7. Analysis on Input and Output of Farmer's Level

Table A-15 - Table A-29

TABLE A-15-1 Annual Production Cost per Hecatre Under Present Conditions at Bongo 1

Γ	1	Unit Price		Pa	ddy				Į.	alawija	***************************************	
l	Description	(Rp.)		et Season		-wet Season	S	oybeans		een Beans		Maize
<u></u>			Q	V	Q	V	Q	V	Q	V	Q	V
	Farm Inputs											
l	(1) Seed (kg)								·			
l	- Paddy	2,200	35	77,000	35	77,000						
	- Soybeans	5,500					50	275,000				
	- Green Beans	7,000							35	245,000		
1	- Maize	2,300									35	80,500
]	(2) Fertilazers (Kg)	•										
	- Urea	1,200	100	120,000	100	120,000	25	30,000	50	60,000	50	60,000
l	- TSP	1,950	60	117,000	60	117,000	25	48,750	50	97,500	0	0
	- KCL	1,950	40	78,000	40	78,000	0	0	0	0	0	0
	(3) Agro - Chemical (Ltr)											
	- Insecticide	59,000	1	59,000	1	59,000	1	59,000	1	59,000	1	59,000
<u> </u>	Sub - Total			451,000	<u> </u>	451,000	<u> </u>	412,750		461,500		199,500
\vdash				131,000	-	131,000	 	.,,,,,,		101,000		,
2	Labour (day)				Í							
1	(1) Man Power	12,500	83	1,037,500	83	1,037,500	35	437,500	35	437,500	35	437,500
	(2) Draft Power	25,000	10	250,000	10	250,000	8	200,000	8	200,000	8	200,000
	Sub - Total			1,287,500		1,287,500		637,500		637,500		637,500
3	Misellaneous Cost	· · · · · · · · · · · · · · · · · · ·										
i	(Equipment, Tax, etc.)											
	(,,,				1							
	+ 10 % of (1+2)			173,850		173,850		105,025		109,900		83,700
	Total			1,912,350		1,912,350		1,155,275		1,208,900		920,700
$\frac{1}{c}$	Cropping Intensity		1	1,912,350	0.5	956,175	0.15	173,291	0.15	181,335	0.2	184,140
	Ground Total	3,407,291										

TABLE A-15-2 Annual Balance per Hecatre Under Present Conditions at Bongo I

	Unit Price		Pa	ddy			in Prospic Prospic	P	alawija		
Description	(Rp./ton)	W	et Season	Semi	-wet Season	S	oybeans	Gre	en Beans		Maize
		Q	V	Q	V	Q	V	Q	V	Q	V
Yield Income											
- Paddy	1,200,000	3,00	3,600,000	1.00	1,200,000						
- Soybeans	4,000,000					0.10	390,000				
- Green Beans	3,500,000							0.09	315,000		
- Maize	836,000									0.32	267,520
Total Income	5,772,520		3,600,000		1,200,000		390,000		315,000		267,520
Net Income	2,365,229					.					
B/C	0.69									Ĭ	
				ŀ							
		1									
	- Paddy - Soybeans - Green Beans - Maize - Total Income Net Income	Pacting (Rp./ton) Yield Income 1,200,000 - Paddy 1,200,000 - Soybeans 4,000,000 - Green Beans 3,500,000 - Maize 836,000 Total Income 5,772,520 Net Income 2,365,229	Nation Paddy 1,200,000 3,00	Nation N	Net Season Semi Q V	Nation N	Net Season Semi-wet Seas	Note Note	Net Season Semi-wet Season Soybeans Green Beans 1,200,000 1,000 1,200,000	Column	Description (Rp./ton) Wet Season Semi-wet Season Soybeans Green Beans Vield Income 1,200,000 3.00 3,600,000 1.00 1,200,000 1.00 1,200,000 1.00 1,200,000 0.10 390,000 0.09 315,000 0.32 Total Income 5,772,520 3,600,000 1,200,000 390,000 315,000 0.32 Net Income 2,365,229 -

TABLE A-16-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Bongo I

1		Unit Price			ddy		315-M-47-FL			Palawija 💮		
No.	Description	(Rp.)				wet Season		oybeans		een Beans		Maize
			Q	V	Q	V	Q	V	Q	<u> </u>	Q	<u> </u>
1	<u>Farm Inputs</u>											
	(1) Seed (kg)	2.200										!
	- Paddy	2,200	30	66,000	30	66,000	4.5	0.40.600				
	- Soybeans	5,500					45	247,500	20	210,000		
	- Green Beans	7,000							30	210,000	20	ć0 000
	- Maize	2,300									30	69,000
	(2) Fertilizers (Kg)	1.200	200	260,000	200	260,000	60	60,000	75	90,000	250	300,000
	- Urea	1,200		360,000		360,000 195,000	50 100	60,000 195,000	75 100	195,000		195,000
	- TSP	1,950		195,000	1 1	,	50	97,500	50	97,500	75	146,250
	- KeL	1,950	75	146,250	75	146,250				•		
	(3) Agro-Chemicals (Ltr)	59,000	4	236,000	4	236,000	2	118,000	2	118,000	2	118,000
	Sub-Total			1,003,250		1,003,250		718,000		710,500		828,250
						į						
												·
2	Labours Costs (day)											
	(1) Man Power	12,500	102	1,275,000	108	1,350,000	48	600,000	46	575,000	45	562,500
	(2) Draft Power	25,000	15	375,000	15	375,000	8	200,000	8	200,000	. 8	200,000
	Sub-Total			1,650,000		1,725,000		800,000		775,000		762,500
	M 11 C										}	
3	Miscellaneous Costs:											
	(Equipment, Tax, etc.)											
	= 20% of (1+2)			530,650		545,650		303,600		297,000		304,350
1	, ,		hr		l hr		lır		lır		hr	
١.						İ			1	10.1.10	1	
4	Operation Cost Rp./ Hr.	1,731	49	84,031	49	85,377	26	44,540	23	40,148	31	53,146
	mom.,		ļ		 		ļ				 	
	TOTAL		 	3,267,931		3,359,277	 	1,866,140		1,822,648	-	1,948,246
С	Cropping Intensity		1,0	3,267,931	+	3,359,277		279,921	0.15	273,397	0,2	389,649
ľ					1	O&M Cost						
1	GROUND TOTAL			7,922,175		peration C		192,740	+	352,000	=	544,740
Щ.	<u> </u>				+ R	eplacement	Cost					<u>-</u> :

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-16-2 AnnualBalance per Hecatre with Irrigation Conditions at Bongo I

		Unit Price		Pa	ddy				P	alawija		
No.	Description	(Rp./ton)	W	et Season	Semi	wet Season	So	ybeans	Gre	en Beans	i	Maize
	·		Q	V	Q	V	Q	V	Q	V	Q	V
5	Yield Income											
	- Paddy	1,200,000	5.50	6,600,000	6.00	7,200,000						
	- Soybeans	4,000,000					0.23	900,000				
	- Green Beans	3,500,000							0.18	630,000		
İ	- Maize	836,000									0.90	752,400
	Total Income	16,082,400		6,600,000	1	7,200,000		900,000		630,000		752,400
В	Net Income	8,160,225										
	B/C	1.03										
	O&M/Net Income (%)	6.68			1							

TABLE A-17-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Bongo I (Third Year)

		Unit Price			ddy					Palawija		
No.	Description	(Rp.)		et Season		wet Season		oybeans		rcen Beans		Maize
1	Farm Inputs		Q	<u> </u>	Q	V	Q	V	Q	V	Q	V
,	(1) Seed (kg)											
	- Paddy	2,200	32.5	71,500	32.5	71,500						
	- Sovbeans	5,500		,		71,500	47.5	261,250				
	- Green Beans	7,000					1	,	32.5	227,500		
	- Maize	2,300	· ·								32.5	74,750
	(2) Fertilizers (Kg)											, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	- Urea	1,200	200	240,000	200	240,000	37.5	45,000	62.5	75,000	150	180,000
	- TSP	1,950	- 80	156,000	80	156,000	62.5	121,875	75	146,250	. 50	97,500
	- KcL	1,950	57.5	112,125	57.5	112,125	25	48,750	25	48,750	37.5	73,125
	(3) Agro-Chemicals (Ltr)	59,000	2.5	147,500	2.5	147,500	1.5	88,500	1.5	88,500	1.5	88,500
	Sub-Total			727.125		727,125		565,375		586,000		513,875
	·											
2	Labours Costs (day)											:
	(1) Man Power	12,500	92.5	1,156,250	95.5	1,193,750	41.5	518,750	40.5	506,250	40.0	500,000
	(2) Draft Power	25,000	12,5	312,500	12.5	312,500	8.0	200,000	8.0	200,000	8.0	200,000
	Sub-Total			1,468,750		1,506,250		718,750		706,250		700,000
3	Miscellaneous Costs:			:								
	(Equipment, Tax, etc.)											
i.	= 20% of (1+2)			530,650		545,650		303,600		297,000		304,350
			hr		hr		hr		br		hr	
4	Operation Cost Rp./ Hr.	1,731	49	84,031	49	85,377	26	44,540	23	40,148	31	53,146
	TOTAL			2,810,556		2,864,402		1,632,265		1,629,398		1,571,371
	Cropping Intensity		1.00	2,810,556	0.75	2,148,301	0.15	244,840	0.15		0.20	
С	Jr. 6		1.00	4,010,000		2,146,301 D&M Cost =		244,040	0.13	244,410	0.20	314,274
.	GROUND TOTAL			6,114,381	0	peration Co placement	st	171,396	+	352,000	==	523,396

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-17-2 Annual Balance per Hecatre with Irrigation Conditions at Bongo I (Third Year)

		Unit Price		Pa	ddy				p	alawija		
No.	Description	(Rp./ton)	w	et Season	Semi	-wet Season	s	oybeans	Gre	en Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
5	Yield Income											
	- Paddy	1,200,000	4.25	5,100,000	3,51	4.207,500						
	- Soybeans	4,000,000					0.16	645,000				
	- Green Beans	3,500,000							0.14	472,500		
	- Maize	836,000								,	0.61	509,960
. "	Total Income	10,934,960	*******	5,100,000	†·	4,207.500		645,000		472,500		509,960
В	Net Income	4,820,579		•		•	<u> </u>		 		<u>-</u>	
	B/C	0.79							<u> </u>			
(D&M/Net Income (%)	10.86			ļ				1			

TABLE A-18-1 Annual Production Cost per Hecatre Under Present Conditions at Bongo III

		Unit Price			ldy			~		alawija		
	Description	(Rp.)				wet Season		ybeans		en Beans		Maize V
			Q	V	Q	V	Q	V	Q	V	Q	. Y
	arm Inputs											
(1) Seed (kg)					~~ ~~	i					
	- Paddy	2,200	35	77,000	35	77,000		076 000	- 1			
	- Soybeans	5,500					50	275,000	26	245 000		
	- Green Beans	7,000							35	245,000	35	80,500
	- Maize	2,300							1		33	60,500
((2) Fertilazers (Kg)			4.00.000		100.000	مدا	20,000		60,000	50	60,000
	- Urea	1,200	100	120,000	100	120,000	25	30,000	50 50	97,500	0	00,000
	- TSP	1,950	60	117,000	60	117,000	25	48,750	0	97,300	0	0
	- KCL	1,950	40	78,000	40	78,000	0	0	V	U	U	. 0
((3) Agro - Chemical (Ltr)											
	- Insecticide	59,000	1	59,000	1	59,000	1	59,000	1	59,000	1	59,000
	- Misecuriae	37,000	1	07,000				,.	.	,		,
	Sub - Total			451,000		451,000		412,750		461,500		199,500
2	Labour (day)											
	(1) Man Power	12,500	83	1,037,500	83	1,037,500	35	437,500	35	437,500	35	437,500
	(2) Draft Power	25,000	10	250,000	10	250,000	8	200,000	8	200,000	8	200,000
'	(2) Dran rower	23,000	1,0	250,000] '	230,000	ľ	200,000	Ŭ	200,000	ľ	2,
	Sub - Total			1,287,500	 	1,287,500	-	637,500		637,500		637,500
			-	1,201,300	-	1,201,200		507,200				
3	Misellaneous Cost						'					
ŀ	(Equipment, Tax, etc.)											
İ						1		ļ		·		
			1	172 950		173,850	1	105,025		109,900		83,700
	+ 10 % of (1 + 2)		İ	173,850		173,630		103,023		109,900	i	05,700
Ĺ			 	ļ	-		ļ	ļ	↓ —	 	-	ļ
	Total			1,912,350		1,912,350		1,155,275	L	1,208,900		920,700
C	Cropping Intensity		ı	1,912,350	0.5	956,175	0.15	173,291	0.15	181,335	0.2	184,140
	Ground Tetal	3,407,291										
	Ground rotal	3,407,291										:

TABLE A-18-2 Annual Balance per Hecatre Under Present Conditions at Bongo III

		Unit Price		Pa	idy				P	alawija		
	Description	(Rp./ton)	w	et Season	Semi	-wet Season	S	ybeans	Gre	en Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
4	Yield Income						ı					
- 1	- Paddy	1,200,000	3.00	3,600,000	1.00	1,200,000						
	 Soybeans 	4,000,000				•	0.10	390,000	. [
1	- Green Beans	3,500,000		j .					0.09	315,000		
	- Maize	836,000									0.32	267,520
	Total Income	5,772,520		3,600,000		1,200,000		390,000		315,000		267,520
B	Net Income	2,365,229										
	B/C	0.69						-				
							1					
			1		i							

TABLE A-19-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Bongo III

		Unit Price		Pa	ddy		T			Palawija		
No.	Description	(Rp.)				wet Season		oybeans		cen Beans		Maize
			Q	<u>V</u>	Q	·······································	Q	v	Q	V	Q	V
!	Farm Inputs											
	(1) Seed (kg)	A A A A	20	66.000	20	56,000						
	- Paddy	2,200	30	66,000	30	66,000		0.17.500				
	- Soybeans	5,500					45	247,500				
	- Green Beans	7,000						•	30	210,000		40.000
	- Maize	2,300									30	69,000
	(2) Fertilizers (Kg)		200	240.000	200	0.00.000	50				250	222 222
. :	- Urea		300	360,000	1 1	360,000	50	60,000	75	90,000		300,000
	- TSP		100	· /	100	195,000	100	195,000	100	195,000	100	195,000
	- KcL	1,950	75	146,250	75	146,250	50	97,500	50	97,500	75	146,250
	(3) Agro-Chemicals (Ltr)	59,000	4	236,000	4	236,000	2	118,000	2	118,000	2	118,000
	Sub-Total			1,003,250		1,003,250		718,000		710,500		828,250
			:									
2	Labours Costs (day)											
	(1) Man Power	12,500	102	1,275,000	108	1,350,000	48	600,000	46	575,000	45	562,500
	(2) Draft Power	25,000	15	375,000	15	375,000	8	200,000	8	200,000	8	200,000
		25,000	13	· · · · · · · · · · · · · · · · · · ·	13		0			· · · · · · · · · · · · · · · · · · ·	- 0	
	Sub-Total			1,650,000		1,725,000		800,000		775,000		762,500
	·			:								
3	Miscellaneous Costs:											
	(Equipment, Tax, etc.)											
	= 20% of (1+2)	. •		530,650	ŀ	545,650		303,600		297,000		304,350
	20,000 (1,2)	=		i.		313,030		,		251,000		301,330
			hr		lır		lır		l hr		hr	
4	Operation Cost Rp./ Hr.	2,489	49	120,832	49	122,768	26	64,046	23	57,731	31	76,422
٠.	TOTAL			3,304,732		3,396,668		1,885,646		1,840,231		1,971,522
C	Cropping Intensity		1,0	3,304,732	1.0	3,396,668	0.15	282,847	0.15	276,035	0.2	394,304
١					I .	O&M Cost						
	GROUND TOTAL			8,038,586	ı	peration Co		277,151	+	384,000	=	661,151
	* O P. M. C 4. Mil - 11 - 11 - 11			C t		eplacement	Cost					

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-19-2 AnnualBalance per Hecatre with Irrigation Conditions at Bongo III

		Unit Price		Pa	ddy				·	Palawija		
No.	Description	(Rp./ton)	W	et Season	Semi	wet Season	Se	ybeans	Gr	een Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
5	Yield Income											
ļ	- Paddy	1,200,000	5,50	6,600,000	6.00	7,200,000						
	- Soybeans	4,000,000					0.23	900,000				
	- Green Beans	3,500,000							0.18	630,000		
	- Maize	836,000									0.90	752,400
	Total Income	16,082,400		6,600,000		7,200,000		900,000		630,000		752,400
В	Net Income	8,043,814										
	B/C	1.00	Ī									
(O&M/Net Income (%)	8.22										

TABLE A-20-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Bongo III (Third Year)

		Unit Price		Pac	ldy					Palawija		
No.	Description	(Rթ.)	We			wet Season		ybeans		een Beans		Maize
			Q	V	Q	V	Q	V	Q		Q	V
1	Farm Inputs						l					
	(1) Seed (kg)		. [-			1
	- Paddy	2,200	32.5	71,500	32.5	71,500		261.250	.		1	
	- Soybeans	5,500]		47.5	261,250		227.500		
	- Green Beans	7,000							32.5	227,500	,, [74,750
	- Maize	2,300	li								32.5	74,730
	(2) Fertilizers (Kg)					0.40.000		45.000		75,000	150	180,000
	- Urea	1,200	200	240,000	200	240,000	37.5	45,000	62.5 75	146,250	50	97,500
	- TSP	1,950	80	156,000	80	156,000	62.5	121,875		48,750	37.5	73,125
	- KcL	1,950	57.5	112,125	57.5	112,125	25	48,750	25	· ·	i	
	(3) Agro-Chemicals (Ltr)	59,000	2.5	147,500	2.5	147,500	1.5	88,500	1.5	88,500	1.5	88,500
	Sub-Total			727,125		727,125		565,375		586,000		513,875
2	Labours Costs (day)											:
	(1) Man Power	12,500	92.5	1,156,250	95.5	1,193,750	41.5	518,750	40.5	506,250	40.0	500,000
	(2) Draft Power	25,000	12.5	312,500	12.5	312,500	8.0	200,000	8.0	200,000	8.0	200,000
	Sub-Total			1,468,750		1,506,250		718,750		706,250		700,000
3	Miscellaneous Costs:				'		1					
ļ	(Equipment, Tax, etc.)											
1	= 20% of (1+2)			530,650		545,650	1	303,600		297,000		304,350
	, ´		br		hr		hr		hr		hτ	
4	Operation Cost Rp./ Hr.	2,489	49	120,832	49	122,768	26	64,046	23	57,731	31	76,422
\vdash	TOTAL		ļ	2,847,357	-	2,901,793	1	1,651,771		1,646,981		1,594,647
	Cropping Intensity		1.00	2,847,357	 	2,176,345		- · · · · -	0.15	247,047	0.20	318,929
C	C. obbare microsti		11.00	12,047,337		0&M Cost		277,100	1	1	1	
	GROUND TOTAL			6,221,444	1	peration C		246,459	+	384,000	=	630,459
					+ R	eplacement	t Cost					

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-20-2 Annual Balance per Hecatre with Irrigation Conditions at Bongo III (Third Year)

		Unit Price		Pa	ddy				P	alawija		
No.	Description	(Rp./ton)	W	et Season	Semi	-wet Season	So	ybeans	Gre	en Beans		Maize
			Q	V	Q	V	Q.	V	Q	V	Q	V
5	Yield Income											
	- Paddy	1,200,000	4.25	5,100,000	3.51	4,207,500						
	- Soybeans	4,000,000					0.16	645,000		•		
	- Green Beans	3,500,000							0.14	472,500		
	- Maize	836,000							1		0.61	509,960
	Total Income	10,934,960		5,100,000	Ī	4,207,500		645,000		472,500		509,960
B	Net Income	4,713,516										
	B/C	0.76										
	O&M/Net Income (%)	13.38	ļ		1							

TABLE A-21-1 Annual Production Cost per Hecatre Under Present Conditions at Ranometo

Г		Unit Price			ddy				1	'alawija		
	Description	(Rp.)		et Season		-wet Season	S	oybeans	Gı	oundnuts	Ι	Maize
<u> </u>			Q	V	Q	V	Q	V	Q	V	Q	V
	Farm Inputs											
	(I) Seed (kg)											
	- Paddy	2,200	35	77,000								
	- Soybeans - Groundnuts	5,500										
	- Groundhuts - Maize	7,750										
1		2,300										
1	(2) Fertilazers (Kg) - Urea	1 200	100	120,000								
	- TSP	1,200 1,950	100 60	120,000 117,000								
	- KCL	1,950										
		1,930	40	78,000								
	(3) Agro - Chemical (Ltr)											
	- Insecticide	59,000	1	59,000								
		, i		r								
7	Sub - Total			451,000						•		
2	Labour (day)											
	(1) Man Power	12,500	02	1 027 500								
		·		1,037,500]	
	(2) Draft Power	25,000	10	250,000	i							
	Sub - Total			1,287,500								
3	Misellaneous Cost											
	(Equipment, Tax, etc.)											
l									li			
1	+ 10 % of (1+2)			173,850								
L												
	Total			1,912,350								
С	Cropping Intensity		J	1,912,350								
ľ	G 1m.1											
	Ground Total	1,912,350										
L	<u> </u>											

TABLE A-21-2 Annual Balance per Hecatre Under Present Conditions at Ranometo

	n	Unit Price		<u>Pa</u>	ddy				Pa	lawija		
	Description	(Rp./ton)	W	et Season	Semi	-wet Season	So	ybeans	Gree	en Beans		Maize
			Q	V	Q	V	Q	v	Q	V	Q	V
4	Yield Income											
	- Paddy	1,200,000	2.50	3,000,000								
	- Soybeans	4,100,000			1 1							
	- Groundnuts	4,400,000			1		İ					
	- Maize	891,000										
	Total Income	3,000,000		3,000,000								
В	Net Income	1,087,650							1			
	B/C	0.57							1			
						ĺ						
		·										

TABLE A-22-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Ranometo

		Unit Price		Pac	ldy					alawija		
No.	Description	(Rp.)	We	t Season	Semi-	wet Season		ybeans		oundouts		Maize
	·		Q	V	Q	V	Q	V	<u> </u>	V	Q	V
1	Farm Inputs								- 1	ļ		
	(1) Seed (kg)											
	- Paddy	2,200	30	66,000	30	66,000			- 1		ı	
	- Soybeans	5,500		;			45	247,500		166.000	1	
	- Groundnuts	7,750							60	465,000	20	<0.000°
	- Maize	2,300					1		ļ		30	69,000
	(2.) Fertilizers (Kg)				i			40.000	-	(0.000	200	300,000
	- Urea	.,	300	360,000	1 1	360,000	50	60,000	50		250 100	195,000
	- TSP		100	195,000	100	195,000	100	195,000	100	,		146,250
	- KcL	1,950	75	146,250	75	146,250	50	97,500	50	97,500	75	
	(3) Agro-Chemicals (Ltr)	59,000	4	236,000	4	236,000	2	118,000	2	118,000	2	118,000
	Sub-Total			1,003,250		1,003,250		718,000		935,500		828,250
2	Labours Costs (day)											
-	(1) Man Power	12,500	102	1,275,000	108	1,350,000	48	600,000	48	600,000	45	562,500
	, ,		1	375,000	15	375,000	8	200,000	8	200,000	8	200,000
	(2) Draft Power	25,000	13		13				"	800,000	*	762,500
	Sub-Total			1,650,000		1,725,000		800,000		800,000		702,500
3	Miscellaneous Costs:									**		
	(Equipment, Tax, etc.)					ļ	'					
1	= 20% of (1+2)			530,650		545,650		303,600		297,000		304,350
1	207001 (112)		lu		l lu		hr	,	hr		lır	-
4	Operation Cost Rp./ Hr.	1,315		47,514	45	59,054	8	10,413	13	16,990	15	19,228
	Operation Cost Rp./ 111.	1,515		11,5%						, 		
	TOTAL			3,231,414		3,332,954		1,832,013		2,049,490	<u> </u>	1,914,328
	Cropping Intensity		1.0	3,231,414		3,332,954		274,802	0.15	307,424	0.2	382,866
C	GROUND TOTAL			7,946,126		O&M Cost Operation C teplacement	ost	114,525	+	416,667	i ca.	531,191

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-22-2 Annual Balance per Hecatre with Irrigation Conditions at Ranometo

	-	Unit Price		Pa	ddy				Pa	dawija		
No.	Description	(Rp./ton)	We	et Season	Semi-	wet Season	So	ybeans	Gro	undnuts		Maize
		(Q	v	Q	V	Q	V	Q	V	Q	V
5	Yield Income											
	- Paddy	1,200,000	5,50	6,600,000	6.00	7,200,000				•		
	- Soybeans	4,100,000					0.23	922,500	[
	- Groundnuts	4,400,000							0,23	990,000		
	- Maize	891,000									0.90	801,900
	Total Income	16,514,400		6,600,000		7,200,000		922,500	<u> </u>	990,000		801,900
В	Net Income	8,568,274							<u> </u>			
	B/C	1.08										
	D&M/Net Income (%)	6.20			1		[l	

TABLE A-23-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Ranometo (Third Year)

		Unit Price			ddy			***************************************		Palawija		***************************************
No.	Description	(Rp.)				wet Season		oybeans		roundnuts		Maize
			Q	V	Q	<u> </u>	Q	V	Q	V	Q	V
	Farm Inputs											
	(1) Seed (kg)	4										
	- Paddy	2,200	32,5	71,500	15	33,000						
	- Soybeans	5,500					47.5	261,250				
	- Groundnuts	7,750							62.5	484,375		7475
	- Maize	2,300									32.5	74,750
	(2) Fertilizers (Kg)											
	- Urea	1,200	200	240,000	150	180,000	25	30,000	25	30,000	125	150,000
	- TSP	1,950	80	156,000	50	97,500	50	97,500	50	97,500	50	97,500
	- KcL	1,950	57.5	112,125	37.5	73,125	2.5	48,750	25	48,750	37.5	73,125
	(3) Agro-Chemicals (Ltr)	59,000	2.5	147,500	2.0	118,000	1.0	59,000	1.0	59,000	1.0	59,000
	Sub-Total			727,125		501,625		496,500		719,625		454,375
	·									·		
2	1 - 1 - 1 - 1 - 1 - 1											
2	Labours Costs (day)							-				
	(1) Man Power	12,500	92.5	1,156,250	54.0	675,000	24.0	300,000	24.0	300,000	22.5	281,250
	(2) Draft Power	25,000	12.5	312,500	7.5	187,500	4.0	100,000	4.0	100,000	4.0	100,000
	Sub-Total			1,468,750		862,500	r	400,000		400,000		381,250
3	Miscellaneous Costs :			,			*					
.3	i						ļ					
	(Equipment, Tax, etc.)	•										
	= 20% of (1+2)			530,650		545,650		303,600		297,000		304,350
			hr		hr		hr		iv		hr	
١,	0 1 0 10 13	1 216								16.000	1 1	10.000
4	Operation Cost Rp./ Hr.	1,315	36	47,514	45	59,054	8	10,413	13	16,990	15	19,228
					ļ				ļ			
l	TOTAL			2,774,039	<u></u>	1,968,829	<u> </u>	1,210,513	<u> </u>	1,433,615		1,159,203
	Cropping Intensity		1.00	2,774,039	0.50	984,415	0.08	90,788	0.08	107,521	0.10	115,920
C						O&M Cost	==					
	GROUND TOTAL			4,489,351	[peration Co		81,020	+	416,667	=	497,686
	<u> </u>				+ R	eplacement	Cost					

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-23-2 Annual Balance per Hecatre with Irrigation Conditions at Ranometo (Third Year)

		Unit Price		Pa	ddy					Palawija		
No.	Description	(Rp./ton)	w	et Season	Semi	-wet Season	Se	ybeans	Gr	oundnuts		Maize
i .			Q	V	Q	V	Q	V	Q	V	Q	V
. 5	Yield Income											
	- Paddy	1,200,000	4.00	4,800,000	2.20	2,640,000						
	- Soybeans	4,100,000					0.08	330,563				
	- Groundnuts	4,400,000			İ				0.08	346,500		
	- Maize	891,000									0.31	271,755
	Total Income	8,388,818		4,800,000		2,640,000		330,563		346,500		271,755
В	Net Income	3,899,467										
	B/C	0.87										
	O&M/Net Income (%)	12.76										

TABLE A-24-1 Annual Production Cost per Hecatre Under Present Conditions at Kalembukah

		Unit Price			ddy					alawija		
	Description	(Rp.)		et Season		-wet Season		oundnuts		en Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	<u> </u>
l <u>Fan</u>	m Inputs						1		- 1	j		
(1)	Seed (kg)						ĺĺ		- 1			
	- Paddy	2,200	35	77,000								
	- Groundnuts	7,750					65	503,750	i			
	 Green Beans 	7,000							35	245,000		
	- Maize	2,300			1						35	80,500
(2)	Fertilazers (Kg)				1							
	- Urea	1,200	100	120,000			25	30,000	50	180,000	50	60,000
	- TSP	1,950	60	117,000	1		25	48,750	50	292,500	0	0
	- KCL	1,950	40	78,000		ļ	0	0	0	0	0	0
(3)	Agro - Chemical (Ltr)											
	- Insecticide	59,000	1	59,000			1	59,000	Ì	59,000	ı	59,000
	Sub - Total	1		451,000	-			641,500		776,500		199,500
2 <u>La</u> l	bour (day)											
(1)) Man Power	12,500	83	1,037,500			35	437,500	35	437,500	35	437,500
(2)) Draft Power	25,000	10	250,000			8	200,000	8	200,000	8	200,000
	Sub - Total		-	1,287,500	-			637,500		637,500		637,500
3 Mi	isellaneous Cost											
		į										1
(E)	Equipment, Tax, etc.)											:
-+	10 % of (1+2)			173,850			•	127,900		141,400		83,700
	Total			1,912,350	1			1,406,900		1,555,400		920,700
	Cropping Intensity		1	1,912,350			0,3	422,070	0.3	466,620	0.4	368,280
С	Ground Total	3,169,320				•						

TABLE A-24-2 Annual Balance per Hecatre Under Present Conditions at Kalembukah

		Unit Price		Pa	ddy				P	alawija		
	Description	(Rp./ton)	w	et Season	Semi	-wet Season	Gr	oundnuts	Gre	en Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
4	Yield Income							· · ·				-
1	- Paddy	1,200,000	2.00	2,400,000								
	- Groundnuts	2,500,000		1	1		0.24	600,000	1			
- 1	- Green Beans	5,000,000							0.18	900,000		
l	- Maize	800,000						V.,			0.70	563,200
	Total Income	4,463,200		2,400,000				600,000		900,000		563,200
В	Net Income	1,293,880										
	B/C	0.41							· ·			
											1	

TABLE A-25-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Kalembukah

		Unit Price			ldy				j	alawija		
No.	Description	. (Rp.)		et Season		-wet Season		oundants		een Beans		Maize
			Q	V	Q	V	Q	<u> </u>	Q	V	Q	V
	Farm Inputs											
	(1) Seed (kg)											
	- Paddy	2,200	30	66,000	30	66,000						
	- Groundnuts	7,750					60	465,000				
	- Green Beans	7,000			•				30	210,000		
	- Maize	2,300									30	69,000
	(2) Fertilizers (Kg)								l			
	- Urea	1,200		360,000		360,000	50	60,000	75	90,000	1	300,000
	- TSP	1,950		195,000	1 1	195,000	100	195,000	100	195,000	100	195,000
	- KcL	1,950	75	146,250	75	146,250	50	97,500	50	97,500	75	146,250
	(3) Agro-Chemicals (Ltr)	59,000	4	236,000	4	236,000	2	118,000	2	118,000	2	118,000
	Sub-Total			1,003,250	:	1,003,250		935,500		710,500	1	828,250
					[
2	Labours Costs (day)								 			
	(1) Man Power	12,500	102	1,275,000	108	1,350,000	48	600,000	46	575,000	45	562,500
:	(2) Draft Power	25,000	15	375,000	15	375,000	8	200,000	8	200,000	8	200,000
	Sub-Total			1,650,000		1,725,000		800,000		775,000		762,500
3	Miscellaneous Costs:		1									
	(Equipment, Tax, etc.)							1				
	= 20% of (1+2)			530,650		545,650		303,600		297,000		304,350
	- 20% Of (1+2)			330,030		343,030	:	303,000		297,000		304,330
			hr		hr		hr		hr		hr	
4.	Operation Cost Rp./ Hr.	1,864	67	125,310	40	75,082	77	143,520	73	136,270	102	189,864
	TOTAL			3,309,210		3,348,982		2,182,620		1,918,770		2,084,964
С	Cropping Intensity		1.0	3,309,210	_	3,348,982	0.15	327,393	0.15	287,816	0.2	416,993
ľ						O&M Cost						
	GROUND TOTAL			8,557,060		peration Co		280,334	+	866,667	=	1,147,000
	* OsM Cost: All appration			·		eplacement	Cost					

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-25-2 Annual Balance per Hecatre with Irrigation Conditions at Kalembukah

	14	Unit Price		Pa	ddy				P	alawija		
No.	Description	(Rp./ton)	w.	et Season	Semi	-wet Season	Gr	oundnuts	Gre	en Beans	İ	Maize
	,		Q	V	Q	V	Q	V	Q	V	Q	V
5	Yield Income											
	- Paddy	1,200,000	5,50	6,600,000	6,00	7,200,000						
	- Groundnuts	2,500,000					0,23	562,500			-	
	- Green Beans	5,000,000							0.18	900,000		
	- Maize	800,000									0.90	720,000
	Total Income	15,982,500		6,600,000		7,200,000		562,500		900,000		720,000
В	Net Income	7,425,440										
	B/C	0.87										
(O&M/Net Income (%)	15.45										

TABLE A-26-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Kalembukah (Third Year)

1		Unit Price		Pac	ldy					^P alawija		
No.	Description	(Rp.)		t Season		wet Season		oundnuts		en Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
1	Farm Inputs											
	(1) Seed (kg)											· ·
	- Paddy	2,200	32.5	71,500	32,5	71,500	l					
	- Groundnuts	7,750					62,5	484,375				
	- Green Beans	7,000							32.5	227,500		
ŀ	- Maize	2,300									32.5	74,750
	(2) Fertilizers (Kg)	·										
	- Urca	1,200	200	240,000	200	240,000	37.5	45,000	62.5	75,000	150	180,000
	- TSP	1,950	80	156,000	80	156,000	62.5	121,875	75	146,250	50	97,500
1	- KcL	1,950	57.5	112,125	57.5	112,125	25	48,750	25	48,750	37.5	73,125
	(3) Agro-Chemicals (Ltr)	59,000	2.5	147,500	2.5	147,500	1.5	88,500	1.5	88,500	1.5	88,500
	Sub-Total			727,125		727,125		788,500		586,000		513,875
2	Labours Costs (day)											
	(1) Man Power	12,500	92.5	1,156,250	54.0	675,000	41.5	518,750	40.5	506,250	40.0	500,000
	(2) Draft Power	25,000	12.5	312,500	7.5	187,500	8.0	200,000	8.0	200,000	8.0	200,000
	Sub-Total	23,000	12	1,468,750	1,2	862,500	0.0	718,750		706,250		700,000
	Sub-Total			1,400,750		802,300		710,750		700,230		700,000
3	Miscellaneous Costs:			ı								
	(Equipment, Tax, etc.)					. •						4 1
	= 20% of (1+2)			530,650		545,650		303,600		297,000		304,350
			hr		hr		hr		hr		hr	
4	Operation Cost Rp./ Hr.	1,864	67	125,310	40	75,082	77	143,520	73	136,270	102	189,864
	Operation Cost (p./ 111.	1,004		123,510	10,	. 75,002	' '	113,520	"	130,270	10.2	102,001
	TOTAL			2,851,835		2,210,357		1,954,370		1,725,520		1,708,089
C	Cropping Intensity		1.00	2,851,835			0.23	449,505	0.23	396,870	0.30	512,427
	GROUND TOTAL			6,182,482		O&M Cost peration Co		284,162	+	866,667	=	1,150,829
				-444	+ R	eplacement				000,000		-,,,,,,,,,

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-26-2 Annual Balance per Hecatre with Irrigation Conditions at Kalembukah (Third Year)

		Unit Price		Pa	ddy]	Palawija		
No.	Description	(Rp./ton)	W	et Season	Semi	-wet Season	Gre	oundnuts	Gn	een Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
5	Yield Income											
	- Paddy	1,200,000	3.75	4,500,000	2.06	2,475,000			1			
	- Groundnuts	2,500,000					0.26	661,250				
	- Green Beans	5,000,000					•		0.21	1,035,000		
	- Maize	800,000	1								0.94	751,200
	Total Income	9,422,450		4,500,000		2,475,000		661,250		1,035,000		751,200
В	Net Income	3,239,968										100
	B/C	0.52										
	O&M/Net Income (%)	35.52										1

TABLE A-27-1 Annual Production Cost per Hecatre Under Present Conditions at Namangkewa

	Unit Price			ddy					alawija			
Description	(Rp.)	Wet Season			-wet Season		oundnuts		een Beans		Maize	
		Q	V	Q	V	Q	V	Q	V	Q	V	
1 Farm Inputs												
(1) Seed (kg)												
- Paddy	2,200											
- Groundnuts	7,750			ŀ		65	503,750	2.5	0.46.000			
- Green Beans	7,000							35	245,000	2"	00.500	
- Maize	2,300									35	80,500	
(2) Fertilazers (Kg)						25	20.000	160	100.000		(0,000	
- Urea	1,200					35	30,000	150	180,000	50	60,000	
- TSP	1,950					20	48,750	150	292,500	0	0	
- KCL	1,950					0	0	0	0	U	0	
(3) Agro - Chemical (Ltr)			ĺ		ĺ							
- Insecticide	59,000				ŀ	1	59,000	1	59,000	1	59,000	
	,											
Sub - Total							641,500		776,500		199,500	
2 <u>Labour (day)</u>												
(1) Man Power	12,500					35	437,500	35	437,500	35	437,500	
(2) Draft Power	25,000					8	200,000	8	200,000	8	200,000	
(2) 2141(15)(6)							ĺ		ĺ		,	
Sub - Total				 			637,500		637,500		637,500	
3 Misellaneous Cost		-		1	 						· · · · · · · · · · · · · · · · · · ·	
			Ì			1					-	
(Equipment, Tax, etc.)												
							100.000				02.700	
+ 10% of (1+2)							127,900		141,400		83,700	
Total		 -		\dagger			1,406,900		1,555,400		920,700	
Cropping Intensity		\vdash		1		0.3	422,070	0,3	466,620	0.4	368,280	
c - stopping titles	L	L	J			1	1 ,22,510	1	,		1	
Ground Total	1,256,970											
	-,,-											

TABLE A-27-2 Annual Balance per Hecatre Under Present Conditions at Namangkewa

		Unit Price	Paddy					Palawija					
	Description	(Rp./ton)	Wet Season		Semi-wet Season		Groundnuts		Green Beans		Maize		
			Q	V	Q	V	Q	V	Q	V	Q	V	
4	Yield Income												
	- Paddy	1,200,000											
İ	- Groundnuts	4,100,000				٠	0.18	738,000					
	- Green Beans	2,000,000				i			0.30	600,000			
	- Maize	1,000,000									0.80	800,000	
	Total Income	2,138,000						738,000		600,000		800,000	
В	Net Income	881,030									L		
	B/C	0.70											
		1											

TABLE A-28-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Namangkewa

		Unit Price		Pa	ddy	dy Palawija						
No.	Description	Description (Rp.)		et Season	Semi	-wet Season		oundnuts		en Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
	Farm Inputs										·	
	(1) Seed (kg)								ĺ			
i	- Paddy	2,200						466.000				
	- Groundnuts	7,750					60	465,000		010.000		
	- Green Beans	7,000							30	210,000	ا مر ا	60,000
	- Maize	2,300									30	69,000
	(2) Fertilizers (Kg)							CO 000	7.	90,000	250	300,000
	- Urea	1,200			1		50	60,000 195,000	75	195,000	100	195,000
	- TSP	1,950					100 50		100 50	97,500	75	146,250
i 1	- KcL	1,950]			97,500		•	1 1	
	(3) Agro-Chemicals (Ltr)	59,000			<u> </u>		2	118,000	2	118,000	2	118,000
	Sub-Total							935,500		710,500		828,250
2	Labours Costs (day)											
	(1) Man Power	12,500					48	600,000	46	575,000	45	562,500
	(2) Draft Power	25,000					8	200,000	8	200,000	8	200,000
	Sub-Total							800,000		775,000		762,500
	·											
3	Miscellaneous Costs:											
l	(Equipment, Tax, etc.)	1		*			ŀ					
	= 20% of (1+2)							303,600		297,000		304,350
ĺ							hr		hr		hr	
4	Operation Cost Rp./ Hr.	668					85	57,097	77	51,124	110	73,531
<u> </u>			<u> </u>	<u> </u>	-	<u> </u>			 			
	TOTAL		<u> </u>					2,096,197		1,833,624		1,968,631
С	Cropping Intensity		1	<u> </u>	\bot	O&M Cost		1,257,718	0.6	1,100,174	0,8	1,574,904
	GROUND TOTAL			4,666,130		Own Cost Operation C Replacement	ost	123,757	+	733,333	. =	857,090

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-28-2 Annual Balance per Hecatre with Irrigation Conditions at Namangkewa

	Description	Unit Price (Rp./ton)	Paddy				Palawija					
No.			Wet Season		Semi	Semi-wet Season		Groundnuts		Green Beans		Maize
			Q	V	Q	V	Q	V	Q	٧	Q	V
5	Yield Income											41
	- Paddy	1,200,000	1									
	- Groundnuts	4,100,000					0.90	3,690,000				
	- Green Beans	2,000,000							0.72	1,440,000		
	- Maize	1,000,000									3,6Ò	3,600,000
	Total Income	8,730,000						3,690,000		1,440,000		3,600,000
В	Net Income	4,063,870										
	B/C	0.87										
	O&M/Net Income (%)	21.09										

TABLE A-29-1 Annual Crop Production Cost per Hectare with Irrigation Conditions at Namangkewa (Third Ye

		Unit Price			ddy		Patawija					
No.	Description	(Rp.)		et Season		-wet Season		oundnuts		cen Beans		Maize
			Q	V	Q	V	Q	V	Q	V	Q	V
	Farm Inputs											
	(1) Seed (kg)	2 200										
	- Paddy	2,200			İ							
	- Groundnuts	0					62.5	0		227.500		
-	- Green Beans	7,000							32.5	227,500		24.260
	- Maize	2,300									32.5	74,750
	(2) Fertilizers (Kg)	1.000						£1,000		125,000	ا , , , ا	100.000
3	- Urea - TSP	1,200					42.5	51,000	113	135,000	150	180,000
	- 15P - KcL	1,950					60	117,000	125	243,750	50	97,500
		1,950			İ		25	48,750		48,750	37.5	73,125
	(3) Agro-Chemicals (Ltr)	59,000					1.5	88,500	1.5	88,500	1.5	88,500
	Sub-Total							305,250		743,500		513,875
	•		:									·
_												
2	Labours Costs (day)											
	(1) Man Power	12,500					41.5	518,750	40.5	506,250	40.0	500,000
	(2) Draft Power	25,000					8.0	200,000	8.0	200,000	8.0	200,000
	Sub-Total	÷						718,750		706,250		700,000
3	Miscellaneous Costs:											
	(Equipment, Tax, etc.)								1			
	' '							202.600		007.000		201.260
	= 20% of (1+2)							303,600		297,000		304,350
							hr		hr		hr	
4	Operation Cost Rp./ Hr.	668					85	57,097	77	51,124	110	73,531
								ĺ				ŕ
	TOTAL				<u> </u>			1,384,697		1,797,874		1,591,756
	Cropping Intensity						0.45	623,114	0.45		\vdash	955,053
C			<u> </u>		+	O&M Cost :		020,111	1		1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	GROUND TOTAL			3,120,543		peration Co		92,818	+	733,333	=	826,151
				,,-		eplacement						

^{*} O&M Cost: All operation cost and replacement cost of the system.

TABLE A-29-2 Annual Balance per Hecatre with Irrigation Conditions at Namangkewa (Third Year)

	Description	Unit Price		Pı	iddy		Palawija						
No.		(Rp./ton)	Wet Season		Semi	-wet Season	Gı	oundnuts	Gre	en Beans		Maize	
			Q	V	Q	V	Q	V	Q	V	Q	V	
5	Yield Income									·			
l	- Paddy	1,200,000			1								
	- Groundnuts	4,100,000					0.47	1,937,250					
	- Green Beans	2,000,000							0.50	990,000			
	- Maize	1,000,000									1.95	1,950,000	
	Total Income	4,877,250						1,937,250		990,000		1,950,000	
В	Net Income	1,756,707											
	B/C	0.56											
•	O&M/Net Income (%)	47.03											

8. PCM Workshop

In order to (1) understand farmers' latest situation and their needs, (2) boost farmers' motivation on water management and operation & maintenance of facilities and (3) universally understand farmers' problems confronted in the target three Provinces, PCM workshop was held with assistance of DGWRD at Kotamobagu, North Sulawesi on 16th and 17th April 1999.

(1) Participants

The participants in the PCM workshop are 26 men consisting of members of three Water Users' Associations (WUA), farmers in the project sites, government officials from three Kabupatens of Gorontalo, Minahasa and Bolaamong, and an official from DGWRD and consultants. The following table shows the outlines of the said WUA.

Name	Place	Established year	Members	Irrigation Area /Block	Remarks
KATEES	Torian, Kakas, Minahasa	1996	43	36ha, 18 blocks	Local people
TWB15	Bolaamong, Gongdow	1997	21	25ha, 12 blocks	Transmigrasy from Bari
TWG30	Bongo I, Gorontalo	1997 -	24	30ha, 15 blocks	Transmigrasy from Java

(2) Program of Workshop

The program of the workshop carried out for 2 days is as follows.

- Introduction of basic information of each WUA
- Problem Analysis on farming activities (irrigation farming) of each WUA
- Further analysis on the above-mentioned problems concerning especially water management
- Counter measures to solve the major problems concerning water management

(3) Results of Workshop

In the workshop, flank opinions were exchanged and Problem Analysis that visually represents the causes and effects of existing problem was done. Problem trees which were made in the workshop are as shown in the followings. The core problem was imbalance between input and output, and the major causes of the problem became clear were ①Yield is not enough,②Production cost is high and ③Marketing problems (price fluctuation). Problems pertaining to the Water Users' Association were also made clear.

The followings are the problems concerning farming.

- Shortage of investment
- Shortage of farming materials
- Shortage of proper farming machines for newly introduced farming methods
- Shortage of adequate labor for newly expanded farmland

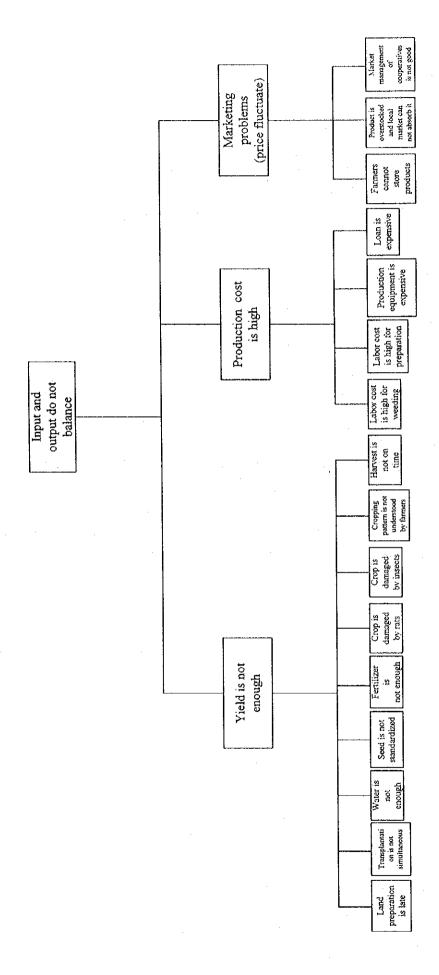
- Shortage of transportation
- Depreciation due to increase of product
- Dissatisfaction with technical assistance

In the latter half of the Problem Analysis, discussions were made especially on problems of water management. Shortage of on-farm irrigation water was the first problem which consisted of basic problems of supply shortage from water sources and problems other than them. The former includes capacity of well and pump and problems of operation (such as shortage of fuel for pump) and the latter includes improper locations of distribution box. As a result, it is necessary to secure the capacity of well and pump as ample as possible taking into consideration groundwater conditions, benefited area, cropping patters, soil and geological conditions, etc. Moreover, the distribution design shall be carried out taking into consideration proper locations of distribution box which are adequate to geological and farming conditions.

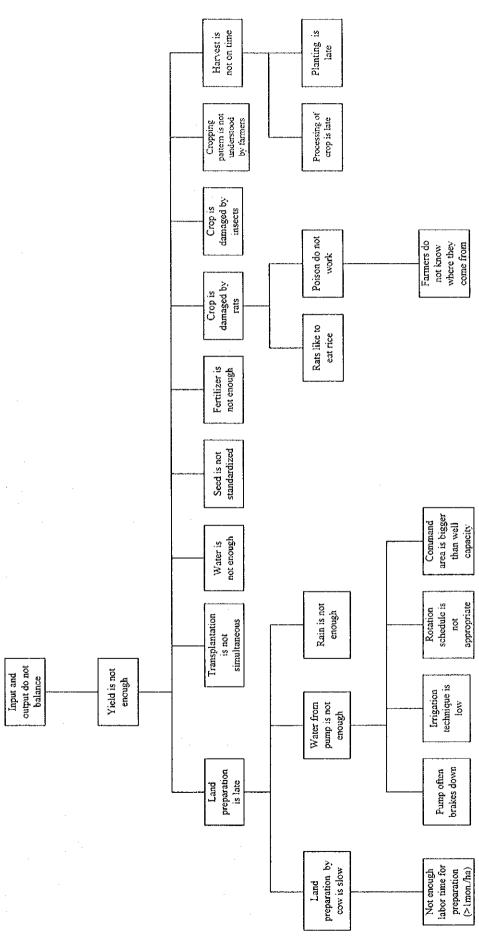
Additionally, various issues were discussed about management of WUA such as proper collection of irrigation service fee adequate to expenditures of WUA. As a result, the irrigation service fees shall be set up depending on conditions of each WUA, provided that the member farmers shall be clearly notified for what such irrigation service fees are used.

To secure sustainability of the Project, such information and outcomes obtained in the workshop shall be taken into consideration for forming the Project.

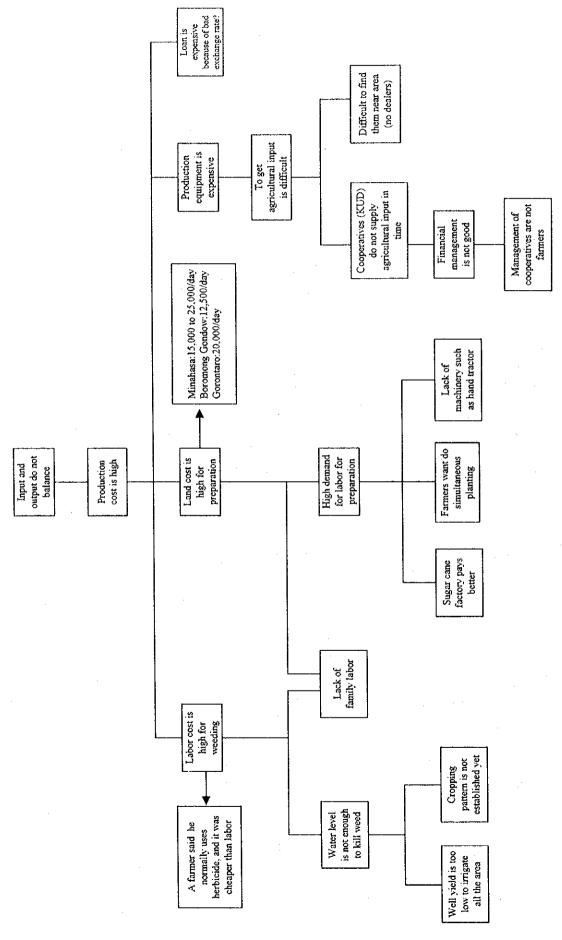
Problems Tree (1): Overall Framework of the Problems



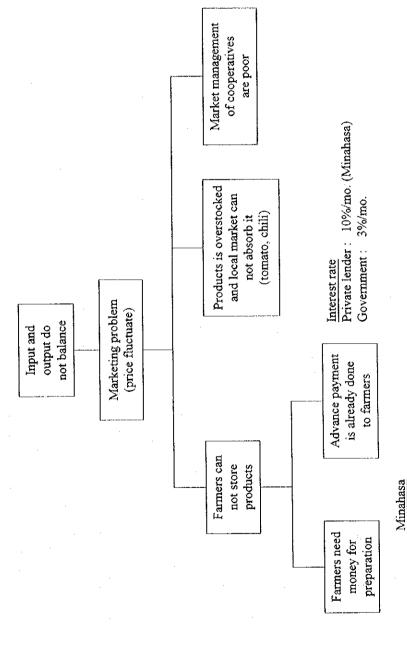
Problems Tree (2): Problems Relevant to Production



Problems Tree (3): Problems Relevant to Production Cost



Problems Tree (4): Problems Relevant to Marketing



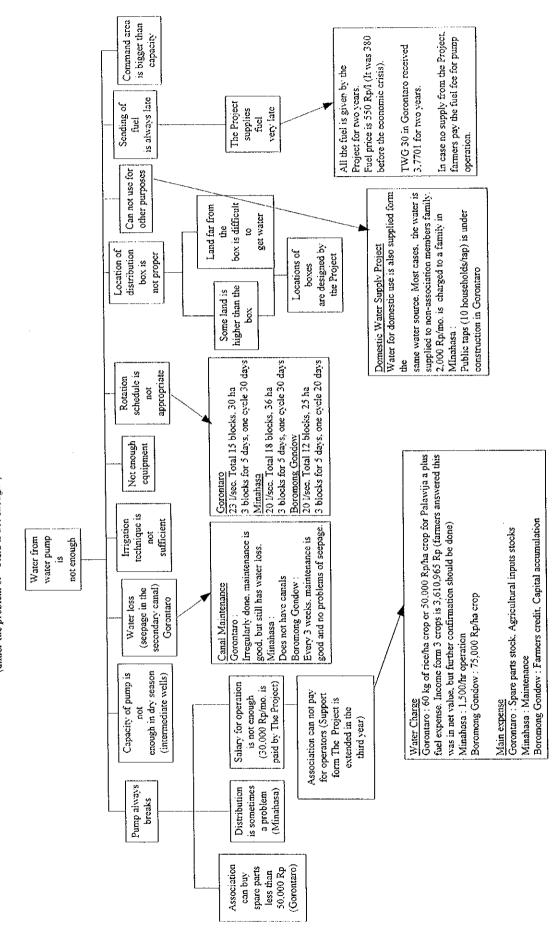
Middleman (80%); private lender (20%)

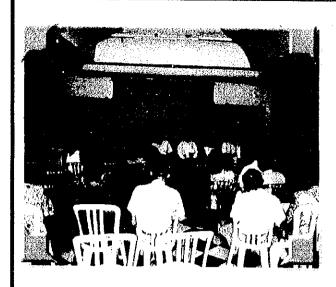
The Cooperative does not have enough capital to lend to farmers

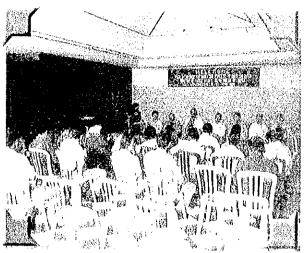
Boromong Gondow Cooperation (50%); milling factory (50%)

 $\frac{\text{Gorontaro}}{\text{Middleman}} (60\%); \quad \text{private lender} (40\%)$

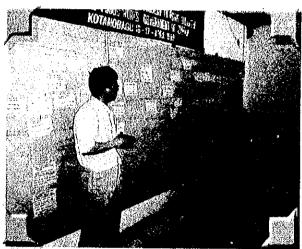
Problems Tree (5):
Problems Tree on Focused Issues: Water Supply and Management (under the problem of "Yield is not enough")







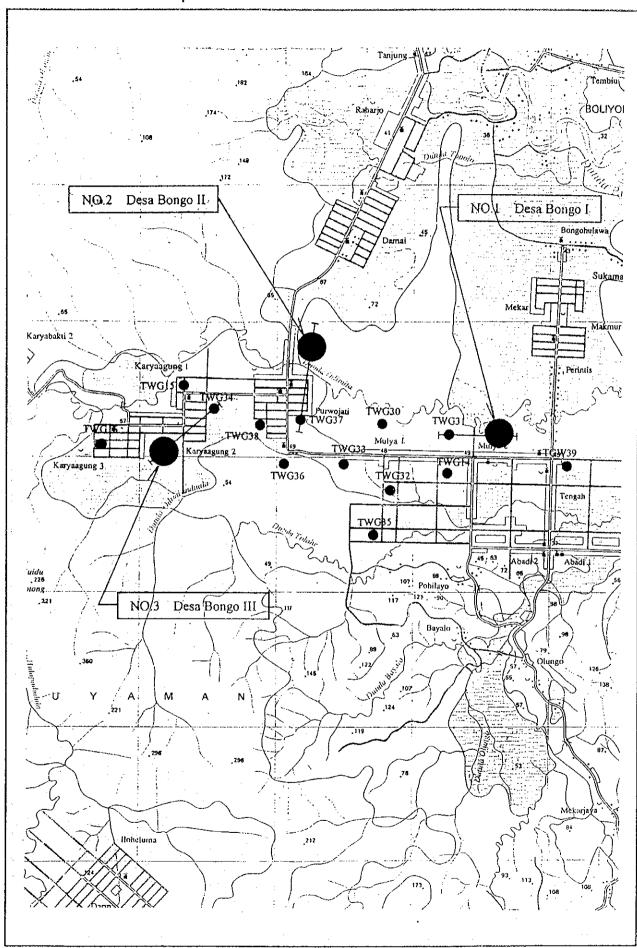




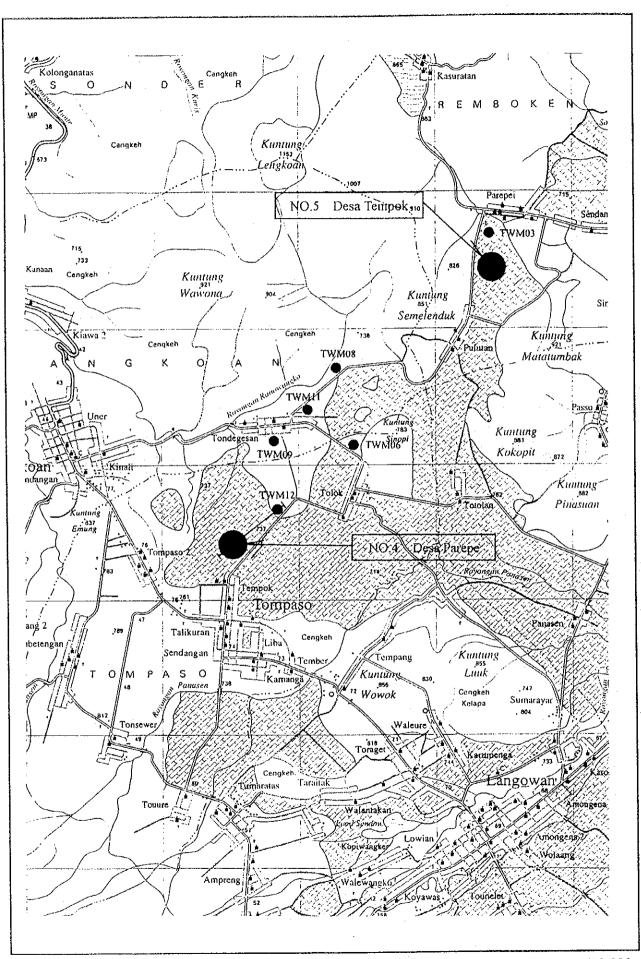




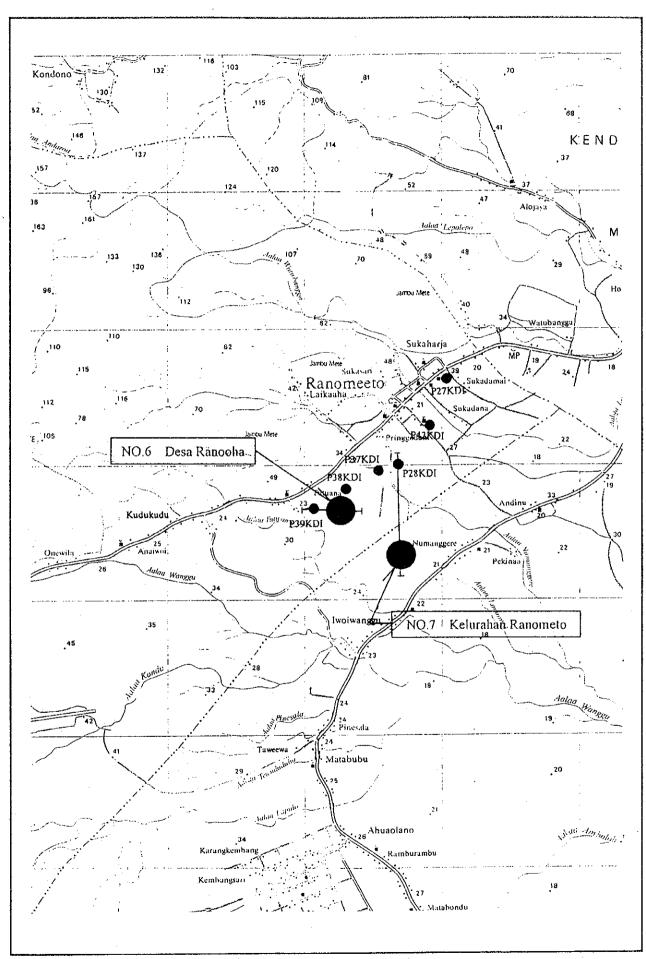
PCM Workshop



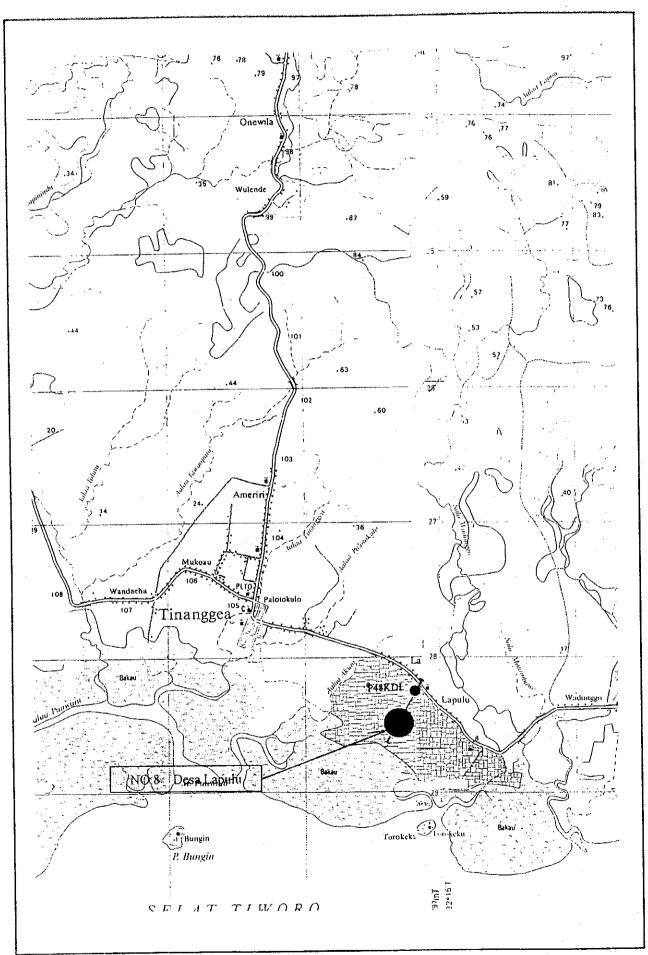
Location Map (1/12)



Location Map (2/12)

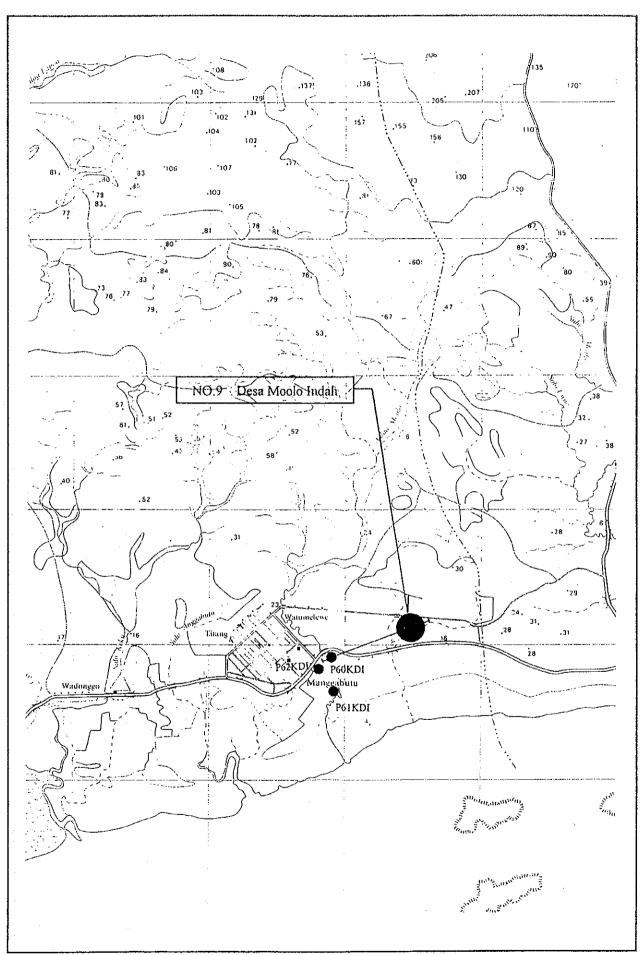


Location Map (3/12)

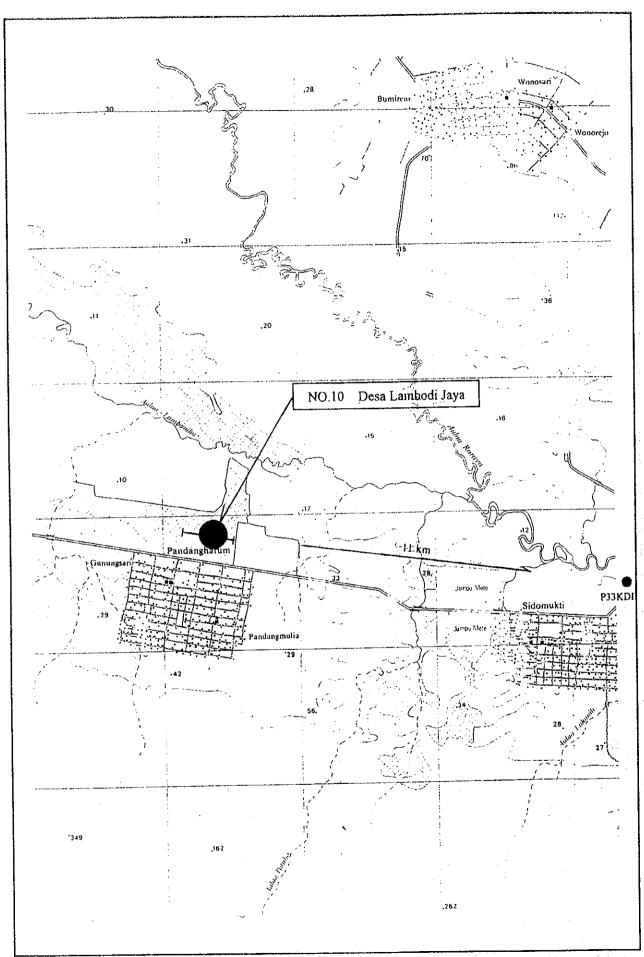


Location Map (4/12)

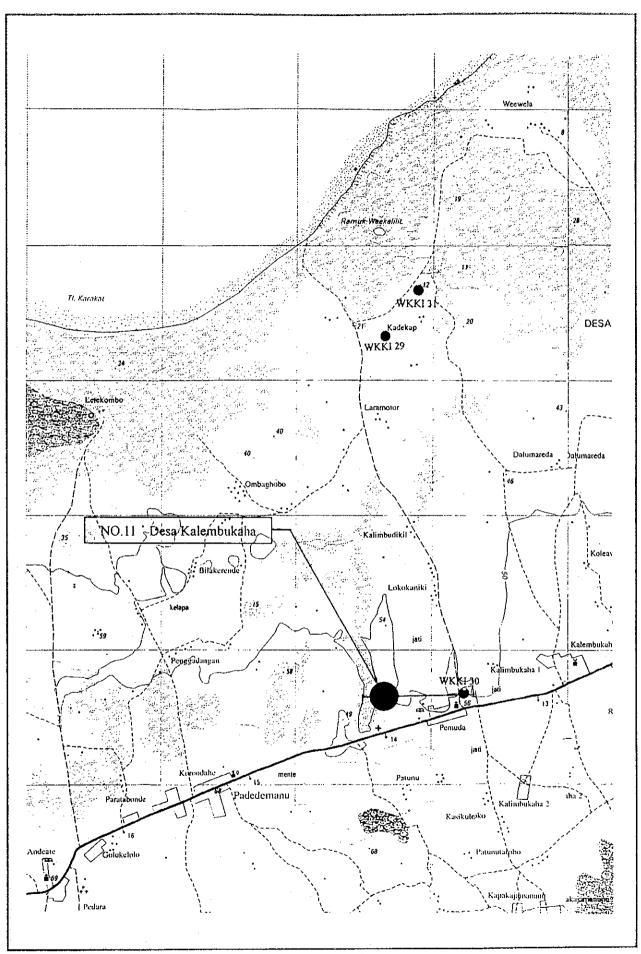
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Location Map (5/12)

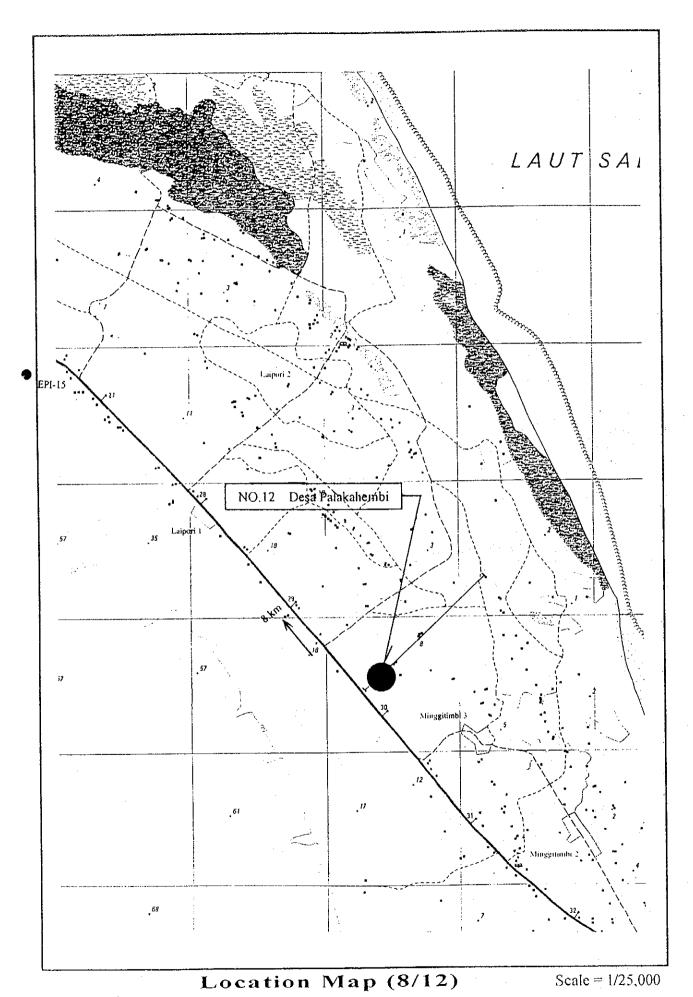


Location Map (6/12)

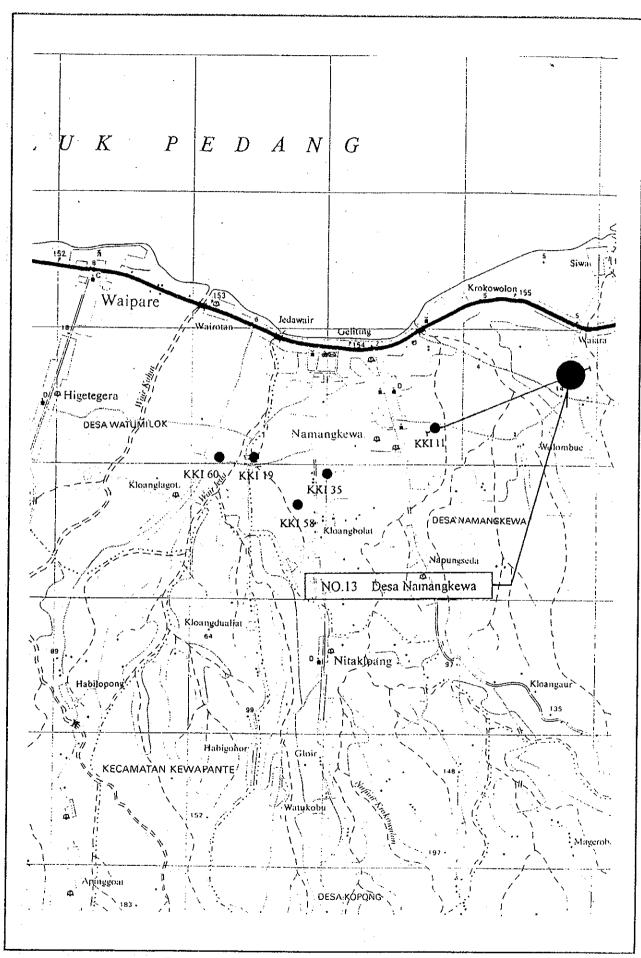


Location Map (7/12)

Scale = 1/25,000

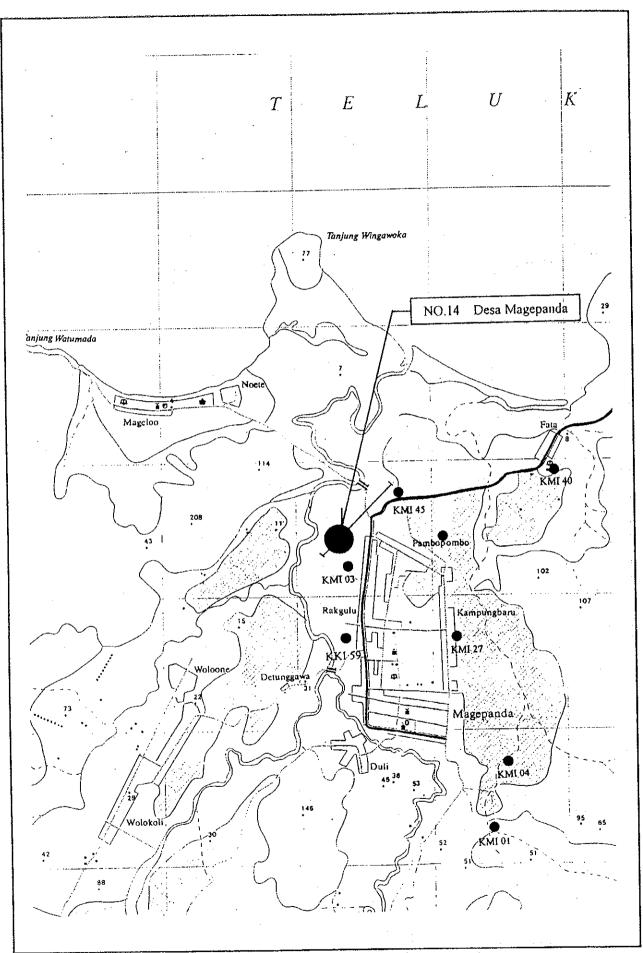


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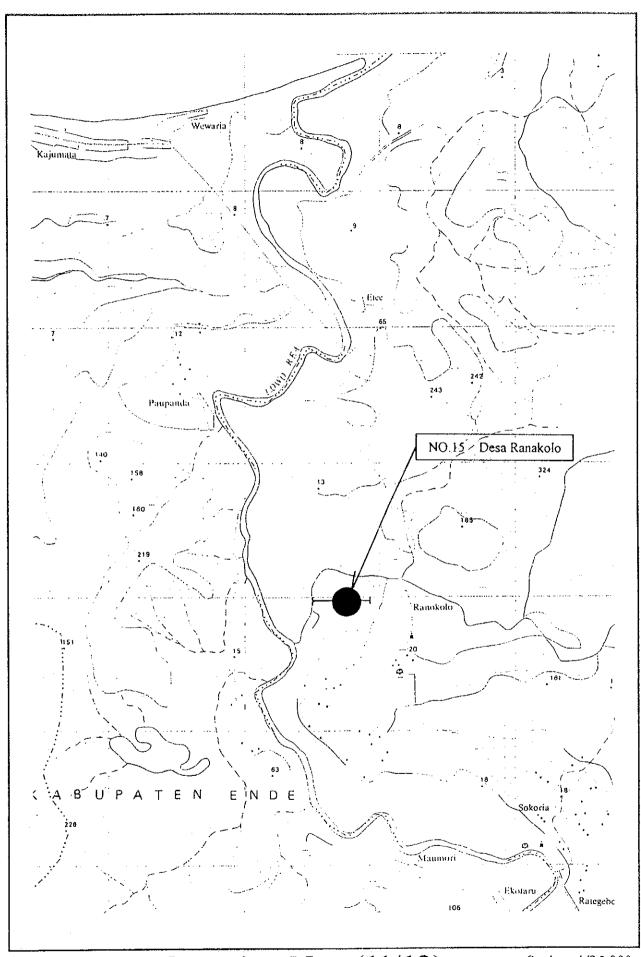


Location Map (9/12)

Scale = 1/25000

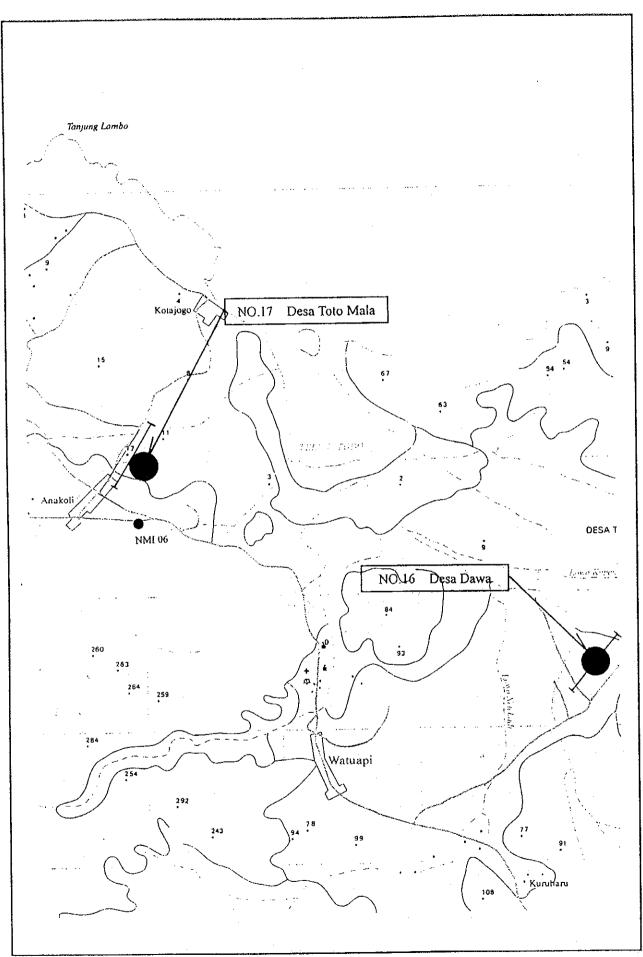


Location Map (10/12)



Location Map (11/12)

Scale = 1/25,000



Location Map (12/12)

Scale = 1/25,000

