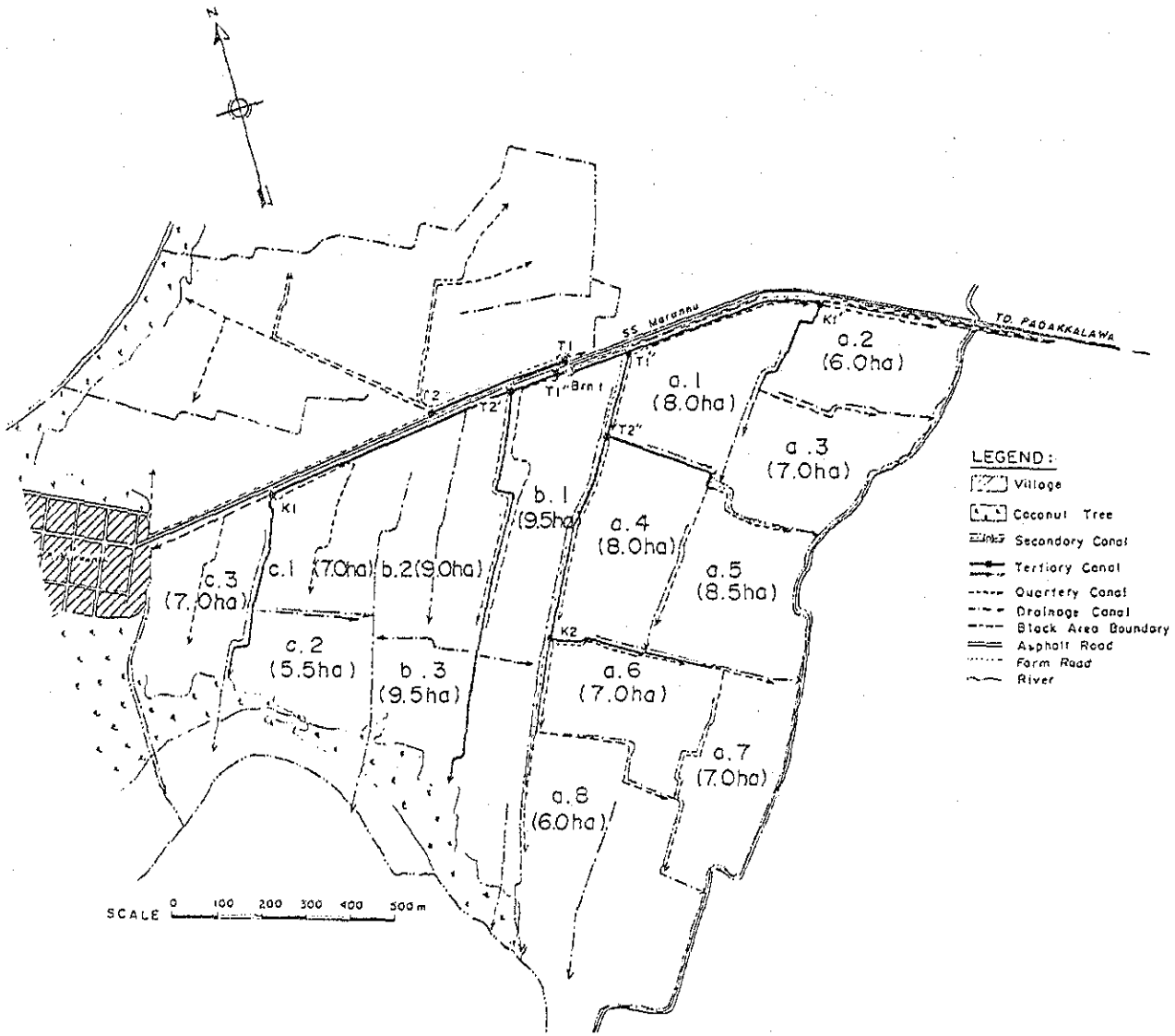


図 5.1-1　パイロット地区概要図 (3/4) [マティロプル]

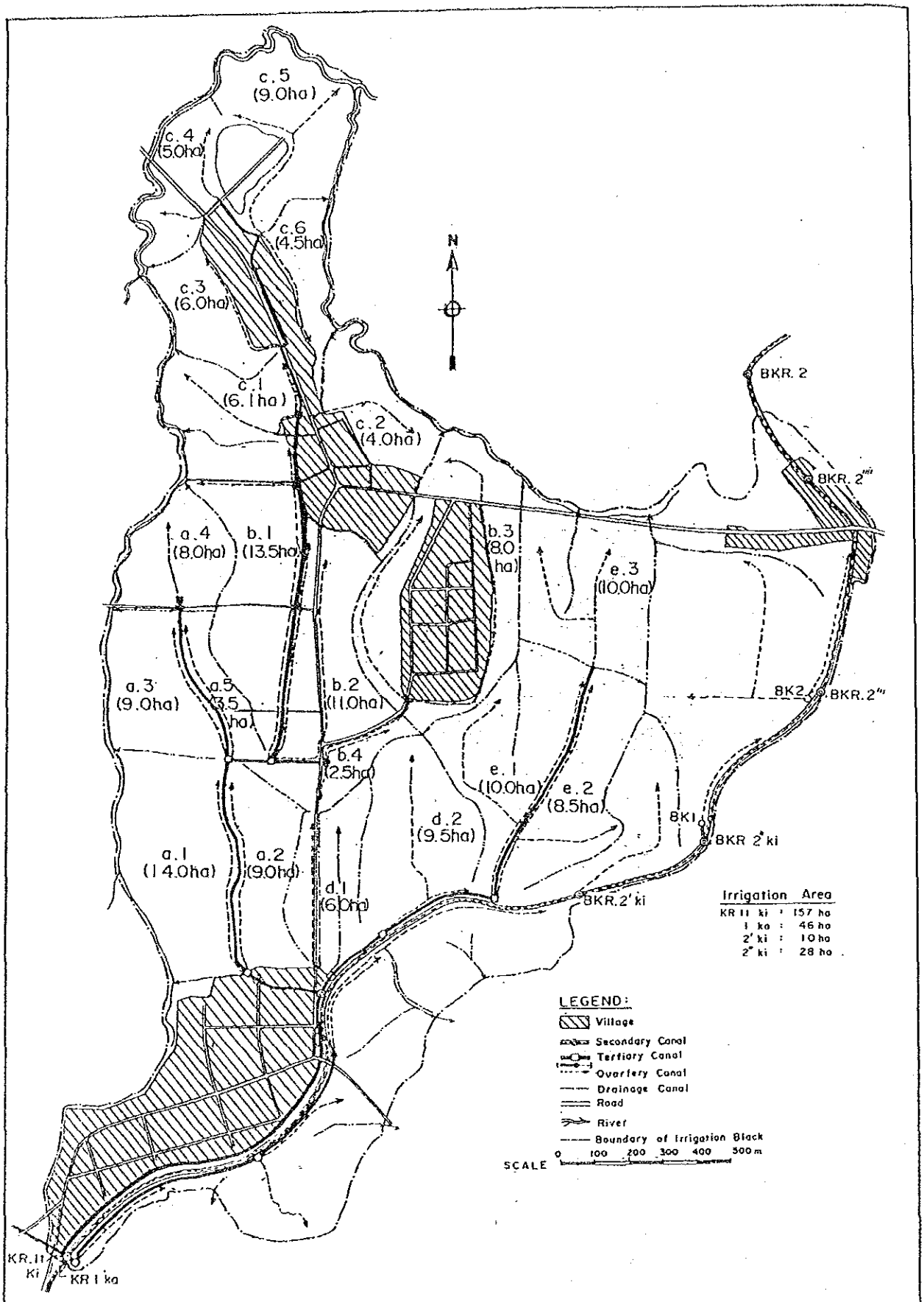


図 5.1-1　パイロット地区概要図 (4/4) [トリムルジョ]

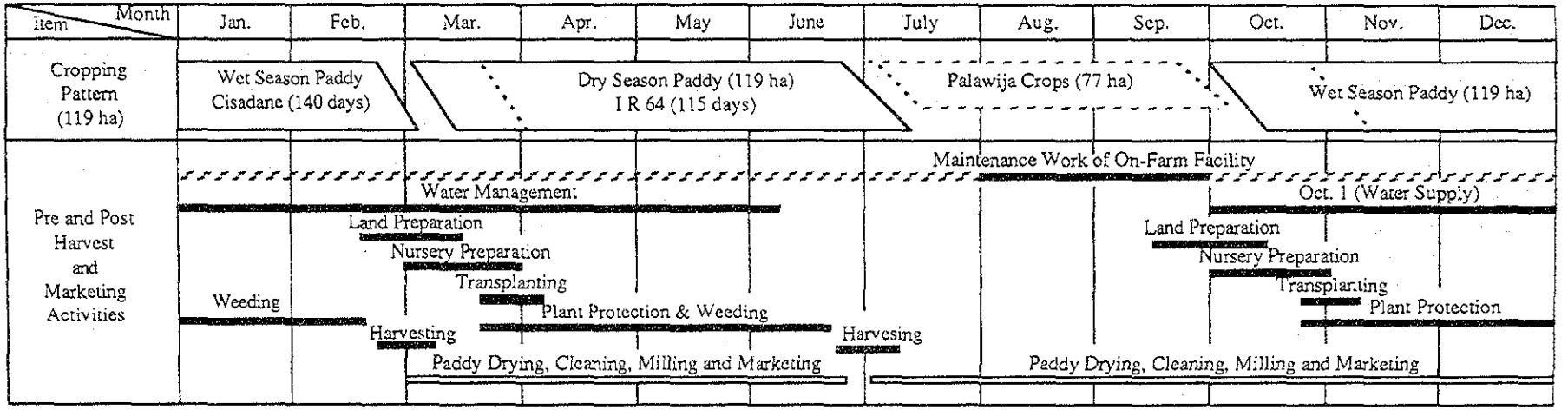


図 5.3-1　事業を実施した場合の作付体系および農民グループ活動計画　(1/4)　[テラガサリ]

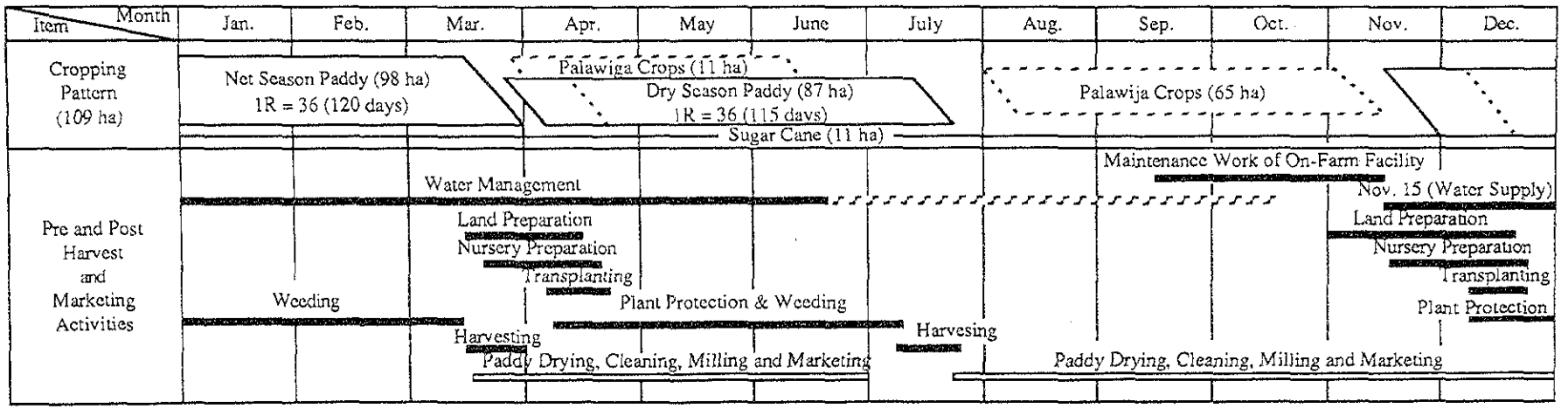


図 5.3-1　事業を実施した場合の作付体系および農民グループ活動計画　(2/4)　[バゴール]

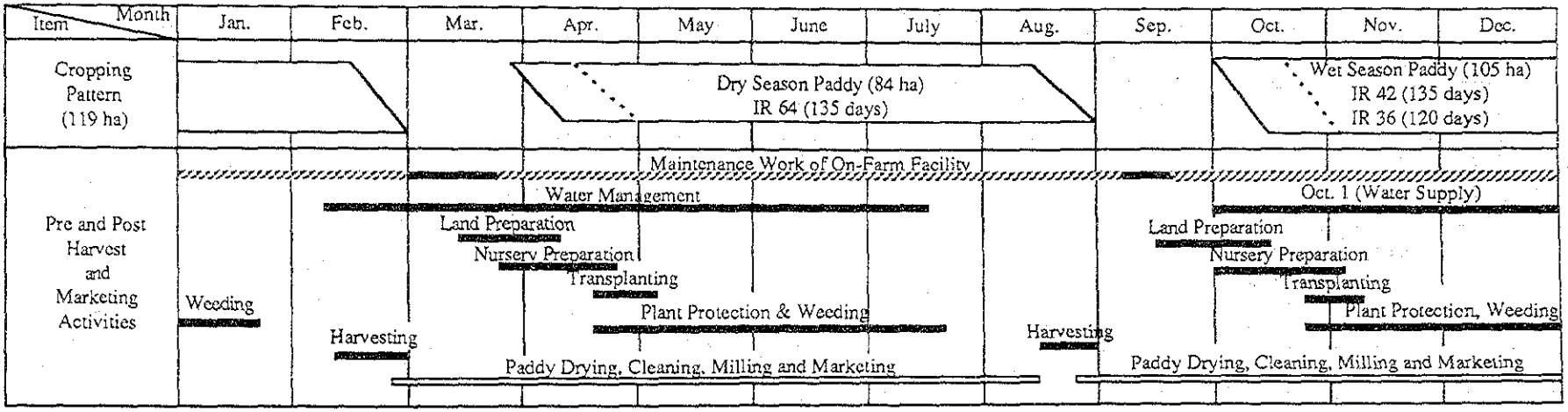


図 5.3-1　事業を実施した場合の作付体系および農民グループ活動計画　(3/4)　[マティロブル]

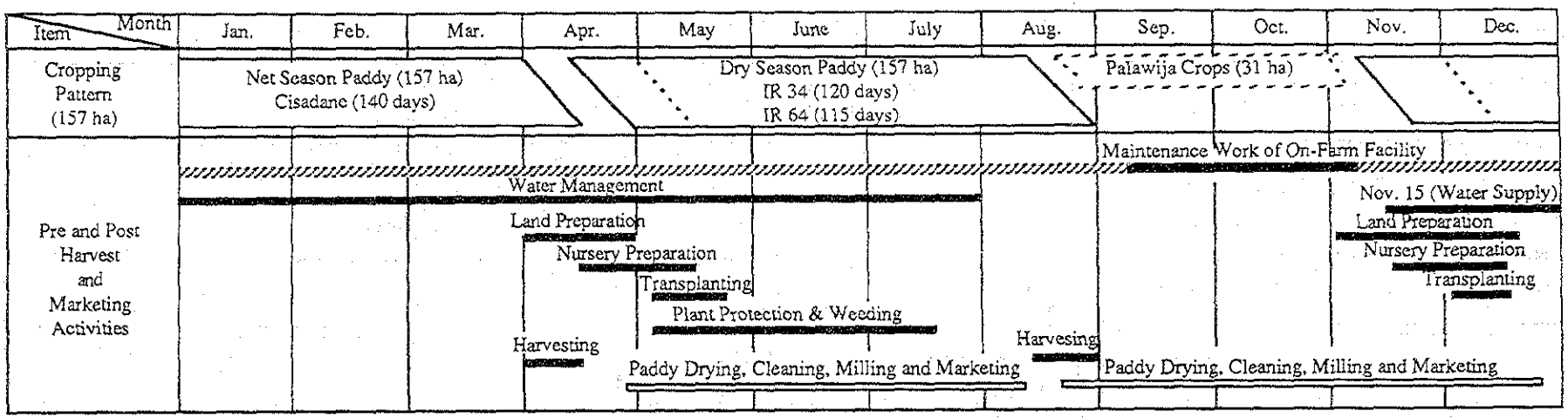


図 5.3-1　事業を実施した場合の作付体系および農民グループ活動計画　(4/4)　[トリムルジョ]

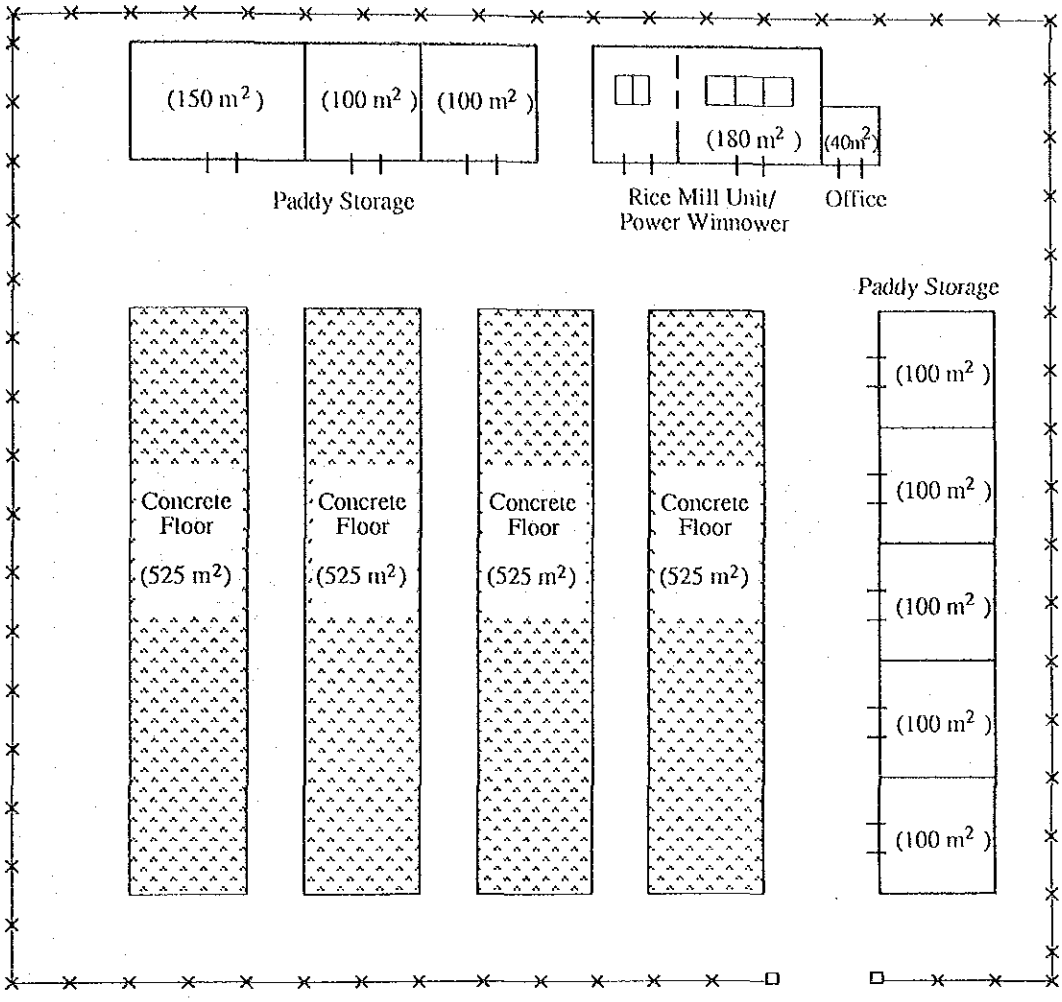


図 5.4-1　精米施設の平面図

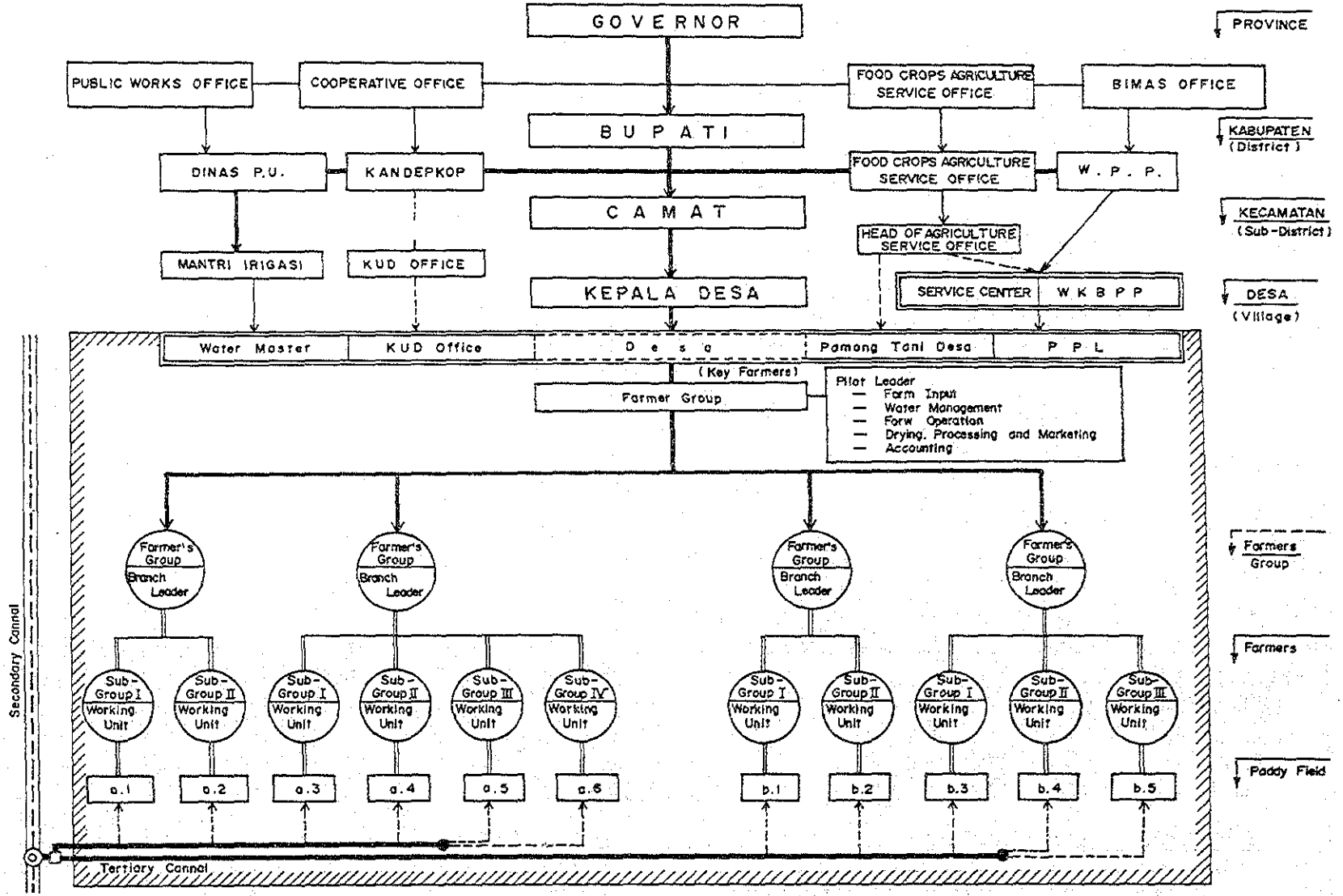


図 5.5-1　パイロット計画組織図

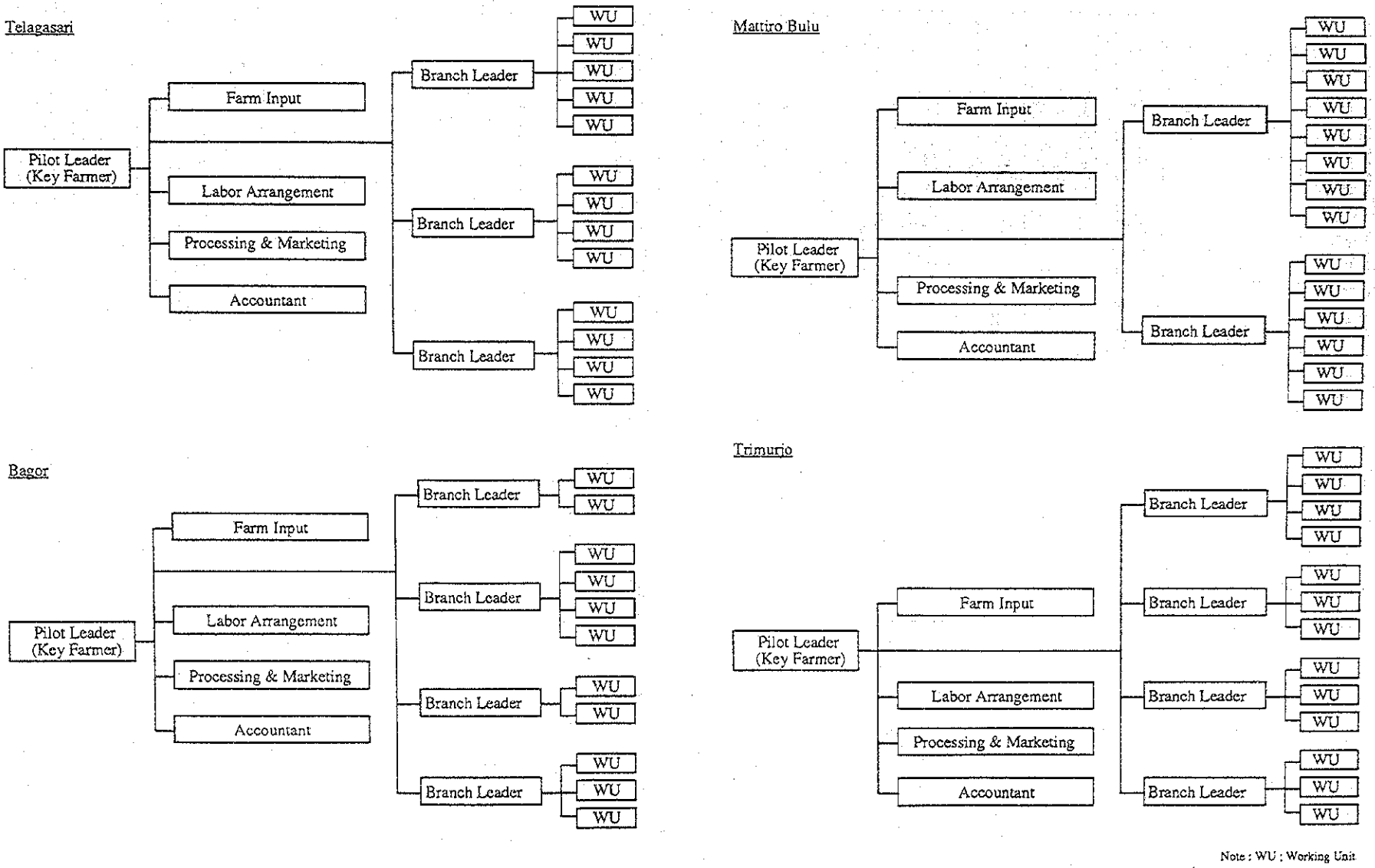


図 5.5-2　農民グループの計画内部組織図

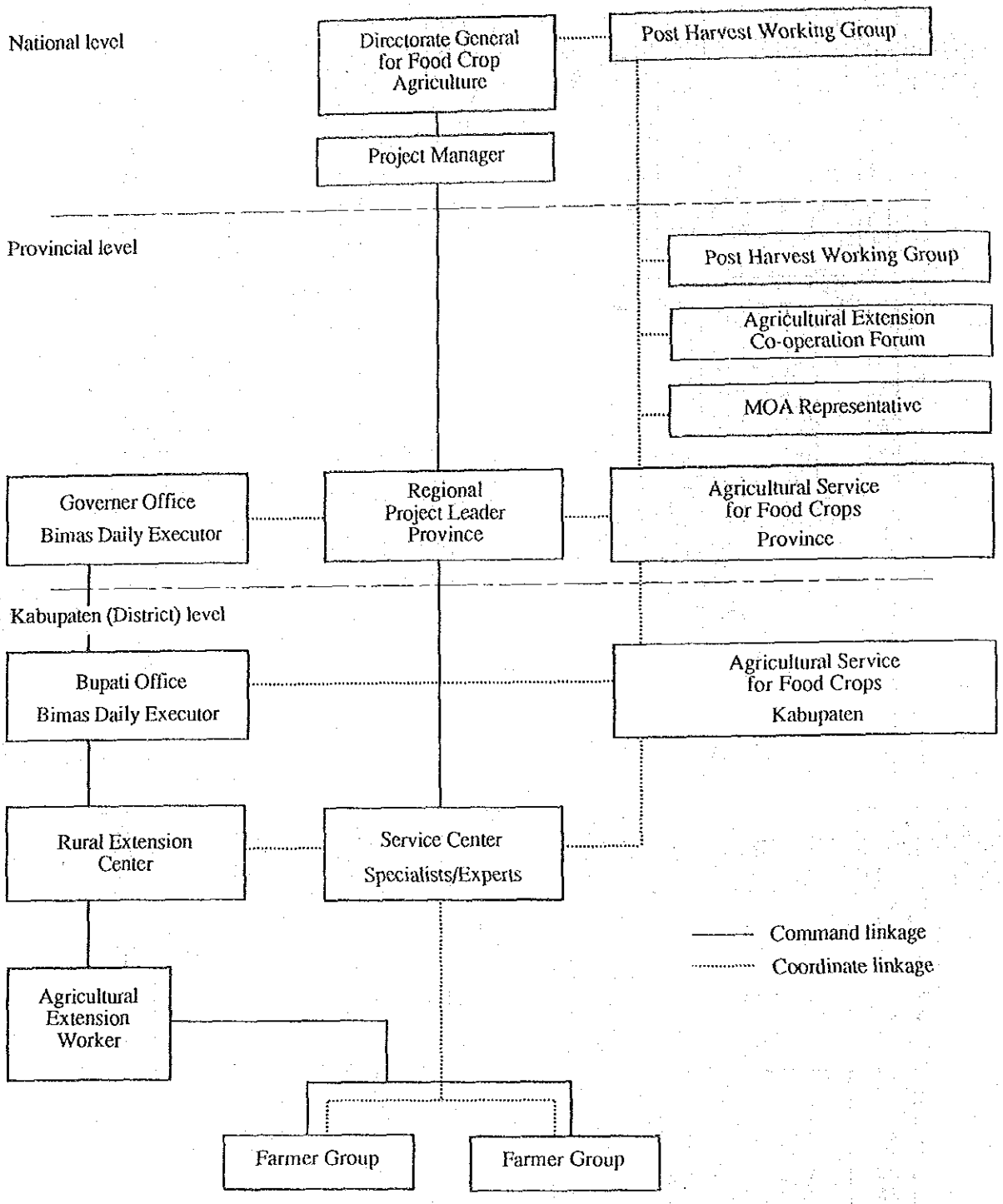


図 5.6-1　サービスセンターの計画組織図

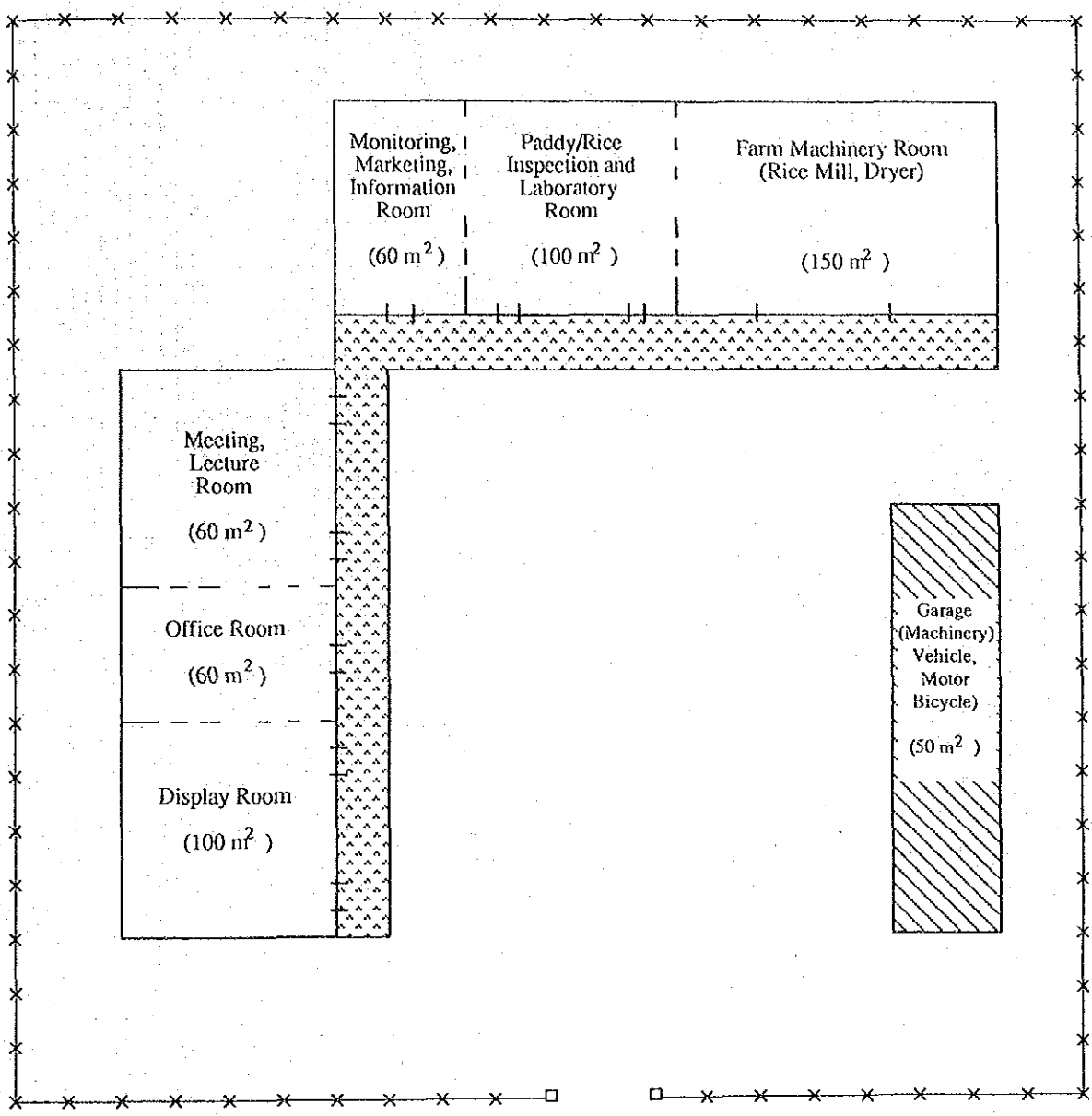
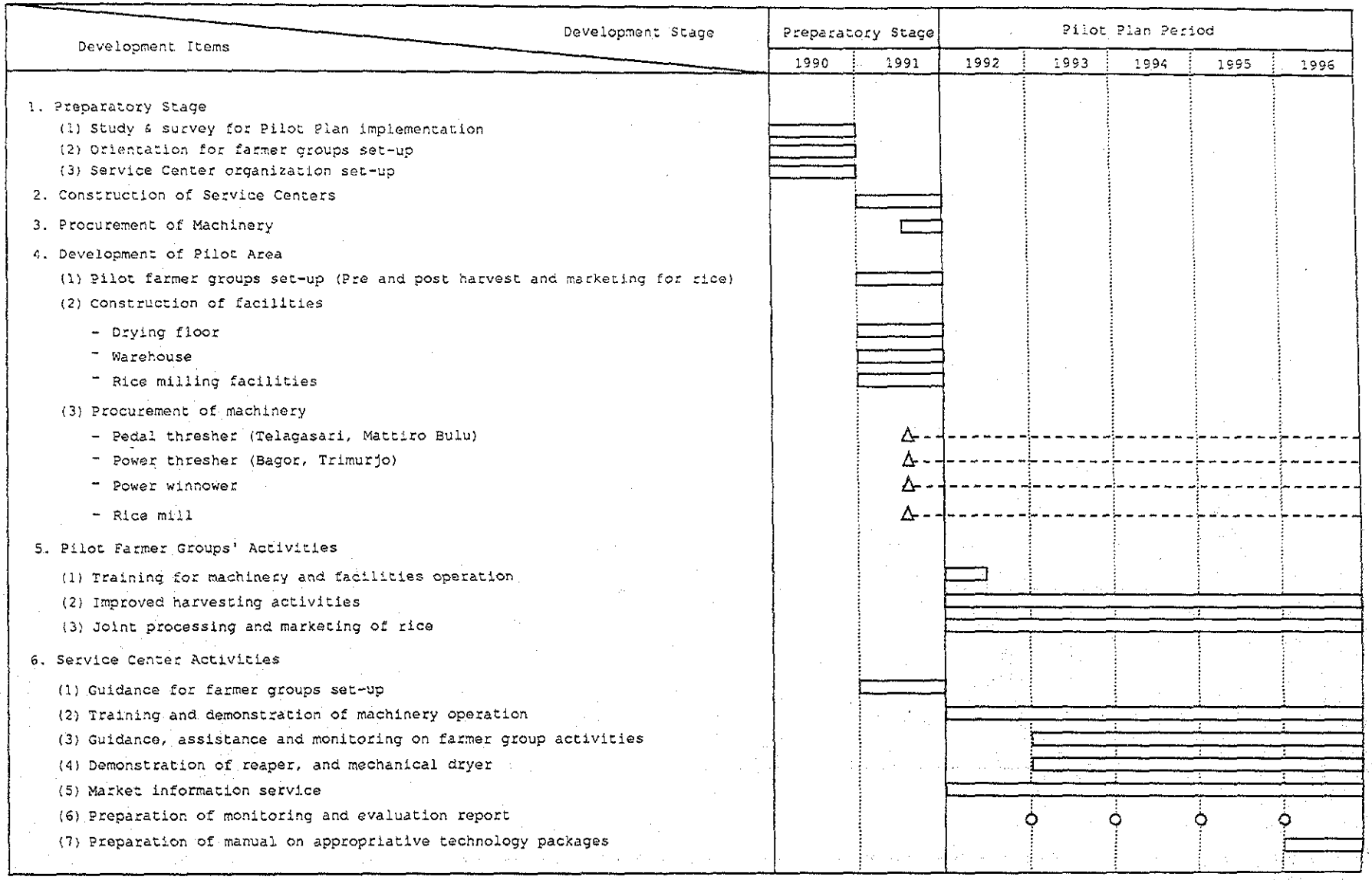


図 5.6-2　サービスセンター平面図

図 6.1-1　パイロット計画の実施計画



添付資料

添付資料－１　収穫後処理および流通改善に関するスコープ・オブ・ワーク（S／W）

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

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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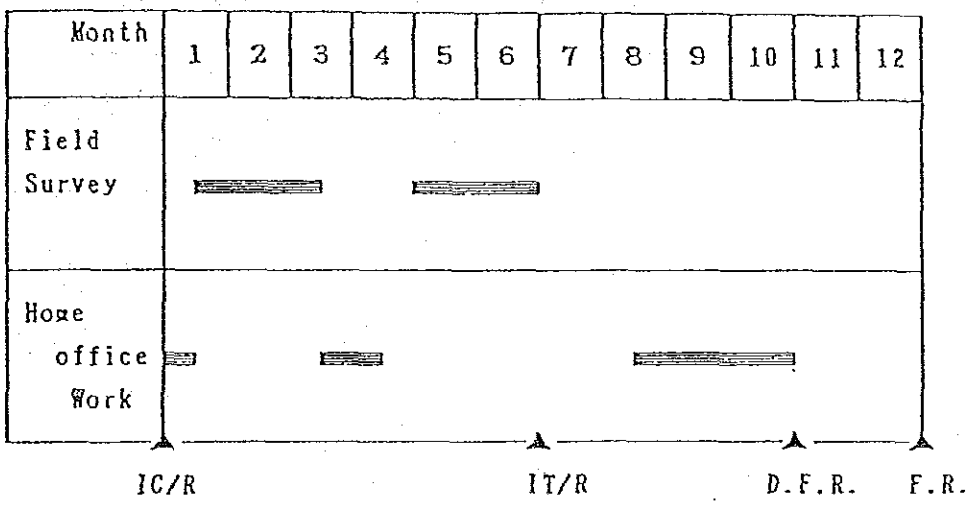
ATTACHMENT

TENTATIVE WORK SCHEDULE



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

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添付資料－２　インセプション・レポートに関する会議議事録

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

添付資料－３　プログレス・レポートに関する会議議事録

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

添付資料－4　インテリム・レポートに関する会議議事録

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. Shono

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

添付資料－５　ドラフト・ファイナル・レポートに関する会議議事録

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. Shohno

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

JICA