One of the important problems encountered in the BIMAS/INMAS programs is low repayment of the credit not only in each Kabupaten but also in the project area. The repayment time usually comes immediately after the harvest, when the price of rice is the lowest. The number of unit BRI in the project area is very limited, i.e. only 11 villages or 5% against the total number of villages in the project area. For the easy utilization of credit for the farmers, it is recommended to establish the unit BRI as much as possible.

3.10.5 Farmers' Co-operatives

The establishment of Village Co-operative (BUUD/KUD) was completed for about 12% of the villages in Kab. OKU, 7% in Kab. OKI and 3% in Kab. North Lampung respectively by the end of 1979/80. As for the project area, about 11% of villages in the Muncak Kabau area, 7% in the Lempuing area and 3% in the Tulangbawang area have had the co-operatives. These number is still very low for the proper operation of irrigation farming. Much effort should therefore be paid to establishment of such farmers' co-operatives by means of strong guidance of the government through governmental regional offices.

In addition, village unit, BRI, KIOS, rice mills, paddy drying yards, warehouses, agro-equipment and tools, etc. should also be sufficiently provided to the BUUD/KUD organizations in the project area so as to deal with smoothly farm outputs and inputs.

3.10.6 Water Management

For the smooth water management after the completion of irrigation facilities under the project, the following recommendations are proposed to be incorporated into the project work.

1) Present organization of Public Works in the project area should be re-organized by establishing a new Project Office which cover the operation and maintenance of new canal systems in all the project area.

2) The following regular activities should be carried out:

a) Collection of the basic data regarding the cultivation such as cropping calendar, planted area, farm practices and yields of crops by each resort in every ten days;

b) Regular meeting once a ten days with the waterman (Ulu^2) working in each Water User's Association concerned by each resort, in which daily problems about operation and maintenance will be discussed and solved;

c) Regular meeting at the sub-office of the Project Office in every three months for discussion about operation and maintenance works;

d) Regular meeting at Kecamatan level in every month by the officers of Irrigation Section (SEKSI), Agricultural Office and other authorities concerned in order to discuss irrigation amount and period, and other periodic topics under the supervision of the Project Office.

3) Before the completion of construction works of the project, the Water User's Association should be established under the initiation of each village chief, CAMAT and BUPATI with strong guidance of Agricultural Office and the Branch Office of Irrigation Section concerned.

4) The Project Office should prepare an adequate annual budget for carrying out the above-mentioned activities.

3.11 Transmigration and Resettlement

According to the information obtained from the Transmigration Offices in Kab. OKU and OKI, no concrete transmigration program to the project area is contemplated at present. On the other hand, the Transmigration Office in Kab. North Lampung has a resettlement program of about 35,000 families in four years from 1980/81 to 1983/84 as described in the sub-chapter 2.12 hereof. However, the detailed schedule for the allotment of lands and resettlers has not been established yet.

In the project area, certain transmigrants have been spontaneously settled in scattered places in addition to the governmental transmigration plan executed. According to the results of land use survey carried out in 1981, there exist vast forest and alang-alang lands; about 39,600 ha, have not been allocated to the transmigrants or resettlers by the Authorities concerned, and can be provided to the farmers to be newly settled. The area which can be allotted is estimated to be about 5,900 ha in the Muncak Kabau area, about 5,100 ha in the Lempuing area, and about 29,300 ha in the Tulangbawang area respectively, though these lands are generally scattered within the area.

In order to settle successfully the transmigrants and resettlers, it is proposed to provide the farm land reclaimed satisfactorily in addition to the subsidy of certain quantities of living accommodation and commodities needed for farming as shown in Table V-117.

Table V-1 POPULATION FROM 1973 to 1980

(Unit: 10^3)

Region	1973	1974	1975	1976	1977	1978	1979	1980
Indonesia	126,088	129,083	132,110	135,190	138,342	141,579	144,912	148,349
South Sumatra Prov.	3,688	3,795	3,905	4,018	4,135	4,257	4,382	4,630
Lampung Prov.	2,949	3,163	3,308	3,646	3,707	3,821	4,000	4,624
Kab. OKU	560	572	599	622	635	671	691	750
Kab. OKI	477	491	505	510	512	550	553	584
Kab. North Lampung	497	567	592	644	673	714	763	882

Sources : Central Bureau of Statistic 1971-81
Statistical Pocket Book, Indonesia 1979/1980
Kantor Sensus and Statistiks in Lampung Province, 1977, 1981
Kantor Sensus and Statistiks in South Sumatra Province, 1977, 1981

Table V-2 POPULATION DENSITY AND GROWTH RATE

Region	Area (Km^2)	Density (Person/Km^2)	Population growth rate /1 (%)
Indonesia	1,919,443	77	2.33
South Sumatra Prov.	103,688	45	3.32
Lampung Prov.	33,307	139	5.82
Kab. OKU	11,133	67	3.73
Kab. OKI	21,658	27	2.62
Kab. North Lampung	19,368	46	8.61 /2

Source : Central Bureau of Statistics, 1971-81
Statistical Pocket Book, Indonesia 1979/1980
Kantor Sensus and Statistiks in Lampung Province, 1977, 1981
Kantor Sensus and Statistiks in South Sumatra Province, 1977, 1981

Note /1: 1971 - 1980
/2: 1973 - 1980

Table V-3 POPULATION BY AGE GROUP

(Unit: 10³)

Age Group	Indonesia /1		South Sumatra Prov. /1		Lampung Prov. /1		Kab.OKU /1		Kab. OKI /2		Kab.North Lampung /3	
	(person)	(%)	(person)	(%)	(person)	(%)	(person)	(%)	(person)	(%)	(person)	(%)
<10	39,254	30.8	1,231	31.4	1,185	33.6	234	34.3	177	32.2	364	49.2
10-14	15,092	11.8	509	13.0	470	13.3	95	13.9	71	12.9		
15-19	12,698	10.0	422	10.6	355	10.1	61	8.9	53	9.7		
20-24	9,309	7.3	314	8.0	241	6.8	39	5.7	36	6.5	143	19.3
25-29	8,564	6.7	231	5.9	225	6.4	42	6.2	36	6.5		
30-34	7,663	6.0	227	5.8	208	5.9	44	6.4	37	6.5	188	25.4
35-39	8,739	6.9	251	6.4	218	6.3	42	6.2	35	6.5		
40-44	6,930	5.4	209	5.3	174	4.9	34	5.0	35	6.5		
45-64	15,718	12.3	443	11.3	371	10.5	76	11.1	53	9.7	45	6.1
65<	3,513	2.8	89	2.3	75	2.2	16	2.3	15	3.0		
Total	127,480	100.0	3,924	100.0	3,522	100.0	683	100.0	548	100.0	740	100.0

Source : Statistical Pocket Book of Indonesia 1978/79
Kantor Sensus & Statistik in South Sumatra and Lampung 1980, 1981

Note /1: 1976
/2: 1978
/3: 1979

Table V-4 ECONOMIC ACTIVE POPULATION IN 1980

(Unit: 10³)

Sector	Indonesia /1		South Sumatra /1		Lampung		Kab. OKU /1		Kab. OKI /2		Kab. North Lampung	
	(Person)	(%)	(Person)	(%)	(Person)	(%)	(Person)	(%)	(Person)	(%)	(Person)	(%)
Agriculture	35.259	66.0	1.127	69.3	1,024.8	76.1	209.4	85.8	193.0	82.0	177.0	76.2
Mining	44	-	35	2.2	1.2	0.1	-	-	-	-	0.2	-
Manufacturing	3.560	6.7	56	3.4	61.0	4.5	2.3	0.9	8.6	3.6	10.5	4.5
Electricity & Water	34	-	1	-	0.3	-	0.1	-	-	-	-	-
Construction	1,098	2.1	31	1.9	12.1	0.9	1.3	0.5	3.9	1.6	2.1	0.9
Trade, Restaurant & Hotel	6,253	11.7	128	7.9	136.3	10.1	9.7	4.0	10.5	4.5	23.6	10.2
Transport, Storage & Communication	1,112	2.1	40	2.5	33.8	2.5	2.2	0.9	2.5	1.1	5.8	2.5
Finance & Insurance	74	0.2	3	0.2	0.3	-	-	-	-	-	-	-
Community Service	5.157	9.6	121	7.4	76.2	5.7	14.2	5.8	11.7	5.0	13.2	5.7
Others	853	1.6	84	5.2	*	-	5.2	2.1	5.1	2.2	*	-
Total	53,444	100.0	1,626	100.0	1,346.0	100.0	244.4	100.0	235.3	100.0	232.4	100.0

Source : Central Bureau of Statistic, Indonesia.
Kantor Sensus & Statistik, South Sumatra Province.
Depnaker Propinsi Lampung, 1980

Note /1: 1978
/2: 1979
*: No data is available.

Table V-5 GROSS DOMESTIC PRODUCT IN 1979

Item	Indonesia		South Sumatra		Lampung	
	(Rp.10^9)	(%)	(Rp.10^9)	(%)	(Rp.10^9)	(%)
Agriculture Forestry & Fishery	9,145	29.8	209	24.9	328	52.3
i) Farm food crops	5,365	17.5	98	11.7	115	18.3
ii) Non-farm food crops	1,112	3.6	54	6.5	-	-
iii) Estate crops	624	2.0	1	0.1	164	26.2
iv) Livestock	550	1.8	22	2.6	5	0.8
v) Forestry	942	3.1	20	2.4	34	5.4
vi) Fishery	552	1.8	13	1.6	10	1.6
Mining	5,172	16.9	200	23.8	1	0.1
Manufacturing	2,825	9.2	169	20.2	45	7.2
Electric Gas & Water Supply	130	0.4	3	0.3	1	0.1
Construction	1,843	6.0	23	2.8	8	1.3
Commerce	5,601	18.3	118	14.0	140	22.3
Trans. & Information	1,383	4.5	41	4.8	34	5.4
Finance	641	2.1	8	0.9	6	1.0
Immovable property	906	2.9	14	1.6	20	3.2
Governmental services	2,180	7.1	43	5.1	36	5.8
Other services	835	2.8	13	1.6	8	1.3
Total	30,661	100.0	841	100.0	627	100.0
per capita GDP (US$)	(338)		(307)		(251)	

Source : Statistical Pocket Book of Indonesia, 1979/1980.
BAPPEDA Office in Lampung Province, 1981.
Kanfor Sensus & Statistik, South Sumatra Pavince, 1980.

Table V-6 MAJOR CROP CULTIVATION AREA AND PRODUCTION IN SOUTH SUMATRA AND KAB. OKU AND OKI IN 1980

Crop	South Sumatra Province		Kab. OKU		Kab. OKI	
	Area (ha)	Production (tons)	Area (ha)	Production (tons)	Area (ha)	Production (tons)
Lowland Paddy /1	288,200	801,700	49,800	166,300	84,700	206,700
Upland Paddy /1	114,800	163,300	26,600	32,400	11,000	13,800
Maize	9,330	6,860	3,190	2,530	3,130	1,860
Cassava	19,390	175,000	4,490	33,660	5,000	50,650
Soybeans	5,700	4,230	2,450	1,960	1,480	800
Peanuts	15,560	12,250	8,470	7,040	2,150	1,030
Coffee	94,300	40,930	36,090	17,030	130	30
Rubber	469,700	148,700	43,380	14,980	45,290	16,950
Coconut	36,700	12,520	4,050	970	2,870	1,950
Pepper	18,560	15,140	280	80	-	-
Clove	11,460	37,270	1,970	2	540	15,240

Source : Agricultural Office in South Sumatra Province and Kab. OKU and OKI, 1981.

Estate Office in South Sumatra Province and Kab. OKU and OKI, 1981.

Note /1: Stalk Paddy

Table V-7 MAJOR CROP CULTIVATION AREA AND PRODUCTION IN LAMPUNG AND KAB. NORTH LAMPUNG IN 1980

Crop	Lampung Province		Kab. North Lampung	
	Area (ha)	Production (tons)	Area (ha)	Production (tons)
Lowland Paddy /1	136,500	494,800	21,300	60,900
Upland Paddy /1	104,890	154,130	44,810	47,150
Maize	54,170	72,910	3,460	2,940
Cassava	98,420	1,007,620	20,890	271,570
Soybeans	6,210	15,410	630	570
Peanuts	5,550	5,390	1,590	2,070
Coffee /2	128,850	83,560	32,090	19,470
Rubber /2	18,980	7,740	13,740	6,310
Coconut /2	108,770	42,830	23,640	8,370
Pepper /2	41,690	18,210	26,150	11,380
Clove /2	48,010	4,210	12,070	270

Source : Agricultural Office in Lampung Province and Kab. North Lampung, 1981.

Estate Crop Office in Lampung Province and Kab. North Lampung, 1981.

Note /1 : Stalk Paddy
Note /2 : Excluding new planting.

Table V-8 AREA EXTENT OF PADDY FIELDS BY IRRIGATION CATEGORY

Paddy Field	1973/1			1977/2				1978/3					
	Indonesia	Java		South Sumatra Province		Lampung/4 Province		Kab. OKU		Kab. OKI		Kab. North Lampung/4	
	(10^3ha)	(10^3ha)	(%)	(10^3ha)	(%)	(10^3ha)	(%)	(10^3ha)	(%)	(10^3ha)	(%)	(10^3ha)	(%)
Technical	1,733	1,446	42.0	17.1	6.0	53.0	36.3	4.6	7.6	0	0	0	0
Semi-Technical	947	524	15.2	17.1	6.0	7.7	5.3	3.6	5.9	0	0	0.2	0.9
Non-Technical	979	544	15.8	21.0	7.4	21.8	14.9	9.4	15.5	5.4	6.5	6.9	32.4
Rain-fed	1,664	859	24.9	76.5	27.0	44.8	30.7	39.7	65.4	6.4	7.8	7.6	35.7
Tidal, etc.	273	73	2.1	152.6	53.6	18.6	12.8	3.4	5.6	70.9	85.7	6.6	31.0
Total	5,596	3,446	100.0	284.4	100.0	145.9	100.0	60.7	100.0	82.7	100.0	21.3	100.0

Source: /1: Directorat Irrigasi, 1973
/2: Agricultural Office in South Sumatra Province
/3: Kabupaten Agricultural Office in OKU, OKI in 1978
/4: Agricultural Office in Lampung Province, 1980

Table V-9 AGRICULTURAL SUPPORT SERVICES IN SOUTH SUMATRA PROVINCE (1980)

Item	South Sumatra	Kab. OKU	Kab. OKI
Village	2,347	426	315
BUUD/KUD	159	50	19
Wilud (WKPP)	814	147	168
Village Unit BRI	82	22	12
Kios	231	54	12
Rice Mill	640	589	183
Subject-matter Specialist	18	2	2
Extension Supervisor	62	13	12
Field Extension Worker	562	110	108
Rural Extension Center	53	9	8

Source : Provincial Agricultural Extension Office and Kab. Agricultural Offices

Table V-10 AGRICULTURAL SUPPORT SERVICES IN LAMPUNG PROVINCE (1980)

Item	Lampung	Kab. North Lampung
Village	2,000	300
BUUD/KUD	168	54
Wilud (WKPP)	552	102
Village Unit BRI	100	20
Kios	90	18
Rice Mill	*	257
Subject-matter Specialist	21	5
Extension Supervisor	40	10
Field Extension Worker	336	79
Rural Extension Center	45	14

Source : Provincial Agricultural Extension Office and Kab. North Lampung Agricultural Office, 1980

Note * : No data is available.

Table V-11 EXPORT AND IMPORT OF MAJOR COMMODITIES IN INDONESIA

(Unit: 10⁶US$)

Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Export (FOB)										
Crude Petroleum & Products	446	478	913	1,609	5,211	5,311	6,004	7,298	7,438	8,870
Wood	104	161	229	574	725	500	781	954	995	1,797
Rubber	252	222	189	391	479	358	530	588	717	937
Coffee	69	55	77	78	98	100	238	599	491	614
Tin Ore	54	52	64	93	175	140	165	250	286	404
Palm Oil	35	45	41	70	157	152	136	184	209	204
Others	148	221	265	396	581	542	692	980	1,507	2,764
Total Export	1,108	1,234	1,778	3,211	7,426	7,103	8,546	10,853	11,643	15,590
Import (CIF)										
Crude Petroleum & Products	15	20	34	44	183	254	438	732	580	797
Machines (for Industrial and commerce)	113	155	236	329	426	528	691	596	686	1,651 /1
Rice	52	20	50	382	374	327	450	678	592	596
Fertilizer	19	29	47	63	227	401	24	27	58	56
Cement	13	17	22	33	68	69	60	53	54	52
Others	790	862	1,173	1,878	2,564	3,191	4,010	4,144	4,720	4,050
Total Import	1,002	1,103	1,562	2,729	3,842	4,770	5,673	6,230	6,690	7,202
Trade Balance	106	131	216	482	3,584	2,333	2,873	4,623	4,953	8,388

Source : Key Indicators of Developing Member Countries of ADB (Asian Development Bank), October 1979
EXSPOR and IMPOR, 1979, Indonesia.

Note /1 : Including Electrical Equipments, Parts, etc.

Table V-12 BALANCE OF TRADE IN INDONESIA

(Unit: 10^6US$)

Year	Including Petroleum and Products			Excluding Petroleum and Products		
	Export	Import	Balance	Export	Import	Balance
1960	841	578	263	620	552	68
1965	708	695	13	436	682	-246
1970	1,108	1,002	106	662	987	-325
1971	1,234	1,103	131	756	1,082	-326
1972	1,778	1,562	216	865	1,531	-666
1973	3,211	2,729	482	1,602	2,685	-1,083
1974	7,426	3,842	3,584	2,215	3,659	-1,444
1975	7,103	4,770	2,333	1,792	4,516	-2,724
1976	8,546	5,673	2,873	2,542	5,235	-2,693
1977	10,853	6,230	4,623	3,555	5,498	-1,943
1978	11,643	6,690	4,953	4,205	6,111	-1,906
1979	15,590	7,202	8,388	6,719	6,409	+310

Source : Statistical Year book in Indonesia, 1977 - 1978, Biro Pusat Statistik Indonesia.

Statistical Pocket Book of Indonesia, 1979/80

Table V-13 TARGET OF CROP PRODUCTION IN REPELITA III IN INDONESIA

Crop	Item	Unit	1979/80	1980/81	1981/82	1982/83	1983/84	Increase Rate (%) 1979-1980
Rice	Harvested Area	10^3ha	8,885	9,065	9,295	9,600	9,925	112
	Bimas/Inmas	10^3ha	5,223	5,541	5,971	6,484	7,220	138
	Rice Yield	ton/ha	2.02	2.03	2.04	2.05	2.07	102
	Rice Production	10^3ton	17,940	18,442	18,995	19,688	20,574	115
	Rice Production of BIMAS/INMAS Program	10^3ton	12,405	13,160	14,050	15,108	16,606	134
Maize	Harvested Area	10^3ha	2,630	2,850	2,850	3,100	3,000	114
	Production	10^3ton	3,200	3,580	3,660	4,090	4,200	131
Cassava	Harvested Area	10^3ha	1,420	1,460	1,510	1,550	1,700	120
	Production	10^3ton	13,630	11,170	11,670	15,670	17,340	127
Peanuts	Harvested Area	10^3ha	560	600	610	620	640	114
	Production	10^3ton	460	500	530	560	600	130
Soybean	Harvested Area	10^3ha	770	800	840	870	910	118
	Production	10^3ton	630	680	740	790	850	135

Source: Repelita III

Table V-14 NUMBER OF SCHOOL, TEACHER AND PUPIL

Unit: 10^3

1) Elementry School

Region	School	Teacher	Pupil	Pupil/Teacher
Indonesia /1	98.0	676.2	21,123.5	31
South Sumatra /1	2.7	16.4	644.1	39
Lampung /2	2.5	17.4	728.7	42
Kab. OKU /1	0.4	2.2	89.8	42
Kab. OKI /1	0.3	2.4	79.4	33
Kab. North Lampung /2	0.5	3.6	125.8	35

2) Junior High School

Region	School	Teacher	Pupil	Pupil/Teacher
Indonesia /1	9.3	163.6	2,827.1	17
South Sumatra /1	0.3	5.2	88.2	17
Lampung /3	0.3	2.1	75.0	36
Kab. OKU /1	0.04	0.4	8.2	18
Kab. OKI /1	0.04	0.34	5.4	16
Kab. North Lampung /3	0.05	0.4	8.0	18

3) Senior High School

Region	School	Teacher	Pupil	Pupil/Teacher
Indonesia/1	4.2	102.5	1,471.9	14
South Sumatra/1	0.16	3.5	47.8	14
Lampung/3	0.11	1.9	29.1	15
Kab. OKU/1	0.013	0.181	2.08	11
Kab. OKI/1	0.006	0.084	1.56	19
Kab.North Lampung/3	0.016	0.198	3.50	18

Source: /1; Statistic Indonesia, 1979/1980.

/2; Dinas Pendidikan Dasar (Elemental Education and Culture Office), 1981.

/3; Department of Education Culture Office in Kab. North Lampung, 1981.

Table V-15 NUMBER OF HEALTH FACILITIES

Region	Hospital	Puskesmas	BKIA	Clinic	Person/health facility	Doctors	Nurses	Mid wives	Person/ Doctor
Indonesia	1.168	4,353	2,412	4,180	32,250	10,456	16,149	14,921	14,190
South Sumatra	34	154	201	411	6,040	306	624	436	15,130
Lampung	4	165	202	63	10,650	138	287	162	33,510
Kab. OKU	2	16	38	65	6,260	18	30	37	41,670
Kab. OKI	1	60	21	34	5,030	15	45	39	38,930
Kab. North Lampung	1	34	31	37	8,560	32	43	25	27,560

Source : Health Office in Lampung Province, 1981.
Health Office in South Sumatra Province, 1981.

Table V-16 NUMBER OF PATIENTS AND DEATH BY MAIN DISEASES IN SOUTH SUMATRA AND KAB. OKU AND OKI

Kind of diseases	South Sumatra			Kab. OKU			Kab. OKI		
	No. of patients	No. of death	%	No. of patients	No. of death	%	No. of patients	No. of death	%
D.H.F. /1	218	18	8	-	-	-	-	-	-
Cholera	2,669	62	2	107	11	10	220	16	7
Lepra	1,331	-	-	110	-	-	266	-	-
Rabies	130	50	38	-	-	-	10	2	20
Genetalia	3,330	375	11	-	-	-	-	-	-
Frambocia	*	*	-	-	-	-	456	-	-
Others	-	-	-	-	-	-	-	-	-
Total	7,678	505	7	217	11	5	952	18	2

Source : Health Office in South Sumatra Province, 1981

Note /1 : Disease Haemoregic Fixir

* : No Data is available.

Table V-17 NUMBER OF PATIENTS AND DEATH BY MAJOR DISEASES IN LAMPUNG PROVINCE AND KAB. NORTH LAMPUNG

Kind of diseases	Lampung			Kab. North Lampung		
	No. of patients	No. of death	(%)	No. of patients	No. of death	(%)
Tetanus	279	95	(34)	12	5	(42)
Diphtheri	63	15	(24)	3	2	(67)
Typhoid Fever	350	24	(6)	12	2	(17)
Polio paralitica	2	-	-	-	-	-
G.E.Tanpa Dehydrasi 1	1,098	72	(7)	49	7	(14)
Rabies	16	10	(63)	3	-	-
Hepatitis	305	13	(4)	23	3	(13)
Encephalitis	84	31	(37)	-	-	-
Malaria	-	-	-	-	-	-
Others	-	-	-	-	-	-
Total	2,227	260	(12)	102	19	(19)

Source : Health Office in Lampung Province, 1981

Note 1 : Gastro Entristis Tanpa Dehydrasi

Table V-18 AREA AND POPULATION IN THE KECAMATANS CONCERNED WITH THE PROJECT AREA

Kecamatan	Kabupaten	Area (km^2)	Population (10^3 person)	Population Density (person/km^2)	Population Growth Rate /1 (%)
Buay Madang	OKU	1,060	151	142	3.28
Cempaka	OKU	885	91	103	2.64
Kayu Agung	OKI	1,339	82	61	8.59
Pakuan Ratu	North Lampung	1,158	16	14	6.5 /2
Tulangbawang Tengah	North Lampung	1,139	41	36	5.4 /2
Menggala	North Lampung	2,399	47	20	25.8 /2
Bahuga	North Lampung	394	32	81	6.97
Total		8,365	460	55	

Source: Kantor Census and Statistika in South Sumatra Province, Lampung Province, Kab. OKU, OKI and North Lampung, 1981.
Each Kecamatan Office, 1981.

Note /1: 1971-1980
/2: 1976-1980

Table V-19 PRESENT LAND USE IN THE PROJECT AREA

(Unit: ha)

Land Use	Muncak Kabau Area	Lempuing Area	Tulangbawang Area		
			East Subarea	West Subarea	Total
Lowland paddy field (Sawah)	2,850	4,900	120	190	310
Upland field	940	1,020	4,300	950	5,250
Ladang /1	1,130	1,580	8,900	2,500	11,400
Perennial crops	300	500	900	100	1,000
Alang-alang	760	2,900	2,700	9,100	11,800
Forest	7,670	5,600	11,970	35,630	47,600
Swampy land	1,210	800	0	0	0
Village	1,690	1,500	30	70	100
Others /2	350	600	1,040	1,800	2,840
Total	16,900	19,400	29,960	50,340	80,300

Source : This table is made base upon the data collected from each village concerned with the project area and the interpretation of aerialphoto on a scale of 1:20,000 taken by JICA in August 1979.

Note /1:: Shifting cultivation land.

/2 : Others includes canals, roads and small rivers.

Table V-20 CROP VARIETY, GROWING PERIOD AND YIELD OF CROPS IN THE PROJECT AREA

Crop Variety	Growing Period (Day or Month)	Yield (t/ha)/1
1) Lowland Paddy		
- High yield variety		
V.U.T.W./2	115	3.4
IR-36	124	3.3
IR-38	131	3.3
PB-5	132	3.0
IR-32	132	3.4
- Improved variety		
Pelita I/2	135	3.4
Pelita I/1	137	3.4
- Local variety		
Lampung	150	2.4
Sri Makmur	150	2.0
Songgoto/3	155	2.1
Muwang	160	2.0
Masuri	160	2.6
Kwase	180	2.0
Gundira	180	1.1
Pembougkar/3	180	2.3
Kwatik/3	184	2.4
Dandung	200	1.5
Ketan Tahun	240	1.0
2) Upland Paddy		
Jalawara	120	0.9
Gebrot	120	0.9
Gundil	120	1.8
PB-5	140	1.5
Campung	150	1.5
Cartuna	150	1.5
Semeter	150	1.0
Sikuning	155	1.2
Sarirendah	150	1.1
Dayang Rindu	160	1.6
Seberiti	180	1.5
Padi Bulu/3	180	1.5
Dujang Pandang	180	1.1
Genjah	180	1.2
Bringkil	180	2.0
Serlak	200	1.5
Moyong Rindu	210	1.1
3) Maize		
Kerotek	90	1.4
Metro/3	95	1.0
Kodok/3	105	1.0
DMR-5	105	1.2
Harapan	117	1.5
Intang	120	1.2
4) Cassava		
Pokarso	6	7.0
Marini	6	8.0
Taban	6	5.0
Cinjah	6	6.0
Mantingan	7	10.0
Marsam	7	4.0
S.P.P/2	8	7.0
Martapura	8	7.0
Mentega/3	8	8.0
Kumbong	9	10.0
Valenca	9	8.0
Mangi	9	8.5
Ambon	10	10.0
Pundesi	10	10.0
Lambong	12	7.0
Tahunug	12	10.0
5) Peanuts		
Banuky	85	1.0
Sedang	90	0.8
Basar	90	0.8
Banteng	100	1.0
Gajah/3	100	1.0
Kidang	105	1.1
Macan/2	105	0.6
6) Soybeans		
Ringgit	90	1.5
Banteng/3	85	0.6
Orba	85	0.8
Shahiti/2	85	0.7
Malal	100	1.2

Source : Kecamatan Agricultural Offices and Data Survey in the Project Area 1980, 1981.

Note /1: As dry stalk paddy
/2: Variety Unggul Tahan Werang (Resestant variety)
/3: Predominant varieties planted

Table V-21 AMOUNT OF FARM INPUTS AT PRESENT

Farm Input	Unit	Rainy season Paddy		Upland Paddy	Maize	Cassava	Peanut	Soybean	Rubber	Coffee
		BIMAS	Non-BIMAS							
Seed	kg/ha	30	30	40	20	10,000/1	40	20	620/2	1,600/2
Fertilizer										
Urea	kg/ha	30	10	10	-	-	-	-	-	-
TSP	kg/ha	15	5	-	-	-	-	-	-	-
Agro-chemicals										
Insecticide (Diazinon)	lit./ha	2	1	1	-	-	-	-	-	-
Rodenticide (Zink-phosphate)	g/ha	100	100	-	-	-	-	-	-	-

Source: Data from Desa Survey and Farm Economy Survey, 1981
Kecamatan Agricultural Offices, 1980
Kab. Agricultural Offices, 1980

Note /1 : Unit; Stalk
/2 : Unit; No. of Seedling

Table V-22 BIMAS AND INMAS PROGRAM AREA IN THE PROJECT AREA

Project area	Total paddy field	BIMAS area (1979/80)		INMAS area (1979/80)		Total Program area	
		R.S.P/2	D.S.P/3	R.S.P	D.S.P	R.S.P	D.S.P
	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)
Muncak Kabau area	2,850	300	0	100	0	400(14.0)/1	0
Lespoing area	4,900	150	0	100	0	250(5.1)	0
Tulangbavang area							
(5 ha)	120	0	0	0	0	0(0.0)	0
(2 ha)	190	15	0	5	0	20(10.5)	0
Total	8,060	465	0	205	0	670(8.3)	0

Source : The figures in this table are estimated on the basis of the field survey and Farm Economy Survey in the project area. According to the farm economy survey, certain rain-fed areas are included under BIMAS/INMAS programs.

Note /1 : Percent of the total paddy fields in each d velopment area.
/2 : Rainy season paddy.
/3 : Dry season paddy.

Table V-23 PRESENT LABOR REQUIREMENT BY CROPS

Units: Man-day/ha

Item	Paddy		Maize	Cassava	Peanut	Soybean	Coffee	Rubber
	Rainy Season	Upland						
Nursery bed	8	-	-	-	-	-	-	-
Land preparation	30	25	-	-	-	-	-	-
Transplanting & Soving	25	20	7	10	7	7	-	-
Weeding	40	40	20	25	25	20	60	40
Fertilizing	1	1	-	-	-	-	-	-
Protecting	1	1	-	-	-	-	-	-
Harvest	40	30	20	30	25	20	60	40
Others	20	15	8	10	8	8	30	30
Total	165	132	55	75	65	55	150	110

Source: 1) Data from Desa survey and Farm Economy survey, 1981

2) Kecamatan Agricultural offices, 1980

3) Kab. Agricultural office, 1980

Table V-24 ESTIMATED CROP YIELD AT PRESENT

Crops	Yield (ton/ha)	Remarks
Rainy season paddy (with BIMAS/INMAS)	2.8	Dry paddy
Rainy season paddy (without BIMAS/INMAS)	2.0	Dry paddy
Upland paddy	1.2	Dry paddy
Maize	1.0	Grains
Cassava	6.8	Fresh root
Peanuts	0.7	Grains
Soybeans	0.6	Grains

Source: Data by Farm Economy Survey in the project area, 1981.

Data by Desa Survey in the project area, 1981.

Data on crop yields from Kecamatan Offices concerned with the project area, 1980, 1981.

Table V-25 RESULTS OF SAMPLE SURVEY FOR DRY SEASON PADDY IN THE PROJECT AREA

Village	Sample Number	Variety	No. of panicles ($/m^2$)	No. of grains per panicle	Percent of ripened grains (%)	Weight of 1,000 grains (g)	Field/3 (ton/ha)
Trijoso/1	1	IR-36	305	58	56.9	21.6	2.1
"	2	PB-5	208	99	29.4	26.5	1.6
Wonorejo/1	3	PB-5	314	89	51.2	24.8	4.0
" /1	4	IR-36	296	56	64.3	22.7	2.5
"	5	IR-32	315	48	42.3	22.6	1.5
Sukosari/1	6	IR-36	444	59	70.2	18.9	4.0
Sidozulyo	7	IR-32	239	68	54.7	22.7	2.2
Harjo Winangun	8	IR-32	343	129	43.9	20.0	2.5
Pujo Rahayu/1	9	IR-32	283	74	45.4	22.4	2.5
Wonosari	10	Ketan Laban	178	52	47.2	21.3	1.0
Sukosari	11	Grojak	207	45	55.4	28.7	1.5
Harjo Winangun	12	Ketan Tahun	76	117	2.3	16.6	0.03
Average/2			267	75	51.3	22.9	2.3

Note /1 : Paddy of BIMAS program field
/2 : Excluding sample number 12
/3 : Dry paddy

Table V-26 PRESENT CROP-HARVESTED AREA/1

(Unit: ha)

Major Crop	Muncak Katau Area	Lenpuing Area	Tulangbawang East Subarea	Tulangbawang West Subarea	Total Area
Paddy					
Rainy season paddy (BIMAS)	400	250	0	20	670
Rainy season paddy (Non-BIMAS)	2,450	4,650	120	170	7,390
Upland paddy	200	510	3,100	200	4,010
Total	3,050	5,410	3,220	390	12,070
Maize	190	260	800	30	1,190
Cassava	900	950	1,500	300	3,650
Peanuts	240	260	200	70	770
Soybeans	60	250	450	40	810

Note /1: Area is estimated based on the land use survey and the data provided by village offices concerned.

Table V-27 PRESENT CROP PRODUCTION IN THE PROJECT AREA

(Unit: ton)

Major Crop	Muncak Katau Area	Lenpuing Area	Tulangbawang East Subarea	Tulangbawang West Subarea	Total Area
Paddy					
Rainy season paddy (BIMAS)	1,120	700	0	60	1,880
Rainy season paddy (Non-BIMAS)	4,900	9,300	240	340	14,780
Upland paddy	240	610	3,720	240	4,810
Total	6,260	10,610	3,960	640	21,470
Maize	190	260	500	30	1,190
Cassava	6,120	6,440	10,200	2,040	24,820
Peanuts	170	180	130	50	540
Soybeans	40	150	250	20	490

Table V-28 PADDY HARVESTED AREA AND PRODUCTION IN KECAMATAN CONCERNED

	Kecamatan	B.P.S/1 Area (ha)	B.P.S/1 Production (tons)	Lebak Paddy Area (ha)	Lebak Paddy Production (tons)	D.S.P/2 Area (ha)	D.S.P/2 Production (ton)	Upland Paddy Area (ha)	Upland Paddy Production (tons)	Total Area (ha)	Total Production (tons)
1978	Buay Madang	10,900	40,800	1,700	3,900	1,200	4,300	800	1,000	14,600	50,000
	Campaka	1,800	4,100	5,000	11,500	-	-	800	900	7,600	16,500
	Kayu Agung	6,400	16,500	3,500	9,720	-	-	2,270	3,470	12,170	29,690
	Pakuan Ratu	50	180	-	-	-	-	970	870	1,020	1,050
	T.B. Tengah/3	30	30	-	-	-	-	8,600	13,700	8,630	13,730
	Menggala	350	1,100	-	-	-	-	1,700	2,500	2,050	3,600
	Bahuga	950	5,500	-	-	-	-	380	1,020	1,330	6,520
1979	Buay Madang	10,800	42,100	1,700	4,400	1,800	6,600	900	900	15,200	54,000
	Campaka	2,000	5,000	3,600	8,900	-	-	800	800	6,400	14,700
	Kayu Agung	7,500	19,200	2,780	7,720	-	-	2,100	3,210	12,380	30,130
	Pakuan Ratu	60	230	-	-	-	-	1,500	2,300	1,560	2,530
	T.B. Tengah	60	220	-	-	-	-	4,700	7,200	4,760	7,420
	Menggala	360	1,400	-	-	-	-	200	300	560	1,700
	Bahuga	1,100	3,750	-	-	-	-	430	660	1,530	4,410
1980	Buay Madang	10,900	42,100	1,700	4,200	1,700	5,700	900	900	15,200	52,900
	Campaka	2,000	5,000	3,600	9,500	-	-	800	800	6,400	15,300
	Kayu Agung	6,950	17,890	3,200	8,890	-	-	1,950	2,980	12,100	29,760
	Pakuan Ratu	60	250	-	-	-	-	1,100	1,600	1,160	1,850
	T.B. Tengah	30	80	-	-	-	-	4,600	6,400	4,630	6,480
	Menggala	360	1,500	-	-	-	-	1,100	1,600	1,460	3,100
	Bahuga	1,070	3,800	-	-	-	-	1,400	2,000	2,470	5,800

Source: Kab. OKU, OKI and North Lampung Agricultural Offices, 1981.

Note: /1 Rainy season paddy
/2 Dry season paddy
/3 Tulangbawang Tengah
Paddy means dry stalk paddy

Table V-29 MAJOR UPLAND CROP HARVESTED AREA AND PRODUCTION IN KECAMATAN CONCERNED

Kecamatan	Maize		Cassava		Soybean		Peanut	
	Area (ha)	Production (tons)	Area (ha)	Production (tons)	Area (ha)	Production (tons)	Area (ha)	Production (tons)
1978								
Buay Madang	660	500	860	6,420	160	130	180	150
Gompaka	150	130	1,100	6,200	130	90	50	40
Kayu Agung	1,040	610	4,610	23,440	760	430	1,870	1,120
Pakuan Ratu	340	200	40	620	-	-	10	10
T.B. Tengah	390	260	2,450	34,240	-	-	-	-
Menggala	40	30	60	720	-	-	20	10
Bahuga	10	10	720	18,050	110	110	560	440
1979								
Buay Madang	610	490	1,550	9,720	250	150	260	180
Gompaka	220	220	1,400	6,350	140	90	80	60
Kayu Agung	1,280	680	4,770	22,590	990	430	1,290	680
Pakuan Ratu	950	2,710	30	380	480	430	-	-
T.B. Tengah	630	790	3,940	61,970	-	-	170	110
Menggala	50	30	20	150	-	-	10	10
Bahuga	130	160	1,120	3,400	50	30	420	280
1980								
Buay Madang	620	550	900	7,320	150	140	190	170
Gompaka	60	40	550	3,300	200	150	20	10
Kayu Agung	1,300	700	4,650	23,500	1,290	680	990	430
Pakuan Ratu	50	40	670	2,150	550	460	10	10
T.B. Tengah	650	550	2,410	27,670	-	-	150	90
Menggal	100	80	150	1,950	-	-	20	10
Bahuga	130	110	540	7,290	80	60	460	350

Source: Kab. OKU, OKI and North Lampung Agricultural offices, 1981.

Table V-30 NUMBER OF LIVESTOCK IN RECENT YEARS

(Unit: head)

Kabupaten	Year	Cattle	Buffalo	Goat	Sheep	Pig	Chicken	Duck
OKU	1978	63,200	19,100	31,600	10,000	12,600	907,100	94,300
	1979	68,500	20,000	31,400	10,400	16,600	924,900	89,000
	1980	75,300	22,400	34,500	11,400	18,300	1,017,400	97,900
	1980/78(%)	119.1	117.3	109.2	114.0	145.2	112.2	103.8
OKI	1978	21,800	7,900	15,400	1,600	900	509,600	224,200
	1979	24,900	8,300	16,200	1,700	1,300	468,400	230,500
	1980	27,400	9,100	17,900	1,800	1,500	515,300	253,600
	1980/78(%)	98.6	115.2	116.2	112.5	166.7	101.1	113.1
North Lampung	1978	7,800	40,900	87,800	35,000	4,000	1,040,700	218,300
	1979	10,400	43,300	78,000	35,000	4,400	1,033,600	223,200
	1980	10,900	46,600	85,000	37,100	5,100	1,142,200	230,600
	1980/78(%)	139.7	113.9	96.8	106.0	127.5	109.8	105.6

Source : Livestock office in South Sumatra Province, 1981

Livestck office in Lampung Province, 1981.

Table V-31 NUMBER OF SLAUGHTER OF LIVESTOCK

(Unit: head)

Kabupaten	Year	Cattle	Buffalo	Goat	Sheep	Pig	Chicken[1]
OKU	1978	700	1,100	1,700	-	300	597,300
	1979	2,100	400	6,700	1,100	600	423,500
	1980	2,300	500	7,400	1,200	600	465,900
	1980/1978 (%)	328.6	45.5	435.3	-	200.0	78.0
OKI	1978	1,700	500	-	-	-	22,200
	1979	2,700	300	1,400	100	-	464,200
	1980	3,000	500	1,500	100	-	510,600
	1980/1978 (%)	176.5	100.0	-	-	-	230.0
North Lampung	1978	1,000	600	5,200	600	400	930,500
	1979	1,300	700	5,700	1,000	600	1,223,100
	1980	1,500	800	6,500	1,100	900	1,400,400
	1980/1978 (%)	150.0	133.3	125.3	183.3	225.0	147.3

Source : Livestock office in South Sumatra province, 1981.

Livestock office in Lampung province, 1981.

Note [1]: Including Duck

Table V-32 NUMBER OF LIVESTOCK IN KECAMATAN CONCERNED (1980)

(Unit: head)

Kecamatan	Cattle	Buffalo	Goat	Sheep	Pig	Chicken	Duck
Muncak Kabau area							
(1) Buay Madang	12,500	3,800	5,500	1,900	7,200	121,900	31,100
(2) Kab. OKU	75,300	22,400	34,500	11,400	18,300	1,017,400	97,900
(1)/(2) in %	16.6	17.0	15.9	16.7	39.3	12.0	31.8
No. of the large animal per farmer	0.51	0.15	-	-	-	-	-
Lampung area							
Gompaka	4,300	120	2,900	800	2,800	63,300	5,700
Kayu Agung	180	490	180	1,080	130	24,100	4,300
(1) Total	4,480	610	3,080	1,880	2,930	87,400	10,000
(2) Kab. OKU + OKI	38,300	55,700	102,900	38,900	6,600	1,657,500	484,200
(1)/(2) in %	11.7	1.1	3.0	4.8	44.4	5.3	2.1
No. of large animal per farmer	0.16	0.02	-	-	-	-	-
Tulangbawang area							
Pakuan Ratu	1,250	250	2,400	-	-	15,900	2,300
T.B. Tengah	550	220	1,850	-	-	10,800	750
Menggala	660	940	750	-	-	30,000	700
Bahuga	80	200	90	-	-	30,400	600
(1) Total	2,540	1,610	5,090	-	-	87,100	4,350
(2) Kab. North Lampung	10,900	46,600	85,000	37,100	5,100	1,142,200	230,600
(1)/(2) in %	23.3	3.5	6.0	-	-	7.6	1.9
No. of large animal per farmer	0.10	0.08	-	-	-	-	-

Source: Livestock office in Kabupaten OKU, OKI and North Lampung, 1981.

Table V-33 NUMBER OF SLAUGHTER IN KECAMATAN CONCERNED (1980)

(Unit : head)

Kecamatan	Cattle	Baffalo	Goat	Sheep	Pig	Chicken
Muncak Kabau area						
(1) Buay Madang	320	110	880	100	140	78,900
(2) Kab. OKU	2,300	500	7,400	1,200	600	465,900
(1)/(2) in %	13.9	22.0	11.9	8.3	23.3	16.9
Lempuing area						
Cempaka	230	-	750	130	100	32,600
Kayu Agung	40	70	50	90	50	11,000
(1) Total	270	70	800	220	150	43,600
(2) Kab.OKU + OKI	5,300	1,000	8,900	1,300	600	976,500
(1)/(2) in %	5.1	7.0	0.9	16.9	25.0	4.5
Tulangbawang area						
Pakuan Ratu	240	50	460	-	-	3,530
T.B. Tengah	30	10	300	-	-	5,100
Menggala	40	40	180	-	-	12,280
Bahuga	140	80	140	-	80	2,740
(1) Total	450	180	1,080	-	80	23,650
(2) Kab. North Lampung	1,500	800	6,500	1,100	900	1,400,400
(1)/(2) in %	30.0	22.5	16.6	-	8.9	1.7

Source : This table is estimated based on the tendency of number of livestock and number of slaughter of livestock in each Kabupaten.

Table V-34 NUMBER OF LIVESTOCK IN THE PROJECT AREA

(Unit : head)

Kind of Livestock	Muncak Kabau area	Lenpuing area	Tulangbavang		Total area
			East subarea	West subarea	
Cattle	680	450	780	280	2,190
Buffalo	30	250	100	160	540
Goat	930	550	320	250	2,050
Sheep	-	250	-	-	250
Pig	-	-	-	-	-
Chicken	7,300	32,500	23,700	6,500	70,000
Duck	2,600	3,000	1,000	500	7,100
No. of large animal per farmer	0.22	0.14	0.18	0.44	0.19
No. of large animal per ha[/1]	0.19	0.12	0.20	0.38	0.18

Source : The figures in this table are estimated on the basis of the results of field survey.

Note [/1] : Sawah + Tegal.

Table V-35 LIVESTOCK PRODUCTION IN THE PROJECT AREA

Kind of livestock	Unit	No. of Slaughter				Total area
		Muncak Kabau area	Lenpuing area	Tulangbavang		
				East subarea	West subarea	
Cattle	head	100	80	160	40	380
Buffalo	"	10	50	10	20	90
Goat	"	250	160	130	120	660
Sheep	"	-	80	-	-	80
Pig	"	-	-	-	-	-
Chicken	"	3,800	14,700	21,700	6,000	46,200
Duck	"	1,300	1,400	900	500	4,100
Egg (Chicken)	(pieces)	36,500	163,000	118,500	32,500	350,500
(Duck)	"	13,000	15,000	4,500	2,200	34,700

Source : The figures in this table are estimated based on the results of field survey.

Table V-36 PROCUREMENT AND DISTRIBUTION OF RICE IN SOUTH SUMATRA PROVINCE

(Unit: 10^3 ton

	1970/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/8
Original Stock	18.6	29.8	31.3	5.5	23.6	35.2	13.1	27.6	37.1	36.1
Procurement										
(a) Internal	-	-	-	0.1	-	0.2	-	0.5	0.6	10.0
(b) Import	116.0	91.6	69.3	143.1	91.2	43.4	149.5	163.4	119.2	191.4
Distribution										
(a) South Sumatra	95.7	86.3	108.9	117.2	79.6	65.0	124.7	149.3	118.8	182.6
(b) Outside	9.0	3.9	6.2	1.9	-	0.7	1.3	5.1	2.0	4.1
Remaining stock	29.9	31.2	5.5	23.6	35.2	13.1	27.6	37.1	36.1	45.5

Source : DOLOG Office in South Sumatra Province, 1980.

Note --- : Underline means more than 50,000 tons imported.

=== : Double underline means more than 100,000 tons of rice imported, particular about 190,000 tons of rice in 1979/80 was imported.

Table V-37 PROCUREMENT AND DISTRIBUTION OF RICE IN LAMPUNG PROVINCE

(Unit: 10^3 tons)

	1970/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80
Original stock	10.6	2.4	0.7	2.2	5.3	3.9	4.1	3.8	8.4	12.7
Procurement										
(a) Internal	2.5	9.6	10.5	8.0	5.8	6.5	1.4	0.3	19.9	0.3
(b) Import	-	-	11.3	9.1	1.6	0.0	13.7	24.1	10.4	68.3
Distribution										
(a) Lampung	10.7	11.3	20.3	14.0	8.9	6.3	15.4	19.8	25.9	72.5
(b) Outside										
Remaining stock	2.4	0.7	2.2	5.3	3.8	4.1	3.8	8.4	12.8	8.8

Source : DOLOG Office in Lampung Province, 1981

Note --- : Underline means more than 50,000 tons of rice imported.

Table V-38 NUMBER OF WAREHOUSE BY SIZE IN SOUTH SUMATRA AND LAMPUNG PROVINCES

Capacity (tons)	South Sumatra Province			Lampung Province		
	Private	Dolog	Total	Private	Dolog	Total
Under 1,000	3	-	3	-	1	1
1,000 - 2,000	7	1	8	2	-	2
2,000 - 3,000	5	-	5	2	-	2
3,000 - 4,000	4	10	14	5	3	8
4,000 - 5,000	4	-	4	1	-	1
5,000 - 6,000	2	-	2	-	-	-
6,000 or more	2	-	2	-	-	-
Total number	27	11	38	10	4	14
Total capacity (tons)	81,400	36,000	117,400	28,000	15,000	43,000
(%)	(69.3)	(30.7)	(100.0)	(65.1)	(34.9)	(100.0)

Source: DOLOG Office in South Sumatra and Lampung Provinces, 1980, 1981.

Table V-39 PRESENT FARM GATE PRICES IN THE PROJECT AREA

Item		Unit price (Rp./kg, lit.or head)	Remarks
Rice		200	
Paddy		115	Dry paddy
Maize		60	
Cassava		25	
Peanuts		380	
Soybeans		320	
Coffee		650	
Rubber		200	
Coconut		80	
Seed or seedling	(Paddy)	135	
	(Maize)	75	
	(Peanuts)	410	
	(Soybeans)	330	
Fertilizer	(Urea)	80	
	(TSP)	80	
Agro-chemical	(Diazinon)	1,200	
	(Zink-phosphate)	2,500	
Livestock	Cattle	225,000	
	Buffalo	397,000	
	Pig	40,000	
	Goat	21,000	
	Sheep	18,000	
	Chicken	1,100	
	Duck	1,100	
	Egg (Chicken)	65	

Source : Village survey and farm economy survey, 1981

Table V-40 STAFFING OF AGRICULTURAL EXTENSION SERVICES

Kec. Concerned	No. of Village	Vilus /1	PPS /2	PPM /3	PPL /4	Contak tani /5	Village/ PPL	Ha PPL /6	Contak tani PPL
Nunuk Kabau Area									
Buay Madang	61	16	0	2	16	256	3.8	1,100	16
Kab. OKU	426	147	2	13	110	1,056	3.9	1,100	10
Lempuing Area									
Kayu Agung	35	4	0	1	11	35	3.2	920	3
Cerpaka	38	17	0	2	8	128	4.8	2,650	16
Sub-Total	73	21	0	3	19	163	3.8	1,650	9
Kab. OKI	315	168	2	12	108	528	2.9	1,000	5
Tulangbawang Area									
Bahuga	14	4	0	0	3	3	4.7	1,990	1
Pakuan Ratu	15	2	0	0	0	0	0	-	0
Tulangbawang Tengah	17	6	0	1	3	0	5.7	2,300	0
Menggala	27	6	0	0	10	14	2.7	1,100	1
Sub-Total	73	18	0	1	16	17	4.6	1,800	1
Kab. North Lampung	300	102	5	10	79	1,065	3.8	3,800	14

Source: Kab. OKU, OKI and North Lampung Agricultural Offices, 1981.
Each Kecamatan Office, 1981

Note
/1 : Vilayah Unit Desa which covers 3 - 4 villages
/2 : Subject Matter Specialist
/3 : Extension Supervisor
/4 : Field Extension Worker
/5 : Key farmer in each village
/6 : Farm Land per hectare

Table V-41 LIST OF MAIN SEED CENTERS (1980)

Kabupaten	Name of seed center	Location	Paddy field (Ha)	Paddy seed production (tons)	Distribution paddy seed (tons)	No. of staff (persons)	No. of houses	Name of paddy varieties
OKU	Balai benih induk (BBI)	Gumayang (Belitang)	31	45	45	17	8	- IR 32 - IR 34 - IR 36 - IR 38 - Serayu - Cisadane
OKI	Balai benih Unit	Sungai Pinang	5 ha /1 5 ha /2	25 /3	25 /3	3	3	- IR 36 - IR 32 - IR 38
North Lampung	Tanjung Raja		8	36	36	6	7	- IR 36 - IR 38
	Kotabumi	Kotabumi	10			2	2	
	Tegineneng	Tegineneng	5			50	10	
			22 (Tegal)					

Source: Agricultural office in South Sumatra province, 1980.
Kab. North Lampung Agricultural office, 1981.

Note
/1 : Irrigation land
/2 : No irrigation land
/3 : Estimated figure

Table V-12 AREA UNDER BIMAS/INMAS PROGRAM IN KAB. OKU, OKT AND NORTH LAMPUNG

Period	Kab. OKU							Kab. OKT							Kab. North Lampung						
	Total Paddy Field (ha)	BIMAS Rainy Season (ha)	BIMAS Dry Season (ha)	INMAS Rainy Season (ha)	INMAS Dry Season (ha)	Total Area of BIMAS/INMAS (ha)	Total Area of BIMAS/INMAS /1 (%)	Total Paddy Field (ha)	BIMAS Rainy Season (ha)	BIMAS Dry Season (ha)	INMAS Rainy Season (ha)	INMAS Dry Season (ha)	Total Area of BIMAS/INMAS (ha)	Total Area of BIMAS/INMAS /1 (%)	Total Paddy Field (ha)	BIMAS Rainy Season (ha)	BIMAS Dry Season (ha)	INMAS Rainy Season (ha)	INMAS Dry Season (ha)	Total Area of BIMAS/INMAS /1 (ha)	Total Area of BIMAS/INMAS /1 (%)
1970	32,490		-		1,080			-		-		500			-		-		-		
1970/71		325		500		1,825	5.6		-		-		-	-		-		-		-	-
1976	48,230		1,340		120			78,700		900					21,300/2		430		10		
1976/77		5,670		5,060		12,700	26.5		1,525		500		2,925	3.7		7,005		3,020		10,465	49.1
1977	15,630		190		560			78,600		1,325					22,300		130		50		
1977/78		6,620		1,870		9,300	20.2		250		10		1,585	2.0		5,770		2,260		8,310	40.6
1978	17,290		1,550		140			71,300		3,500					21,300		170		190		
1978/79		5,980		1,060		9,230	19.5		210				3,710	5.2		4,710		4,190		9,360	43.5
1979	48,230		2,930		2,450			80,700		3,750					21,300		210		860		
1979/80		10,740		13,730		29,860	61.9		350		145		4,245	5.0		4,180		4,220		9,470	44.5
1980	99,800		1,200					80,700		4,360					21,300		450		490		
1980/81		12,740		8,030		33,980	48.2		680		2,230		7,270	8.6		5,840		3,980		10,700	50.5
Average	15,280	7,010	1,860	5,210	850	14,090	30.1	79,560	600	2,770	720	500	4,150	5.2	21,300	5,580	340	3,630	310	9,690	45.5

Source : Kab. OKU, OKI and North Lampung Agricultural Offices, 1981.

Note /1 : Percent of BIMAS/INMAS program area to the total area of paddy fields.

/2 : No data is available, then, estimated based on the data of present land use (Kab. North Lampung Agricultural Office, 1981)

Table V-43 CREDIT AND REPAYMENT OF BIMAS PROGRAM

Period	Kab. OKU				Kab. OKI				Kab. North Lampung			
	Credit (1,000Rp)	Repayment (1,000Rp)	Out-standing (1,000Rp)	Repayment Percent (%)	Credit (1,000Rp)	Repayment (1,000Rp)	Out-standing (1,000Rp)	Repayment Percent (%)	Credit (1,000Rp)	Repayment (1,000Rp)	Out-standing (1,000Rp)	Repayment Percent (%)
1974	24,527	20,065	4,463	81.8	-	-	-	-	6,760	4,431	2,329	65.5
1974/75	69,024	52,938	16,086	76.7	-	-	-	-	98,062	51,135	46,927	52.1
1975	76,543	56,045	20,498	73.2	-	-	-	-	10,095	8,984	1,111	89.0
1975/76	121,971	86,828	35,143	71.2	-	-	-	-	81,581	39,372	42,209	48.3
1976	92,069	42,006	50,063	45.6	27,690	20,700	6,990	74.5	7,198	2,638	4,560	36.6
1976/77	87,568	58,963	28,605	67.3	41,230	15,340	25,890	37.2	128,074	44,783	83,291	35.0
1977	3,302	2,750	552	83.3	41,530	39,900	1,630	96.1	7,510	3,090	4,420	41.1
1977/78	116,982	71,082	45,900	60.8	6,760	1,750	5,010	25.9	101,860	15,970	85,890	15.7
1978	92,281	35,928	56,353	38.9	110,250	32,650	77,600	29.6	3,370	1,730	1,640	51.3
1978/79	174,075	68,421	105,884	39.3	5,685	870	4,815	15.3	89,420	39,630	49,790	44.3
1979	60,645	26,944	33,701	44.4	119,250	29,450	89,800	24.7	4,990	3,260	1,730	65.3
1979/80	276,153	103,758	172,395	37.6	9,470	2,350	7,120	24.8	100,830	38,000	62,830	37.7
1980	152,444	38,103	114,341	25.0	-	-	-	-	9,730	3,040	6,690	31.2
Total	1,347,814	663,831	683,983	49.2	361,865	143,010	218,855	39.5	672,180	283,123	389,057	42.1

Source: Bank Rakyat Indonesia in South Sumatra Province, 1981
Agricultural Office in Lampung Province, 1981

Table V-44 COOPERATIVES

Kec. concerned	No.of Village	BUUD/ KUD	Kios	Rice Mill	BRI Unit Village
Muncak Kabau Area					
Buay Madang	61	7	8	77	5
Kab. OKU	426	50	54	589	22
Lempuing Area					
Kayu Agung	35	3	2	8	1
Cempaka	38	2	4	41	3
Sub-total	73	5	6	49	4
Kab. OKI	315	19	12	183	12
Tulangbawang Area					
Bahuga	14	1	0	14	1
Pakuan Ratu	15	0	0	5	0
Tulangbawang Tengah	17	0	0	22	1
Menggala	27	1	0	10	0
Sub-total	73	2	0	51	2
Kab.North Lampung	300	54	18	257	20

Source : Kab. OKU, OKI and North Lampung Agricultural Offices, 1981

Each Kecamatan Office, 1981

Table V-45 LAND RECLAMATION PROGRAM IN SOUTH SUMATRA PROVINCE DURING REPELITA III (1979/80 - 1983/84)

(Unit : ha)

Kabupaten	Kecamatan	1979/80	1980/81	1981/82	1982/83	1983/84
MURA	Kota L.Linggau	777	149	-	350	-
	B.K.L.U.	-	200	-	-	-
	Muara Beliti	-	150	-	-	-
	Tugumulyo	-	-	1,270	-	-
	L.Linggau	-	-	290	-	-
	Sidodadi	-	-		1,200	-
	Teravas	-	-	-	-	1,560
OKU	Banding Agung	43	-	-	-	450
	Pengendonan	-	250	-	-	
	Belitang	-	605	1,500	-	-
	Muaradua	-	-	860	-	-
	Cempaka	-	-	-	1,600	-
LAHAT	Tanjung Sakti	121	-	-	-	-
	L a h a t	101	-	-	-	-
	Tebing Tinggi	-	107	-	300	-
	Kota Agung	-	150	350	-	-
	Pendopo	-	-	-	300	-
PALEMBANG	Ilir Barat 1	400	-	300	-	-
	Ilir Timur	-	239	300	-	-
LIOT	Gelumbang	161	-	-	-	-
MUARA ENIM	Pendopo	-	250	-	-	-
	Prabumulih	-	-	250	-	-
	Tanjung Agung	-	-	-	300	-
	Gunung Megang	-	-	-	-	225
	Semendo	-	-	-	-	165
MUBA	Talang Kelapa	-	100	250	-	-
	Sungai Lilin	-	-	-	391	-
	S e k a y u	-	-	-	-	350
BELITUNG	Membalong	-	-	330	-	-
BANGKA	Toboali	-	-	300	-	-
	Payung	-	-	-	300	-
OKI	Kayu Agung	-	-	-	-	750
South Sumatra	Total	1,603	2,200	6,000	4,711	3,500

Source : Agricultural Extension Service Office in South Sumatra Province, 1980

Table V-46 LAND RECLAMATION PROGRAM IN LAMPUNG PROVINCE DURING REPETILA III (1979/80 - 1983/84)

(Unit: ha)

Kabupaten	Kecamatan	1979/80	1980/81	1981/82
North Lampung	Abung Selatan	-	250	1,000
	Banjit	-	750	1,145
	Bukit Kemuning	944	-	-
	Kotaumi	-	-	1,200
Central Lampung	Metro	-	750	1,401
	Terbanggi Besar	-	-	1,000
	Kali Rejo	-	500	797
	Padang Ratu	-	1,250	1,000
	Way Jepara	1,636	-	1,000
South Lampung	Palas	-	1,000	1,000
Total		2,580	4,500	9,543

Source : Agricultural Extension Service Office in Lampung Province, 1981

Note : Data are not available during the period from 1982/83 to 1983/84.

Table V-47 AMOUNT OF LOAN BY TYPE OF AREA IN SOUTH SUMATRA PROVINCE

(Unit: Rp/ha)

Type of Work	Type of Area			
	Upland	Shrubs Grass	Light Forest	Heavy Forest
a. Construction work				
Land clearing	30,000	60,000	130,000	200,000
Land levelling	60,000	60,000	60,000	60,000
Land reclamation	50,000	50,000	50,000	50,000
Farm road	30,000	30,000	30,000	30,000
Sub - total	170,000	200,000	270,000	340,000
b. Certificate issuance				
Land certificate	17,500	17,500	17,500	17,500
Mortgage document	3,450	3,600	3,950	4,300
Sub - total	20,950	21,100	21,450	21,800
c. Grand Total	190,950	211,100	291,450	361,800
d. Loan Condition				
Interest	10.5 %	10.5 %	10.5 %	10.5 %
Grace period (years)	2	2	2	2
Repayment period (years)	6	7	10	14

Source : Agricultural Extension Service Office in South Sumatra Province, 1980

Table V-48 AMOUNT OF LOAN BY TYPE OF AREA IN LAMPUNG PROVINCE

(Unit: Rp/ha)

	Type of Area			
	Upland	Shrubs/Grass	Light Forest	Heavy Forest
a. Construction				
Land clearing	50,000	100,000	185,000	285,000
Land levelling	75,000	75,000	100,000	100,000
Land reclamation	65,000	65,000	65,000	65,000
Farm road	40,000	40,000	50,000	50,000
Sub - total	230,000	280,000	400,000	[illegible]
b. Certificate issuance				
Land certificate	20,800	20,800	20,800	20,800
Mortgage document	5,150	5,500	6,500	7,500
Sub - total	25,950	26,300	27,300	28,300
c. Grand Total	255,950	306,300	427,300	525,300
d. Loan Condition				
Interest				
Grace period (years)				
Repayment period (years)				

Source : Agricultural Extension Service Office in Lampung Province, 1981

Table V-49 PRESENT TYPICAL FARM BUDGET

Cropping Pattern	Type I	Type II	Type III	Type IV
Family size	5.8	5.1	5.5	5.1
Farm size	1.75	1.75	1.75	4.75
1. Gross Income (Rp.)				
Farm income	337,000	335,300	189,700	239,100
- Paddy	224,000	239,200	73,100	94,300
- Upland crops	74,000	57,100	77,600	93,800
- Perennial crops	39,000	39,000	39,000	51,000
Livestock income	24,000	27,400	31,000	15,700
Miscellaneous income	68,700	72,100	52,000	52,000
Total	429,700	434,800	272,700	306,800
2. Farm Outgo (Rp.)				
Crop production cost	24,400	24,700	16,200	20,300
- Paddy	13,100	14,200	4,800	7,400
- Upland crops	3,500	2,700	3,600	3,900
- Perennial crops	7,800	7,800	7,800	9,000
Livestock cost	2,500	2,800	3,100	1,600
Tax etc.	4,700	2,500	1,500	0
Living expenses	396,000	402,500	251,500	284,400
Total	427,600	432,500	272,300	306,300
3. Balance or capacity to pay (Rp.)	2,100	2,300	400	500
(US$)	(3.4)	(3.7)	(0.6)	(0.8)

Note: 1) Conversion rate: US$1 = Rp.625

2) Application area: Type I : Muncak Kabau area (1.5 ha of paddy field and 0.25ha of perennial crop)
Type II : Lempuing area (1.5ha of paddy field and 0.25ha of perennial crop)
Type III: West Tulangbawang area (1.5ha of paddy field and 0.25ha of perennial crop)
Type IV : East Tulangbawang area (2.75ha of paddy field and 2.0ha of perennial crop)

3) Livestock income is estimated based on Livestock Production

4) Living cost is estimated based upon the farm economy survey

Table V-50 PROGRESS OF TRANSMIGRATION IN KAB. OKU AND OKI

Year	Kab. OKU				Kab. OKI			
	Location	No. of family	No. of persons	Area allocated (ha)	Location	No. of family	No. of persons	Area allocated (ha)
1950-1978	Belitang	18,950	81,306	-	Pematang panggang I	3,500	16,356	65,000
	Way Hitam III	3,164	-	10,000	Pematang panggang II	-	-	10,000
	Way Hitam IV	546	-	5,500	Kayu Agung	-	-	25,000
	Rasuan	500	2,489	10,000				
	Kota Negara	322	1,568	10,000				
	Martapura	2,034	-	55,000				
	Sungai Aro	-	-	25,000				
	Bunga Mayang	-	-	6,000				
1979-1980	Martapura	1,000	-	-	Pematang panggang II	2,000	-	-
1980-1981	-	-	-	-	Pematang panggang III	3,500	-	-
Total		26,516				9,000		

Source : Transmigration Service Office in South Sumatra Province, 1981

Table V-51 PROGRESS OF TRANSMIGRATION IN KAB. NORTH LAMPUNG

Year	Name of Project Location	Governmental Trans-migration (No. of Family)	Other trans-migration (No. of Family)	Total	
				No. of Family	No. of Persons
1959	Baradafu	1,501	95	1,596	6,490
1962	Banjit	1,084	0	1,084	4,084
1965	Banjit	0	508	508	1,828
1965	Way Abung I	0	931	931	4,008
1965/71	Way Abung	44	668	712	3,356
1967	Way Abung	201	29	230	1,193
1970/71	Way Abung II/1	306	467	773	3,822
1971/72	Way Abung I	0	564	564	3,310
1971/72	Way Abung II/1	406	919	1,325	7,081
1972/73	Way Abung I	0	735	735	3,915
1972/73	Way Abung II/1	500	1,193	1,693	8,066
1973/74	Banjit	0	619	619	2,873
1973/74	Way Abung I	0	953	953	4,072
1973/74	Way Abung II/1	0	2,179	2,179	9,991
1973/74	Way Abung III/1	0	240	240	986
1973/74	Way Abung II/2	1,195	4,378	5,573	28,453
1974/75	Way Abung III	555	1,020	1,575	8,719
1975/76	Way Abung	950	204	1,154	5,287
1976/77	Tulangbawang I	450	96	546	2,360
1977/78	Tulangbawang	1,976	392	2,368	10,826
1978/79	Tulangbawang	1,550	117	1,667	7,955
1979/80	Tulangbawang	450	3	453	2,233
	Total	11,168	16,310	27,478	130,908

Source: Kabupaten North Lampung Transmigration Office, 1981

Table V-52 PROGRAM OF TRANSMIGRATION IN REPELITA III

Item	Unit	1979/80	1980/81	1981/82	1982/83	1983/84	Total
Family	1,000	50	75	100	125	150	500
No. of Settle Land		25	38	50	62	75	250
- Coastal or Swamp Area		12	8	8	8	8	44
- Upland		13	30	42	54	67	206
Road	km	4,260	6,680	8,840	11,000	13,340	44,120
- Access Road	km	260	600	840	1,080	1,340	4.120
- Village Road	km	1,000	1,500	2.000	2,480	3.000	10,000
- Forest Road	km	1,500	2,280	3,000	3.720	4,500	15.000
- Farm Road	km	1,500	2.280	3,000	3,720	4,500	15,000
Farm Land + Home Yard	ha	62,500	93,750	125,000	156,250	187,500	625,000

Source: Repelita III

Table V-53 PROGRAM OF TRANSMIGRATION IN REPELITA III IN KAB. OKU[1] AND OKI[1] AND SOUTH SUMATRA PROVINCE[2]

(Unit: Family)

Region	1979/80		1980/81		1981/82		1982/83		1983/84		Total
	NFS	FS	NFS	FS	NFS	FS	NFS	FS	NFS	FS	
South Sumatra Prov. (1)	7,000	8,500	10,000	8,000	11,800	10,000	10,300	10,300	13,500	0	89,400
Kab. OKU											
Baturaja	1,000	0	0	0	0	0	0	0	0	0	1,000
Martapura	0	0	0	0	300	0	0	0	0	0	300
Sungai Liat	0	0	0	0	0	0	0	0	0	0	0
Tanjung	0	0	0	0	0	0	300	0	0	0	300
Pardag	0	0	2,000	0	0	0	0	0	0	0	2,000
Kaliagi II	0	0	0	0	1,000	0	1,000	0	2,000	0	4,000
Sub-total (2)	1,000	0	2,000	0	1,300	0	1,300	0	2,000	0	7,600
(2) (1) (%)	6.5		11.1		6.5		6.3		14.8		8.5
Kab. OKI											
Pemulang Panggang	2,000	0	2,000	0	2,000	0	0	0	0	0	6,000
Kayu Agung	0	0	0	0	0	0	2,000	0	2,000	0	4,000
Sub-total (3)	2,000	0	2,000	0	2,000	0	2,000	0	2,000	0	10,000
(3) (1) (%)	12.9		11.1		9.2		9.7		14.8		11.2

Source 1 : Transmigration Office in South Sumatra Province
2 : Transmigration Office in Kab. OKU and OKI

Note NFS : Upland area
FS : Lowland area

Table V-54 PROGRAM OF TRANSMIGRATION IN REPELITA III IN KAB. NORTH LAMPUNG AND LAMPUNG PROVINCE

(Unit: Family)

Region	1979/80	1980/81	1981/82	1982/83	1983/84	Total	Area(Ha)
Lampung Province[1] (1)	500	3,000	2,500	2,500	5,000	13,500	175,000
Kab. North Lamp.[2]							
Tulangbawang Area II	500					500	8,000
Pakuan Ratu I & II		1,500				1,500	24,000
Sibon Kanan		1,000				1,000	20,000
Gisat Kasui		500				500	7,500
Way Tuba			500			500	15,000
Negeri Ujung Karang				500		500	10,000
Nenggo				1,000	1,000	2,000	40,000
Kasui Selatan				500	1,000	1,500	30,000
Blambangan Umpu					2,000	2,000	40,000
Sub - Total (2)	500	3,000	500	2,000	4,000	10,000	160,500
(2) (1) (%)	100.0	100.0	20.0	80.0	80.0	74.1	91.7

Source : Transmigration office in Lampung Province.
Transmigration office in Kab. North Lampung.
BAPPEDA office in Lampung Province.

Table V-55 PUBLIC FACILITIES TO BE PROVIDED BY GOVERNMENT FOR ONE UNIT/1 TRANSMIGRATION AREA

Facilities	No.	Building (m^2)	Yard (ha)
Office	1	60	0.25
Village house	500	30 - 34	0.25
Store house	-	-	-
Official residence	1	42	0.25
Post Office	-	-	-
Clinic	1	60	0.25
Religious building	2	36	0.25 - 0.50
School	1 (S.D)/2	540	0.25 - 1.00
Market	-	-	-
Cemetary	1	-	2.00
House of official	6	42	0.25

Source : Transmigration Office in South Sumatra Province 1980

Note /1: More than 1,000 ha or 500 family

/2: Elementary school

Table V-56 SUBSIDIES TO GENERAL TRANSMIGRATION

1. Food Stuff for 12 months

Rice	50 kg/household/month
Salt fish	5 "
Soap	1 "
Food oil	3 lit./household/month
Kelosin	8 "
Salt	2 kg/household/month
Sugar	3 "

2. Clothes - Transmigrant received one set of uniform (1 shirt + 1 trousers) from the Transmigration Office of original place.

3. Cooking utensils such as cooling pot, frying pan, kettle, etc.

4. House 33 m^2 of floor space

5. Farm land 2 ha/1

6. Agricultural equipment such as broad hoe, chopping knife, crowbar, etc.

7. Agricultural input materials.

Paddy seed	25 kg
Fertilizer (Urea)	70 kg
" (DAP)	75 kg
Insecticide	2 lit.
Rodenticide	100 gram as zink-phosphate

Rp.5,000 for other seeds to be purchased (coconuts, rubber, coffee, clove, etc.).

Agricultural input materials are provided through Agricultural Extension Offices concerned with the project area since 1979.

Source : Transmigration Office in South Sumatra Province, 1980

Note /1: 1.0 ha of paddy field, 0.75 ha of upland field and 0.25 ha of home yard.

Table V-57 SCHEDULE OF LAMPUNG RESETTLEMENT PROGRAM

Period	No. of Family	Original Kecamatan	Resettlement Area	Remarks on Resettlement Area
1980/81	5,017	Pagelaran, Wonosobo, Pulau Panggung (South Lampung Kab.)	Sungkai Utara Sungkai Selatan, Blambangan Umpu, (North Lampung Kab.)	
1981/82	10,000	Bukit Kemuning Banjit, Balik Bukit, Belalan, Kasui, Tanjung Raja, Abung - Barat, Sumber Jaya of Kab. North Lampung and Wonosobo, Gedung Tataan, Kedongdong of South Lampung Kab. and Tanjung Karang/T.Betung.	Blambangan Umpu, and Pakuan Ratu of North Lampung Kabupaten.	Including WPP Blambangan Umpu and WPP Negara Ratu
1982/83	10,000	Kalirejo, Padang Ratu, Talang Padang, Pagelaran, Kota Agung, Wonosobo and Pulau Panggung (South Lampung Kab.)	Blambangan Umpu and Bahuga (North Lampung Kab.)	Including WPP Blambangan Umpu and WPP Pakuan Ratu.
1983/84	10,000	Pulau Panggung, Perdosuka, Padang Cermin, Kalianda (South Lampung Kab.)	Mesuji, Tulang Bawang (Swamp Area) North Lampung Kab.	Including WPP Pakuan Ratu and WPP Mesuji.

Source : Fact Finding Survey Resettlement Program on Lampung Province (1981). Directorat Bina Program Pengairan Dept. of Public Works.

Table V-58 AGRICULTURAL TARGET BY REPELITA III

Crop		1979	1983	Increase rate (1983/1979)	Remarks
South Sumatra Province					
Paddy	(ha)	404,090	477,750	1.18	
	(tons)	755,200	923,980	1.22	as dry paddy
Maize	(ha)	7,120	10,250	1.44	
	(tons)	5,660	9,140	1.62	as grain
Soybean	(ha)	4,300	8,050	1.87	
	(tons)	3,550	7,200	2.03	as grain
Peanut	(ha)	7,620	11,520	1.51	
	(tons)	6,560	10,700	1.63	as grain
Cassava	(ha)	25,740	36,350	1.41	
	(tons)	193,490	275,920	1.43	as fresh root
Lampung Province					
Paddy	(ha)	307,820	336,610	1.09	
	(tons)	567,890	689,440	1.21	as dry paddy
Maize	(ha)	57,370	86,840	1.51	
	(tons)	97,180	162,920	1.67	as grain
Soybean	(ha)	76,710	98,530	1.28	
	(tons)	60,910	81,250	1.333	as grain
Peanut	(ha)	8,980	11,010	1.23	
	(tons)	5,140	6,360	1.24	as grain
Cassave	(ha)	86,820	104,000	1.20	
	(tons)	1,013,900	1,277,610	1.26	as fresh root

Source: 1) Agricultural offices in South Sumatra and Lampung provinces.
2) BAPPEDA offices in South Sumatra and Lampung provinces.

Table V-59 FUTURE LAND USE IN THE PROJECT AREA

Land Use	Muncak Kabau Area (ha)	Lenpuing Area (ha)	Tulangbavang Area		
			East Sub-area (ha)	West Sub-area (ha)	Total Area (ha)
Low land paddy field	10,700	13,100	13,200	31,300	44,500
Upland field	0	0	0	0	0
Ladang /1	0	0	0	0	0
Perennial crops	3,800	2,200	9,600	5,300	14,900
Alang-alang	50	0	100	0	100
Forest	150	0	2,860	340	3,200
Swale wet land	0	0	0	0	0
Village	2,600	2,600	1,800	7,900	9,700
Others /2	1,600	1,500	2,400	5,500	7,900
Total	16,900	19,400	29,960	50,340	80,300

Source: This table is made based upon the present land use, land suitability, etc.

Note /1 : Shifting crop cultivation land

/2 : Include canals, road and small river

Table V-60 RECOMMENDABLE IMPROVED LOCAL VARIETY

Paddy Varieties	Parent of Cross Breeding	Place of Cross Breeding	Growing Period (days)	Possible Yield (t/ha)	Remarks
Pelita I/1	Syntha x P85	Bogor	135	6.0-7.0	
Pelita I/2	Syntha x P85	Bogor	135	6.0-7.0	
Syntha	Bengawan x Sigadis	Bogor	145	4.0	
Gehar /1	Jerak x P68	Bogor	140-150	4.5-5.5	Tolerant Brown Verent, Bacterial Leaf Blight, etc.
Gati /1	Short Sigadis x Basrati	Bogor	110-120	4.0-4.5	Tolerant Brown Verent and Hijan
Adil /2	Pelita I/1 x IR 1103	Bogor	130-140	5.0-6.0	Tolerant Brown Verent etc.
Gata /1	Short Sigadis x Syntha	Bogor	115-125	5.0-5.5	Tolerant Brown Verent, Bacterial Leaf Blight, Tungro, etc.

Source: Paddy Cultivation of East South Asia
Tropical Agricultural Research Center, Japan M. Tasaka, Dec. 1978

Note /1: Taste is good

/2: Taste is not so good

Table V-61 CULTIVATION CRITERIA OF IRRIGATED PADDY

Days	Management	Amount of Implements
	Preparation of Nursery	
- 3	Seed selection	Salt solution for seed selection 10 liters of water + 2 kg of NaCl.
- 3	Seed disinfection	Benlate - T /1 (200 - 400 times, 6 - 12 hours) or Homai (200-400 times, 6-12 hours)
- 2	Seed soaking	36 hours
- 2	Hastening of germination	24 hours
- 1	Application of fertilizer	Urea 4.0 kg/400 m^2 T.S.P. 2.0 kg/400 m^2
0	Sowing	Acreage 400 m^2/ha, Seed 25 kg/ 400 m^2/ha
15	Control of diseases and insects damage	Diazinon 30-50 cc in 1,000 liters of water 300-500 lit/400 m^2 spraying
	(Nursery period: 25 days)	
	After transplanting	
	Preparation of paddy field	
- 5	Basal manuring	Urea 50 kg/ha, T.S.P. 90 kg/ha
0	Transplanting	Spacing 20-25 cm x 20-25 cm 3-4 seedlings per hill, 25-day-aged seedling
10	Weeding (1st)	Hand rotary weeding
13	Control of disease and insect damage (1st)	Diazinon 1 lit/ha, Kasumin 1 lit/ha
15	Application of fertilizer (1st)	Urea 60 kg/ha
30	Weeding (2nd)	Hand rotary weeding
40	Control of disease and insect damage (2nd)	Sumithion 1 lit/ha, Kasumin 1 lit/ha
60	(Panicle initiation period)	
63	Application of fertilizer (2nd)	Urea 70 kg/ha
70	(Booting period)	
73	Control of disease and insect damage	Diazinon 1 lit/ha
80	(Heading period)	
105	Harvesting	Use of sickle

Note 1) This table is compiled on the basis of the published data by Central Research Institute for Agriculture, Bogor.
2) For the introduction of new varieties, much attention should be paid to their resistance power against diseases and insects. As for new varieties, IR-36, -38 and B-series may be recommended.

/1 : As to rice seedling diseases, rice blast, rice leaf spot etc.

Table V-62 CULTIVATION CRITERIA OF PEANUTS

Days	Management	Amount of Implements
	Preparation of field	Lime 300 kg/ha
0	Sowing	Seed 60 kg/ha, spacing 25 x 25 cm
17	Application of fertilizer (1st)	Urea 20 kg/ha, TSP 40 kg/ha
20	Intertillage and weeding	Hoe and hand
35	Control insect damage (1st)	Spraying of Sumithion 1 lit/ha
45	Application of fertilizer (2nd)	Urea 10 kg/ha
47	Intertillage and weeding (2nd)	Hoe and hand
100	Harvesting	
105	Drying	
110	Cleaning	

Note 1) High yielding varieties: Gajah, Banteng, Gajah Campur, Kidang, Macan.

2) This table is compiled on the basis of the published data by Central Research Institute for Agriculture, Bogor.

Table V-63 CULTIVATION CRITERIA OF SOYBEANS

Days	Management	Amount of Implements
	Preparation of field	Lime 300 kg/ha
0	Sowing	Seed 40 kg/ha, spacing 30 x 50 cm
15	Application of fertilizer (1st)	Urea 10 kg/ha, TSP 40 kg/ha
17	Intertillage and weeding (1st)	Hoe and hand
30	Control of insect damage (1st)	Spraying of Sumithion 1 lit/ha
40	Application of fertilizer (2nd)	Urea 10 kg/ha
45	Intertillage and weeding (2nd)	Hoe and hand
90	Harvesting	
95	Drying	
100	Cleaning	

Note 1) High yielding varieties: Orba, Kucir, Mas.

2) This table is compiled on the basis of the published data by Central Research Institute for Agriculture, Bogor.

Table V-64 CULTIVATION CRITERIA OF MAIZE

Days	Managements	Amount of Implements
	Preparation of field	Lime 300 kg/ha
0	Sowing	20 kg/ha, spacing 50 x 100 cm
15	Application of fertilizer (1st)	Urea 30 kg/ha, TSP 30 kg/ha
17	Intertillage and weeding (1st)	Hoe and hand
30	Control of insect damage (1st)	Sumithion 1 lit/ha
40	Application of fertilizer (2nd)	Urea 20 kg/ha
43	Intertillage and weeding	Hoe and hand
95	Harvesting	
100	Drying	
105	Cleaning	

Note 1) High yielding varieties: Harapan baru, H-68, H-159

2) This table is compiled on the basis of the data published by Central Research Institute for Agriculture, Bogor.

Table V-65 AMOUNT OF FARM INPUTS IN "WITH PROJECT" CONDITION

Item	Paddy		Maize	Peanuts	Soybeans
	Rainy season	Dry season			
Seed (kg/ha)	25	25	20	40	30
Fertilizer (kg/ha)					
Urea	180	180	50	30	20
TSP	90	90	30	40	40
Lime	-	-	300	300	300
Agro-chemicals (lit/ha)					
Insecticide					
Sumithion	1	1	1	1	1
Diazinon	2	2			
Fungicide (lit/ha)					
Kasumin	2	2			
Rodenticide (g/ha)					
Zink-phosphate	200	200	100	100	100

Reference Data: Kecamatan Agricultural offices concerned, 1980
Kabupaten Agricultural offices concerned, 1980

Table V-66 AMOUNT OF FARM INPUTS IN "WITHOUT PROJECT" CONDITION

Item	Rainy season paddy			Maize	Cassava	Peanuts	Soybeans
	BIMAS	Non-BIMAS	Upland paddy				
Seed (kg/ha)	30	30	40	20	10,000/1	40	20
Fertilizer (kg/ha)							
Urea	50	15	10				
TSP	20	10					
Agro-chemical (lit/ha)							
Insecticide							
Diazinon	2	1	1				
Rodenticide (g/ha)							
Zink-phosphate	100	100					

Note /1 : unit; stalk

Reference Data: Data from Village Survey and Farm Economy Survey, 1981
Kecamatan Agricultural Extension Offices concerned, 1980, 1981
Kabupaten Agricultural Offices concerned

Table V-67 LABOR REQUIREMENT FOR CROPS IN "WITH PROJECT" CONDITION

(Unit: men-days/ha)

Item	Paddy		Maize	Peanuts	Soybeans
	Rainy Season	Dry Season			
Nursery bed	10	10	-	-	-
Land preparation	40	40	-	-	-
Transplanting or sowing	35	35	15	15	15
Weeding	40	40	35	35	35
Fertilizing	4	4	2	2	2
Protecting	4	4	1	1	1
Water management	5	5	2	2	2
Harvest	40	45	25	30	25
Threshing, etc.	15	15	-	-	-
Others	7	7	5	5	5
Total	200	205	85	90	85

Reference Data: Kecamatan Agricultural Offices concerned, 1980
Kabupaten Agricultural Offices concerned, 1980

Table V-68 LABOR REQUIREMENT FOR CROPS IN "WITHOUT PROJECT" CONDITION

(Unit: men-days/ha)

Item	Paddy		Maize	Cassave	Peanuts	Soybeans
	Rainy season	Upland				
Nursery bed	8	-	-	-	-	-
Land preparation	30	25				
Transplanting or sowing	25	20	7	10	7	7
Weeding	40	40	20	25	25	20
Fertilizing	1	1				
Protecting	1	1				
Water management	-					
Harvest	40	30	20	30	25	20
Threshing, etc.	5	5				
Others	20	15	8	10	8	8
Total	170	137	55	75	65	55

Reference Data: Data from Village Survey and Farm Economy Survey, 1981
Kecamatan Agricultural Extension Offices concerned, 1980, 1981
Kabupaten Agricultural Offices concerned

Table V-69 MONTHLY LABOR REQUIREMENTS FOR PROPOSED CROPPING PATTERN TYPE I AND II

(Unit: man-days)

	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Type I Pattern													
W.S.P.[1] (1.5 ha)	66	27	52	32	16	3	-	-	-	4	30	64	304
D.S.P.[2] (1.0 ha)	-	-	8	26	38	42	37	36	15	3	-	-	205
Soybeans (0.25 ha)	-	-	-	-	-	7	7	-	7	1	-	-	22
Peanuts (0.25 ha)	-	-	-	-	-	2	7	5	6	3	-	-	23
Total	66	27	60	58	54	54	51	41	28	11	30	64	554
Available family labor force	62	62	62	62	62	62	62	62	62	62	62	62	744
Shortage of labor force	-4	-	-	-	-	-	-	-	-	-	-	-2	-6
Type II Pattern													
W.S.P.[1] (1.5 ha)	65	33	37	42	28	-	-	-	-	-	30	65	300
D.S.P.[2] (1.0 ha)	-	-	-	13	23	44	40	40	30	15	-	-	205
Peanuts (1.25 ha)	-	28	26	13	18	22	3	-	-	-	-	-	110
Total	65	61	63	68	69	66	43	40	30	15	30	65	615
Available family labor force	62	62	62	62	62	62	62	62	62	62	62	62	744
Shortage of labor force	-3	-	-1	-6	-7	-4	-	-	-	-	-	-3	-24

Note 1 : Rainy season paddy

2 : Dry season paddy

Available farm family labor force

2.5 mens per household x 25 days per month = 62.5 men per month ≒ 62 men per month

Table V-70 POTENTIAL GRAIN YIELD AT VARIOUS STATIONS IN JAVA IN WET AND DRY SEASON

Location	Longitude	Latitude	Elevation	Yield [1] (ton/ha)	
				Dry Season	Wet Season
Muara	106° 45' E	6° 40' S	260 m	8.00	6.45
Mojosari	112° 30' E	7° 30' S	30	8.85	6.90
Singaperta	106° 15' E	6° 10' S	0	7.00	6.80
Genteng	114° E	8° 20' S	178	7.35	7.20
Ngale	111° 10' E	7° 20' S	55	7.15	6.50
Kuningan	108° 24' E	6° 58' S	559	7.85	7.50
Kendalpayak	112° 20' E	8° 05' S	450	8.05	7.40
Purwakanegara	107° 45' E	6° 18' S	7	7.80	7.20
Average	-	-	-	7.83	6.99

Source: C.R.I.A. Paper No.30 1977

1 : Yield in 14% moisture content

Table V-71 EFFECT OF IRRIGATION ON THE YIELD OF PADDY VARIETY

Unit: ton/ha

Variety	Belitang 1972 Wet Season	Belitang 1973 Dry Season	Average
PB - 5	5.7	2.8	4.3
Pelita I/1	5.1	3.2	4.2
Pelita I/2	6.7	3.0	4.9
IR - 20	5.3	3.3	4.3
IR - 22	4.5	1.8	3.2
Katek Jumadi	5.0	1.6	3.3
Putih	5.2	2.1	3.7
Sri Makmur	5.2	1.5	3.4
Pelita I/2 /1	6.7		6.7

Source: Belitang Seed Center

Note /1: Belitang PAO
: Low yield of dry season paddy caused by lack of irrigation water

Table V-72 EFFECT OF THE DATE OF PLANTING ON GROWTH AND YIELD OF PADDY AT BELITANG (1973-74)

No.	Date planted	Maturity (days)	Yield (ton/ha)
1.	15.12.1973	138	4.8
2.	30.12.1973	133	5.6
3.	15. 1.1974	139	5.2
4.	30. 1.1974	134	4.4
5.	15. 2.1974	137	4.1
6.	2. 3.1974	128	2.5
7.	17. 3.1974	-	-
8.	1. 4.1974	-	-
9.	16. 4.1974	-	-
10.	30. 4.1974	-	-
11.	15. 5.1974	-	-
12.	30. 5.1974	147	1.4
13.	15. 6.1974	137	3.8
14.	30. 6.1974	138	3.6
15.	15. 7.1974	137	4.2
16.	30. 7.1974	140	4.1
17.	15. 8.1974	-	-
18.	30. 8.1974	-	-
19.	15. 9.1974	-	-
20.	30. 9.1974	-	-
21.	15.10.1974	-	-
22.	30.10.1974	-	-
23.	15.11.1974	-	-
24.	30.11.1974	-	-
Mean			4.0

Note: Variety = Pelita I/1 Plot size = 12 x 12 m
Fertilizer = 45 kg N + 90 kg P_2O_5 + 10 kg K_2O/ha divided in 2 times
Source: Belitang Seed Center, 1980

Table V-73 YIELD BY VARIETY IN WELL-IRRIGATED AREA

Kec. concerned	Variety	Unit Yield (ton/ha)	
		Rainy Season Paddy	Dry Season Paddy
Buay Madang	PB - 5	4.9	-
	IR - 32	4.8	4.7
	Pelita I/1	4.9	-
	P.U.T.W.	4.4	-
	IR - 36	-	5.5
	Putih	-	5.3
	Pempunghar	-	5.8
Belitang	PB - 5	5.3	5.1
	IR - 32	4.7	-
	IR - 36	5.1	5.2
	Pempunghar	-	5.6
	Putih	-	5.3
Average		4.9	5.3

Source: Belitang Sub-Seksi Office, 1978, 1979
Note: Dry paddy

Table V-74 TARGET YIELD FOR MAJOR CROPS IN "WITH PROJECT" CONDITION

Crops	Yield (t/ha)	Remarks
Rainy season paddy	4.0	Dry paddy
Dry season paddy	4.5	Dry paddy
Peanuts	1.3	Grains
Soybeans	1.3	Grains
Maize	2.5	Grains

Reference data:
1. Belitang Extension Area Agricultural Development Project Annex FAO/UNDP, 1974.
2. Statistic of Agriculture in Kab. OKU in 1979.
3. Farm Economy Survey in the Project area, 1981.
4. Desas' Survey in the Project area, 1981.
5. Actual yield checking survey in the Belitang proper area and Extension area, 1981.
6. Sub. Seksi office in Belitang, 1976, 1977, 1978.
7. BPP (Agricultural Extension Service) in Kecamatans concerned with the Project area, 1981.
8. Annual Report of CRIA (LP3), Bogor, 1976, 1977.
9. Report of Japan - Indonesia Joint Food Crop Research Program 1975, JICA.

Table V-75 YIELD OF PEANUT IN DRY SEASON

(Unit: ton/ha)

Varieties	Cikeumeuh		Jambegede	
	1972	1973	1972	1973
Local variety	-	-	-	-
61 x NC_2/BC	1.2	1.1	3.8	2.1
NC_1 x 61	1.1	0.8	4.2	1.9
NC_2 x 61	1.0	0.9	3.8	2.0
NC_2 x 61/BC	0.8	0.5	3.4	2.1
NC_2 x 61/BC_1	0.8	0.7	4.2	2.7
Gajah	1.5	1.5	3.5	2.3

Source: Annual Report, Central Research Institute for Agriculture, Bogor, 1976

Table V-76 YIELD OF SOYBEAN IN RAINY SEASON

(Unit: ton/ha)

Varieties	Bogor Nganjuk	Badung Bali	Badegan Ponorogs
Local variety (check)	1.2	0.5	1.1
No. 1335	1.1	0.5	1.1
No. 1336	1.2	1.0	1.3
No. 1338	1.8	1.3	2.2
No. 1340	2.3	1.2	1.9
No. 1341	1.9	1.1	1.9
No. 1343	2.5	1.1	2.1
No. 1344	1.7	1.2	2.3
Shakti	1.6	1.3	1.9
Ringgit	1.2	0.1	1.0
IK - 5	1.6	1.1	1.7
Taichung	1.0	0.7	1.5

Source: Annual Report, Central Research Institute for Agriculture, Bogor, 1976

Table V-77 YIELD PERFORMANCE OF 15 MAIZE VARIETIES IN DIFFERENT ENVIRONMENTS IN LAMPUNG AND JAVA (1967 to 1969-70)

Unit: ton/ha

Varieties	Yield of Grain	
	Mean	Range
Bogor Composite 2	3.3	1.0 - 6.3
Bogor Composite 4	3.1	0.9 - 6.6
Permadi (Bogor Synthetic 2)	3.7	1.3 - 6.1
Harapan	3.1	0.7 - 5.7
Wanosobo Composite	3.0	0.8 - 6.2
Bogor Synthetic	3.0	1.3 - 6.2
Eto X Dorado	3.0	0.5 - 6.2
Metro	2.9	0.9 - 6.2
Bogor Synthetic 1	2.9	1.1 - 6.1
Bogor Composite 5	2.8	0.3 - 6.1
Metro Synthetic	2.8	0.3 - 5.1
Bima (Eto MS_2)	2.7	0.8 - 6.3
Eto Synthetic	2.7	0.6 - 5.1
Bogor Composite 1	2.6	0.1 - 5.8
Rocol V351	2.6	0.3 - 5.2
Mean of 15 varieties	2.9	

Source: Contributions, Central Research Institute for Agriculture, Bogor, 1978

Table V-78 CROP YIELD IN "WITHOUT PROJECT" CONDITION

Crops	Yield (ton/ha)	Remarks
Rainy season paddy (with BIMAS)	3.1	Dry paddy
Rainy season paddy (without BIMAS)	2.2	Dry paddy
Upland paddy	1.3	Dry paddy
Maize	1.2	Grains
Cassava	7.5	Fresh roots
Peanuts	0.8	Grains
Soybeans	0.7	- ditto -

Source:
1. Belitang Extension Area Agricultural Development Project Annex FAO/UNDP, 1974.
2. Statistic of Agriculture in Kab. OKI, OKU and North Lampung in 1979 - 1981.
3. Farm Economy Survey in the Project Area, 1981.
4. Villages' Survey in the Project Area, 1981.

Table V-79 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN MUNCAKKABAU AREA

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	400	1,240	10,700	42,800
Rainy season paddy (Non-BIMAS)	2,450	5,390	-	-
Dry season paddy (BIMAS)	-	-	7,130	32,080
Upland paddy	200	260	-	-
Total paddy	3,050	6,890	17,830	74,880
Maize	100	120	-	-
Cassava	900	6,750	-	-
Peanuts	240	190	1,790	2,330
Soybeans	60	40	1,780	2,310

Note: The figures of perennial crops are excluded in this table.

Table V-80 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN LEMPUING AREA

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	250	770	13,100	52,400
Rainy season paddy (Non-BIMAS)	4,650	10,230	-	-
Dry season paddy (BIMAS)	-	-	8,730	39,280
Upland paddy	510	660	-	-
Total paddy	5,410	11,660	21,830	91,680
Maize	260	310	-	-
Cassava	950	7,120	-	-
Peanuts	260	210	2,190	2,850
Soybeans	250	170	2,180	2,830

Note: The figures of perennial crops are excluded in this table.

Table V-81 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN TULANGBAWANG WEST SUB-AREA

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	20	60	31,300	125,200
Rainy season paddy (Non-BIMAS)	170	370	-	-
Dry season paddy (BIMAS)	-	-	20,870	93,910
Upland paddy	200	260	-	-
Total paddy	390	690	52,170	219,110
Maize	30	30	-	-
Cassava	300	2,250	-	-
Peanuts	70	60	5,220	6,790
Soybeans	40	30	5,210	6,770

Note: The figures of perennial crops are excluded in this table.

Table V-82 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN TULANGBAWANG EAST SUB-AREA

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	-	-	7,200	28,800
Rainy season paddy (Non-BIMAS)	120	260	-	-
Dry season paddy (BIMAS)	-	-	4,800	21,600
Upland paddy	3,100	4,030	-	-
Total paddy	3,220	4,290	12,000	50,400
Maize	800	960	-	-
Cassava	1,500	11,250	-	-
Peanuts	200	160	6,000	7,800
Soybeans	460	320	-	-

Note: The figures of perennial crops are excluded in this table.

Table V-83 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN MUNCAKKABAU AREA (Alternative Pattern Type I-1)

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	400	1,240	10,700	42,800
Rainy season paddy (Non-BIMAS)	2,450	5,390	-	-
Dry season paddy (BIMAS)	-	-	5,350	24,070
Upland paddy	200	260	-	-
Total paddy	3,050	6,890	16,050	66,870
Maize	100	120	-	-
Cassava	900	6,750	-	-
Peanuts	240	190	2,680	3,480
Soybeans	60	40	2,670	3,470

Note: The figures of perennial crops are excluded in this table.

Table V-84 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN LEMPUING AREA (Alternative Pattern Type I-1)

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	250	770	13,100	52,400
Rainy season paddy (Non-BIMAS)	4,650	10,230	-	-
Dry season paddy (BIMAS)	-	-	6,550	29,470
Upland paddy	510	660	-	-
Total paddy	5,410	11,660	19,650	81,870
Maize	260	310	-	-
Cassava	950	7,120	-	-
Peanuts	260	210	3,280	4,260
Soybeans	250	170	3,270	4,250

Note: The figures of perennial crops are excluded in this table.

Table V-85 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN TULANGBAWANG WEST SUB-AREA (Alternative Pattern Type I-1)

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	20	60	31,300	125,200
Rainy season paddy (Non-BIMAS)	170	370	-	-
Dry season paddy (BIMAS)	-	-	15,650	70,420
Upland paddy	200	260	-	-
Total paddy	390	690	46,950	195,620
Maize	30	30	-	-
Cassava	300	2,250	-	-
Peanuts	70	60	7,830	10,180
Soybeans	40	30	7,820	10,170

Note: The figures of perennial crops are excluded in this table.

Table V-86 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN MUNCAKKABAU AREA (Alternative Pattern Type I-3)

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	400	1,240	10,700	42,800
Rainy season paddy (Non-BIMAS)	2,450	5,390	-	-
Dry season paddy (BIMAS)	-	-	7,130	32,080
Upland paddy	200	260	-	-
Total paddy	3,050	6,890	17,830	74,880
Maize	100	120	-	-
Cassava	900	6,750	-	-
Peanuts	240	190	1,790	2,330
Soybeans	-	-	1,780	2,310
Green beans	-	-	3,570	3,570

Note: The figures of perennial crops are excluded in this table.

Table V-87 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN LEMPUING AREA (Alternative Pattern Type I-3)

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	250	770	13,100	52,400
Rainy season paddy (Non-BIMAS)	4,650	10,230	-	-
Dry season paddy (BIMAS)	-	-	8,730	39,280
Upland paddy	510	660	-	-
Total paddy	5,410	11,660	21,830	91,680
Maize	260	310	-	-
Cassava	950	7,120	-	-
Peanuts	260	210	2,190	2,850
Soybeans	250	170	2,180	2,830
Green beans	-	-	4,370	4,370

Note: The figures of perennial crops are excluded in this table.

Table V-88 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN TULANGBAWANG WEST SUB-AREA (Alternative Pattern Type I-3)

Major Crops	Without Project		With Project	
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)
Rainy season paddy (BIMAS)	20	60	31,300	125,200
Rainy season paddy (Non-BIMAS)	170	370	-	-
Dry season paddy (BIMAS)	-	-	20,870	93,910
Upland paddy	200	260	-	-
Total paddy	390	690	52,170	219,110
Maize	30	30	-	-
Cassava	300	2,250	-	-
Peanuts	70	60	5,220	6,790
Soybeans	40	30	5,210	6,770
Green beans	-	-	10,430	10,430

Note: The figures of perennial crops are excluded in this table.

Table V-89 ANNUAL CROP PRODUCTION AT THE FULL DEVELOPMENT STAGE IN THE PROJECT AREA

Major Crops	Without Project		With Project		
	Cultivated area (ha)	Annual crop production (tons)	Cultivated area (ha)	Annual crop production (tons)	Balance (tons)
Rainy season paddy (BIMAS)	670	2,070	62,300	249,200	247,130
Rainy season paddy (Non-BIMAS)	7,390	16,250	-	-	-16,250
Dry season paddy	-	-	41,530	186,870	186,870
Upland paddy	4,010	5,210	-	-	-5,210
Total paddy	12,070	23,530	103,830	436,070	412,540
Maize	1,190	1,430	-	-	-1,430
Cassava	3,650	27,370	-	-	-27,370
Peanuts	770	620	15,200	19,770	19,150
Soybeans	810	560	9,170	11,910	11,350

Table V-90 ECONOMIC PRICES OF FARM PRODUCTS AND INPUTS AT FARM GATE

(1981 Constant Dollar)

Item		Unit Price (Rp./kg or lit.)	Remakrs
1. Farm Products	Rice	290	
	Paddy	200	Dry paddy
	Cassava	10	
	Peanuts	370	
	Soybeans	230	
	Maize	43	
2. Farm Inputs	Paddy seed	300	
	Urea	260 /2	
	TSP	220 /2	
	Insecticide		
	(Diazinon)	6,500	
	(Sumithion)	6,500	
	Rodenticide (Zink-phosphade)	2,300 /2	
	Labor /1 (light)	700	1 person/day
	(heavy)	1,000	1 person/day

Source: Document of the IBRD, June 1981 "Price Prospects for Major Primary Commodities".

Note : Conversion rate; US$1 = Rp. 625

/1 : Labor cost for crop cultivation in future is estimated at about 2% per year as real increase rates.

/2 : Calculated on the basis of the projected prices by World Bank; US$294.3 for Urea, US$248.5 for TSP, etc.

Table V-91 ECONOMIC PRICE OF PADDY AT FARM GATE

(1981 Constant Dollar)

	Item	US$/ton	Rp./ton	Balance (Rp./ton)
1.	International market price /1 (FOB Bangkok)	613	383,100	
2.	Quality discount at 20%		306,480	
3.	Transportation cost (Bangkok - Palembang)		16,880	323,360
4.	Handling charge & storing cost /2		8,550	331,910
5.	Inland transportation cost		8,200	323,710
6.	Processing cost /3		8,050	315,660
7.	Local storage loss (Rp.331.910 x 0.05)		16,600	299,060
8.	Conversion to the price of dry paddy (68% of rice)			203,360
9.	Local transportation cost (Farm gate to mill)		1,650	201,710
10.	Farm gate price of dry paddy			200,000

Source: Document of the IBRD, Jun. 1981
"Price Prospects for Major Primary Commodities"

Note : Conversion rate; US$1 = Rp.625

/1 : Forecast price of rice in 1990 by World Bank

/2 : Handling charge and warehouse cost Rp.3,050
Cost of sacks and packing, etc. Rp.5,500

/3 : Milling charge, etc. 7% (Rp.8,050)

Table V-92-(1) ECONOMIC PRICE OF PEANUT AND SOYBEAN (FOR EXPORT)

(1981 Constant Dollar)

Item	Peanut			Soybean		
	US$/ton	Rp./ton	Balance (Rp./ton)	US$/ton	Rp./ton	Balance (Rp./ton)
1. International market price /1	727	454,400	-	468	292,500	
2. Transportation cost (Palembang-Japan)	37	23,100	431,300	37	23,100	269,400
3. Port handling & warehouse charge /2	-	5,500	425,800	-	5,500	263,900
4. Transportation cost (Belitang-Palembang)	-	8,200	417,600	-	8,200	255,700
5. Market cost (10% of the market price)	-	41,800	375,800	-	25,600	230,100
Farm gate price	-	-	370,000	-	-	230,000

Source: Document of the IBRD, June 1981
"Price Prospects for Major Primary Commodities"

Note : Conversion rate; US$1 = Rp.625

/1: Forecast price of peanut and soybeans in 1990 by World Bank

/2: Including cost of sacks, etc.

Table V-92-(2) ECONOMIC PRICES OF FERTILIZERS AND AGRO-CHEMICALS

(1981 Constant Dollar)

Item		Rp./tons
Urea		
1. Projected World Price FOB Europe Bagged	US$294.3	183,940
2. Transport premium to Asian Market of US$16		10,000
3. CIF Palembang	US$310.3	193,940
4. Distribution costs to KIOS /1		66,000
5. Value at KIOS		259,940
		≒ 260 RP./kg
T.S.P.		
1. Projected World Price FOB US Gulf	US$248.52	155,320
2. Transport Bulk Freight US - Indonesia	US$40	25,000
3. CIF Indonesia	US$288.52	180,320
4. Handling and distribution		40,000
5. Value at KIOS		220,320
		≒ 220 RP./kg
Insecticide		
1. Full Cost EX formulator 1978		3,800 /1
2. Adjusted to 1981 prices		6,460 /1
		≒ 6,500 RP./lit
Zink Phosphate		2,300 RP./kg

/1 : Including inland transportation cost, handling charge, warehouse cost and others charges.

/1 : The projected price after conversion of the projected price in 1978 constant dollar.

Source: Document of the IBRD, June 1981 "Price Prospects for Major Primary Commodities"
Note : Conversion rate; US$1 = RP.625

Table V-93 FINANCIAL PRICES OF FARM PRODUCTS AND INPUTS AT FARM GATE

(1981 Current Price) Unit: Rp./kg or lit.

Item	Unit Price: Local Market Price	Unit Price: Financial Price	Remarks
1. Farm Products			
Rice	200		
Paddy	115		dry paddy
Cassava	25		
Peanut	400	370 /1	
Soybean	320	230 /1	
Maize	100		
Coffee	650		
Rubber	200		
2. Farm Inputs			
Seed (Paddy)	150		
(Peanuts)	480		
(Soybean)	380		
(Maize)	130		
Seedling (Cassava)	1		
Fertilizer (Urea)	80		
(TSP)	80		
Agro-chemical (Diazinon)	1,200		
(Sumithion)	1,200		
(Zink-phosphate)	2,500		
3. Livestock			
Cattle	230,000		Rp./head
Buffalo	400,000		"
Pig	40,000		"
Goat	21,000		"
Sheep	20,000		"
Chicken	11,000		"
Egg (chicken)	60		Rp./piece
(duck)	70		"
4. Agro-equipment			
Plow	12,000		
Winnower	15,000		
Rotary weeder	6,000		
Tradle thresher	35,000		
Sickle	800		
5. Labor /2			
Light	600		person/day
Heavy	800		"

Source: 1) Farm economy survey together with Desa Survey in the project area, 1981.
2) Local market price in Martapura, Kota Martapura Office, 1980, 1981.
3) KIOS Penyalur Sarana Produksi, Martapura, 1981.
4) Market price of in Palembang, 1980, 1981.
5) BULOG, Jakarta, 1981.

Note /1 : After the full development of the project, considerable amount of peanuts and soybeans would be exported abroad so that economic prices of peanuts and soybeans are taken as those financial prices at farm gate. (see detail Table V-92)

/2 : Labor charges include the expenses for meal charges to the labors.

Table V-94 TYPICAL FARM BUDGET IN "WITHOUT PROJECT" CONDITION

Cropping Pattern (Application area)	Type I (Muncak Kabau)	Type I (Lempuing)	Type I (Tulangbawang West Sub-area)	Type II (Tulangbawang East Sub-area)
Family size (ha)	5.8	5.1	5.5	5.1
Farm size (ha)	1.75	1.75	1.75	4.75
1. Gross income (Rp.)				
Farm income	368,600	366,500	206,000	259,800
- Rainy season paddy	237,600	248,000	50,100	5,100
- Upland paddy	9,000	15,000	29,900	97,200
- Polowijo and upland crops	83.000	64,500	87,000	106,500
- Perennial crops	39,000	39,000	39,000	51,000
Livestock income	28,800	32,900	37,200	26,000
Miscellaneous income	75,000	79,000	57,000	57,000
Total	472,400	478,400	300,200	342,800
2. Farm Outgo (Rp.)				
Crop production cost	46,000	47,500	22,700	36,900
- Rainy season paddy	13,300	13,900	2,800	300
- Upland paddy	600	1,000	2,000	6,600
- Polowijo and upland crops	3,500	4,000	3,600	3,900
- Perennial crops	28,600	28,600	14,300	26,100
Livestock cost	2,800	3,300	3,700	2,600
Tax etc.	5,500	5,500	3,000	3,000
Living expenses	414,500	418,000	270,100	299,300
Total	468,800	474,300	299,500	341,800
3. Balance or capacity to pay (Rp.)	3,600	4,100	700	1,000
(US$)	(5.8)	(6.6)	(1.1)	(1.6)

Note: 1) Conversion rate; US$1 = Rp.625

2) Application area:
Muncakkabau; 1.5 ha paddy field and 0.25 ha of perennial crops
Lempuing; 1.5 ha paddy field and 0.25 ha of perennial crops
Tulangbawang West Sub-area; 1.5 ha paddy field and 0.25 ha of perennial crops
Tulangbawang East Sub-area; 2.75 ha paddy field and 2 ha of perennial crops

3) Livestock income is estimated based on Livestock production of Kecamatan livestock offices and field survey.

4) Living cost is estimated based upon the farm economy survey.

Table V-95 TYPICAL FARM BUDGET IN "WITH PROJECT" CONDITION

Cropping Pattern (Application area)	Type I (Muncak Kabau)	Type I (Lempuing)	Type I (Tulangbawang West Sub-area)	Type II (Tulangbawang East Sub-area)
Family size (ha)	5.8	5.1	5.5	5.1
Farm size (ha)	1.75	1.75	1.75	4.75
1. Gross Income (Rp.)				
Farm income	1,479,000	1,479,000	1,479,000	2,318,700
- Rainy season paddy	690,000	690,000	690,000	690,000
- Dry season paddy	517,500	517,500	517,500	517,500
- Polowijo	195,000	195,000	195,000	601,200
- Perennial crops	76,500	76,500	76,500	510,000
Livestock income	32,000	36,200	39,000	28,000
Miscellaneous income	10,000	10,000	10,000	10,000
Total	1,521,000	1,525,200	1,528,000	2,356,700
2. Farm Outgo (Rp.)				
Crop production cost	194,100	194,100	194,100	470,200
- Rainy season paddy	90,900	90,900	90,900	96,800
- Dry season paddy	50,900	50,900	50,900	72,400
- Polowijo	19,000	19,000	19,000	39,600
- Perennial crops	33,300	33,300	33,300	261,400
Livestock cost	3,200	3,600	3,900	2,800
Tax etc.	15,000	15,000	15,000	27,500
Living expenses	920,100	809,100	872,500	809,100
Total	1,132,100	1,021,500	1,085,500	1,309,600
3. Balance or capacity to pay (Rp.)	388,900	503,700	442,500	1,047,100
(US$)	(622.2)	(805.9)	(708.0)	(1,675.3)

Note: 1) Target year of family living expenses is estimated at grace period of each types.

2) Application area:
Muncakkabau; 1.5 ha paddy field and 0.25 ha of perennial crops
Lempuing; 1.5 ha paddy field and 0.25 ha of perennial crops
Tulangbawang West Sub-area; 1.5 ha paddy field and 0.25 ha of perennial crops
Tulangbawang East Sub-area; 2.75 ha paddy field and 2 ha of perennial crops

3) About 10% of annual growth rate of family living expenses is estimated based upon the various indexes such as growth rate by Repelita III, general indexes in Jakarta and Palembang, etc.

4) Conversion rate; US$1 = Rp.625

Table V-96 CROP PRODUCTION COST OF RAINY SEASON PADDY PER HA IN "WITHOUT PROJECT" CONDITION (BIMAS)

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	30	300	9.0
Fertilizer			
Urea	50	260	10.0
TSP	20	220	4.4
Agro-chemicals			
Diazinon	2	6,500	13.0
Zink-phosphate	0.1	2,300	0.2
Agro-equipment			1.5
Sub-total			38.1
Labor/1 (Men/Days)			
Nursery bed	8	700	5.6
Land preparation	30	1,800	54.0
Transplanting	25	1,000	25.0
Weeding	40	700	28.0
Fertilizing	1	700	0.7
Protecting	1	1,000	1.0
Harvest	40	700	28.0
Threshing	5	700	3.5
Others	20	700	14.0
Sub-total	170		159.8
Miscellaneous/2			9.9
Total			207.8

Note /1 : Labor charges include the expenses for meal services to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-97 CROP PRODUCTION COST OF RAINY SEASON PADDY PER HA IN "WITHOUT PROJECT" CONDITION (NON-BIMAS)

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	30	300	9.0
Fertilizer			
Urea	15	260	3.9
TSP	10	220	2.2
Agro-chemicals			
Diazinan	1	6,500	6.5
Zink-phosphate	0.1	2,300	0.2
Agro-equipment			1.5
Sub-total			23.3
Labor/1 (Men/Days)			
Nursery bed	8	700	5.6
Land preparation	30	1,800	54.0
Transplanting	25	1,000	25.0
Weeding	40	700	28.0
Fertilizing	1	700	0.7
Protecting	1	1,000	1.0
Harvest	40	700	28.0
Threshing	5	700	3.5
Others	20	700	14.0
Sub-total	170		159.8
Miscellaneous/2			9.2
Total			192.3

Note /1 : Labor charges include the expenses for meal services to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-98 CROP PRODUCTION COST OF UPLAND PADDY PER HA IN "WITHOUT PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	40	300	12.0
Fertilizer			
Urea	10	260	2.6
Agro-chemical			
Diazinan	1.0	6,500	6.5
Agro-equipment			1.2
Sub-total			22.3
Labor/1 (Men/Days)			
Land preparation	25	1,800	45.0
Sowing	20	700	14.0
Weeding	40	700	28.0
Fertilizing	1	700	0.7
Protecting	1	1,000	1.0
Harvest	30	700	21.0
Threshing	5	700	3.5
Others	15	700	10.5
Sub-total	137		123.7
Miscellaneous/2			7.3
Total			153.3

Note /1 : Labor charges include the expenses for meal charges to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-99 CROP PRODUCTION COST OF MAIZE PER HA IN "WITHOUT PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	20	60	1.2
Agro-equipment	-	-	0.5
Sub-total			1.7
Labor/1 (Men/Days)			
Sowing	7	700	4.9
Weeding	20	700	14.0
Harvest	20	700	14.0
Others	8	700	5.6
Sub-total	55		38.5
Miscellaneous/2			2.0
Total			42.2

Note /1: Labor charges include the expenses for meal charges to the labors.
/2: Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-100 CROP PRODUCTION COST OF CASSAVA PER HA IN "WITHOUT PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	10,000	0.5	5.0
Agro-equipment	-	-	0.5
Sub-total			5.5
Labor/1 (Men/Days)			
Planting	10	700	7.0
Weeding	25	700	17.5
Harvest	30	700	21.0
Others	10	700	7.0
Sub-total	75		52.5
Miscellaneous/2			3.0
Total			61.0

Note /1: Labor charges include the expenses for meal charges to the labors.
/2: Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-101 CROP PRODUCTION COST OF PEANUT PER HA IN "WITHOUT PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	40	440	17.6
Agro-equipment	-	-	0.5
Sub-total			18.1
Labor/1 (Men/Days)			
Sowing	7	700	4.9
Weeding	25	700	17.5
Harvest	25	700	17.5
Others	8	700	5.6
Sub-total	65		45.5
Miscellaneous/2			3.2
Total			66.8

Note /1: Labor charges include the expenses for meal charges to the labors.

/2: Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-102 CROP PRODUCTION COST OF SOYBEAN PER HA IN "WITHOUT PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	20	270	5.4
Agro-equipment	-	-	0.5
Sub-total			5.9
Labor/1 (Men/Days)			
Sowing	7	700	4.9
Weeding	20	700	14.0
Harvest	20	700	14.0
Others	8	700	5.6
Sub-total	55		38.5
Miscellaneous/2			2.2
Total			46.6

Note /1: Labor charges include the expenses for meal charges to the labors.

/2: Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-103 CROP PRODUCTION COST OF RAINY SEASON PADDY PER HA IN "WITH PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	25	300	7.5
Fertilizer			
Urea	180	260	46.8
TSP	90	220	19.8
Agro-chemicals			
Diazinon	2	6,500	13.0
Sumithion	1	6,500	6.5
Kasumin	2	6,500	13.0
Zink-phosphate(g)		2,300	0.5
Agro-equipment			12.4
Sub-total			119.5
Labor/1 (Men/Days)			
Nursery bed	10	700	7.0
Land preparation	40	1,800	72.0
Transplanting	35	1,000	35.0
Weeding	40	700	28.0
Fertilizing	4	700	2.8
Protecting	4	1,000	4.0
Water management	5	700	3.5
Harvest	40	700	28.0
Threshing	15	700	10.5
Others	7	700	4.9
Sub-total	200		195.7
Miscellaneous			15.8
Total			331.0

Note /1 : Labor charges include the expenses for meal charges to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-104 CROP PRODUCTION COST OF DRY SEASON PADDY PER HA IN "WITH PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	25	300	7.5
Fertilizer			
Urea	180	260	46.8
TSP	90	220	19.8
Agro-chemicals			
Diazinon	2	6,500	13.0
Sumithion	1	6,500	6.5
Kasumin	2	6,500	13.0
Zink-phosphate(g)	200	2,300	4.6
Agro-equipment			12.4
Sub-total			123.6
Labor/1 (Men/Days)			
Nursery bed	10	700	7.0
Land preparation	40	1,800	72.0
Transplanting	35	1,000	35.0
Weeding	40	700	28.0
Fertilizing	4	700	2.8
Protecting	4	1,000	4.0
Water management	5	700	3.5
Harvest	45	700	31.5
Threshing	15	700	10.5
Others	7	700	4.9
Sub-total	205		199.2
Miscellaneous/2			16.0
Total			338.8

Note /1 : Labor charges include the expenses for meal charges to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-105 CROP PRODUCTION COST OF MAIZE PER HA IN "WITH PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	20	60	1.2
Fertilizer			
Urea	50	260	13.0
TSP	30	220	6.6
Lime	300	20	6.0
Agro-chemical			
Sumithion	1	6,500	6.5
Zink-phosphate	0.1	2,300	0.2
Agro-equipment			6.5
Sub-total			40.0
Labor/1 (Men/Days)			
Sowing	15	700	10.5
Weeding	35	700	24.5
Fertilizing	2	700	1.4
Protecting	1	1,000	1.0
Water management	2	700	1.4
Harvest	25	700	17.5
Others	5	700	3.5
Sub-total	85		58.4
Miscellaneous/2			4.9
Total			103.3

Note /1 : Labor charges include the expenses for meal charges to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-106 CROP PRODUCTION COST OF PEANUT PER HA IN "WITH PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	40	440	17.6
Fertilizer			
Urea	30	260	7.8
TSP	40	220	8.8
Lime	300	20	6.0
Agro-chemical			
Sumithion	1	6,500	6.5
Zink-phosphate	0.1	2,300	0.2
Agro-equipment			6.5
Sub-total			53.4
Labor/1 (Men/Days)			
Sowing	15	700	10.5
Weeding	35	700	24.5
Fertilizing	2	700	1.4
Protecting	1	1,000	1.0
Water management	2	700	1.4
Harvest	30	700	21.0
Others	5	700	3.5
Sub-total	90		63.3
Miscellaneous/2			5.8
Total			122.5

Note /1 : Labor charges include the expenses for meal charges to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-107 CROP PRODUCTION COST OF SOYBEAN PER HA IN "WITH PROJECT" CONDITION

Item	Amount (kg or lit./ha)	Economic price (Rp./kg or lit.)	Value (10^3Rp./ha)
Seed	30	270	8.1
Fertilizer			
Urea	20	260	5.2
TSP	40	220	8.8
Lime	300	20	6.0
Agro-chemical			
Sumithion	1	6,500	6.5
Zink-phosphate	0.1	2,300	0.2
Agro-equipment			6.5
Sub-total			41.3
Labor/1 (Men/Days)			
Sowing	15	700	10.5
Weeding	35	700	24.5
Fertilizing	2	700	1.4
Protecting	1	1,000	1.0
Water management	2	700	1.4
Harvest	25	700	17.5
Others	5	700	3.5
Sub-total	85		59.8
Miscellaneous/2			5.1
Total			106.2

Note /1 : Labor charges include the expenses for meal charges to the labors.

/2 : Miscellaneous cost is estimated at 5% of the total crop production cost.

Table V-108 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN MUNCAKKABAU AREA (WITHOUT PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P. (BIMAS)	400	1,240	200	248	207.8	83	165
R.S.P. (Non-BIMAS)	2,450	5,390	200	1,078	192.3	471	607
Upland paddy	200	260	200	52	153.3	31	21
Total paddy	3,050	6,890	200	1,378		585	793
Maize	100	120	80	9	42.2	4	1
Cassava	900	6,750	10	68	61.0	55	13
Peanut	240	190	370	70	66.8	16	54
Soybean	60	40	230	9	46.6	3	6
Total	4,350			1,530		663	867

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-109 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN LEMPUING AREA (WITHOUT PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P. (BIMAS)	250	770	200	154	207.8	52	102
R.S.P. (Non-BIMAS)	4,650	10,230	220	2,046	192.3	894	1,152
Upland paddy	510	660	220	132	153.3	78	54
Total paddy	5,410	11,660	220	2,332		1,024	1,308
Maize	260	310	80	24	42.2	11	2
Cassava	950	7,120	10	71	61.0	58	13
Peanut	260	210	370	78	66.8	17	61
Soybean	250	170	230	39	46.6	12	27
Total	7,130			2,533		1,122	1,411

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-110 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN TULANGBAWANG WEST SUB-AREA (WITHOUT PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P. (BIMAS)	20	60	200	12	207.8	4	8
R.S.P. (Non-BIMAS)	170	370	200	74	192.3	33	41
Upland paddy	200	260	200	52	153.3	31	21
Total paddy	390	690	200	138		68	70
Maize	30	40	80	3	42.2	1	1
Cassava	300	2,250	10	22	61.0	18	4
Peanut	70	60	370	22	66.8	5	17
Soybean	40	30	230	7	46.6	2	5
Total	830			191		94	97

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-111 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN TULANGBAWANG EAST SUB-AREA (WITHOUT PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P. (Non-BIMAS)	120	260	200	52	192.3	23	29
Upland paddy	3,100	4,030	200	806	153.3	475	331
Total paddy	3,220	4,290	200	858		498	360
Maize	800	960	80	76	42.2	34	7
Cassava	1,500	11,250	10	113	61.0	92	21
Peanut	200	160	370	59	66.8	13	46
Soybean	460	320	230	74	46.6	21	53
Total	6,180			1,145		658	487

Note R.S.P.: Rainy season paddy.

Table V-112 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN MUNCAKKABAU AREA (WITH PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P.	10,700	42,800	200	8,560	331.0	3,541	5,019
D.S.P.	7,130	32,080	200	6,416	338.8	2,416	4,000
Total paddy	17,830	74,880	200	14,976		5,957	9,019
Peanut	1,790	2,330	370	862	122.5	219	643
Soybean	1,780	2,310	230	531	106.5	189	342
Total	21,400			16,369		6,365	10,004

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-113 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN LEMPUING AREA (WITH PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Ro.)	Net production value (10^6Rp.)
R.S.P.	13,100	52,400	200	10,480	331.0	4,336	6,144
D.S.P.	8,730	39,280	200	7,856	338.8	2,958	4,898
Total paddy	21,830	91,680	200	18,336		7,294	11,042
Peanut	2,190	2,850	370	1,055	122.5	268	787
Soybean	2,180	2,830	230	651	106.5	232	419
Total	26,200			20,042		7,794	12,248

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-114 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN TULANGBAWANG WEST SUB-AREA (WITH PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P.	31,300	125,200	200	25,040	331.0	10,360	14,680
D.S.P.	20,870	93,910	220	18,782	338.8	7,071	11,711
Total paddy	52,170	219,110	220	43,822		17,431	26,391
Peanut	5,220	6,790	370	2,512	122.5	639	1,873
Soybean	5,210	6,770	230	1,557	106.5	555	1,002
Total	62,600			47,891		18,625	29,266

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-115 GROSS AND NET PRODUCTION VALUE AT FULL DEVELOPMENT STAGE IN TULANGBAWANG EAST SUB-AREA (WITH PROJECT CONDITION)

Major crops	Cropped area (ha)	Production (tons)	Unit price (10^3Rp./ton)	Gross value (10^6Rp.)	Unit production cost (10^3Rp./ha)	Total production cost (10^6Rp.)	Net production value (10^6Rp.)
R.S.P.	7,200	28,800	200	5,760	331.0	2,383	3,377
D.S.P.	4,800	21,600	200	4,320	338.8	1,626	2,694
Total paddy	12,000	50,400	200	10,080		4,009	6,071
Peanut	6,000	7,800	370	2,886	122.5	735	2,151
Total	18,000			12,966		4,744	8,222

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

Table V-116 INCREMENTAL BENEFIT AT FULL DEVELOPMENT STAGE IN THE PROJECT AREA

Major Crop	Without Project (10^6Rp.)	With Project (10^6Rp.)	Incremental Value (10^6Rp.)
Muncak Kaban Area			
R.S.P.	772	5,019	4,247
D.S.P.	-	4,000	4,000
Upland paddy	21	-	-21
Total paddy	793	9,019	8,226
Upland crops & polowijo	74	985	911
Total	867	10,004	9,137
Lempuing Area			
R.S.P.	1,254	6,144	4,890
D.S.P.	-	4,898	4,898
Upland paddy	54	-	-54
Total paddy	1,308	11,042	9,734
Upland crops & polowijo	103	1,206	1,103
Total	1,411	12,248	10,837
Tulangbawang West Sub-area			
R.S.P.	49	14,680	14,631
D.S.P.	-	11,711	11,711
Upland paddy	21	-	-21
Total paddy	70	26,391	26,321
Upland crops & polowijo	27	2,875	2,848
Total	97	29,266	29,169
Tulangbawang East Sub-area			
R.S.P.	29	3,377	3,348
D.S.P.	-	2,694	2,694
Upland paddy	331	-	-331
Total paddy	360	6,071	5,711
Upland crops & polowijo	127	2,151	2,024
Total	487	8,222	7,735

Note R.S.P.: Rainy season paddy.
D.S.P.: Dry season paddy.

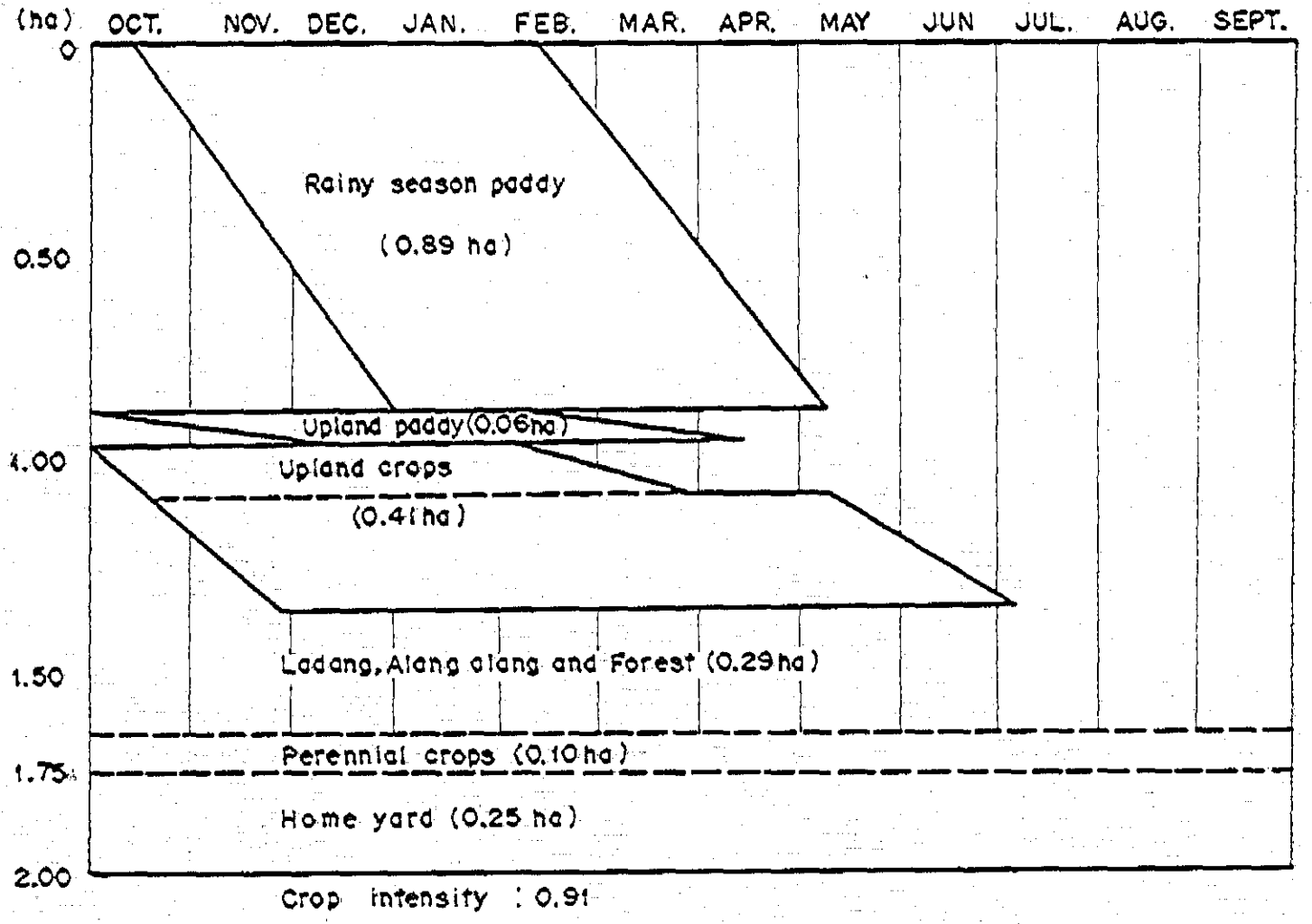
Table V-117 SUBSIDIES TO GENERAL TRANSMIGRATION

		Per/Household
1.	Food Stuff for 12 months	
	Rice	50 kg/month
	Salt fish	5 "
	Soap	1 "
	Food oil	3 lit./month
	Kelosin	8 "
	Salt	2 kg/month
	Sugar	3 "
2.	Clothes - Transmigrant received one set of uniform (1 shift + 1 trousers) from the Transmigration Office of original place	
3.	Cooking utensils such as cooling pot, frying pan, kettle, etc.	
4.	House	33 m^2 of floor space
5.	Farm land	2 ha /1
6.	Agricultural equipment such as broad hoe, chopping knife, crowbar, etc.	
7.	Agricultural input materials	
	Paddy seed	25 kg
	Fertilizer (Urea)	70 kg
	(DAP)	75 kg
	Insecticide	2 lit.
	Rodenticide	100 gram as zink-phosphate
	Rp.5,000 for other seeds to be purchased (Coconuts, rubber, coffee, clove, etc.)	
	Agricultural input materials are provided through Agricultural Extension Offices concerned with the project area since 1979.	

Source: Transmigration Office in South Sumatra Province, 1980

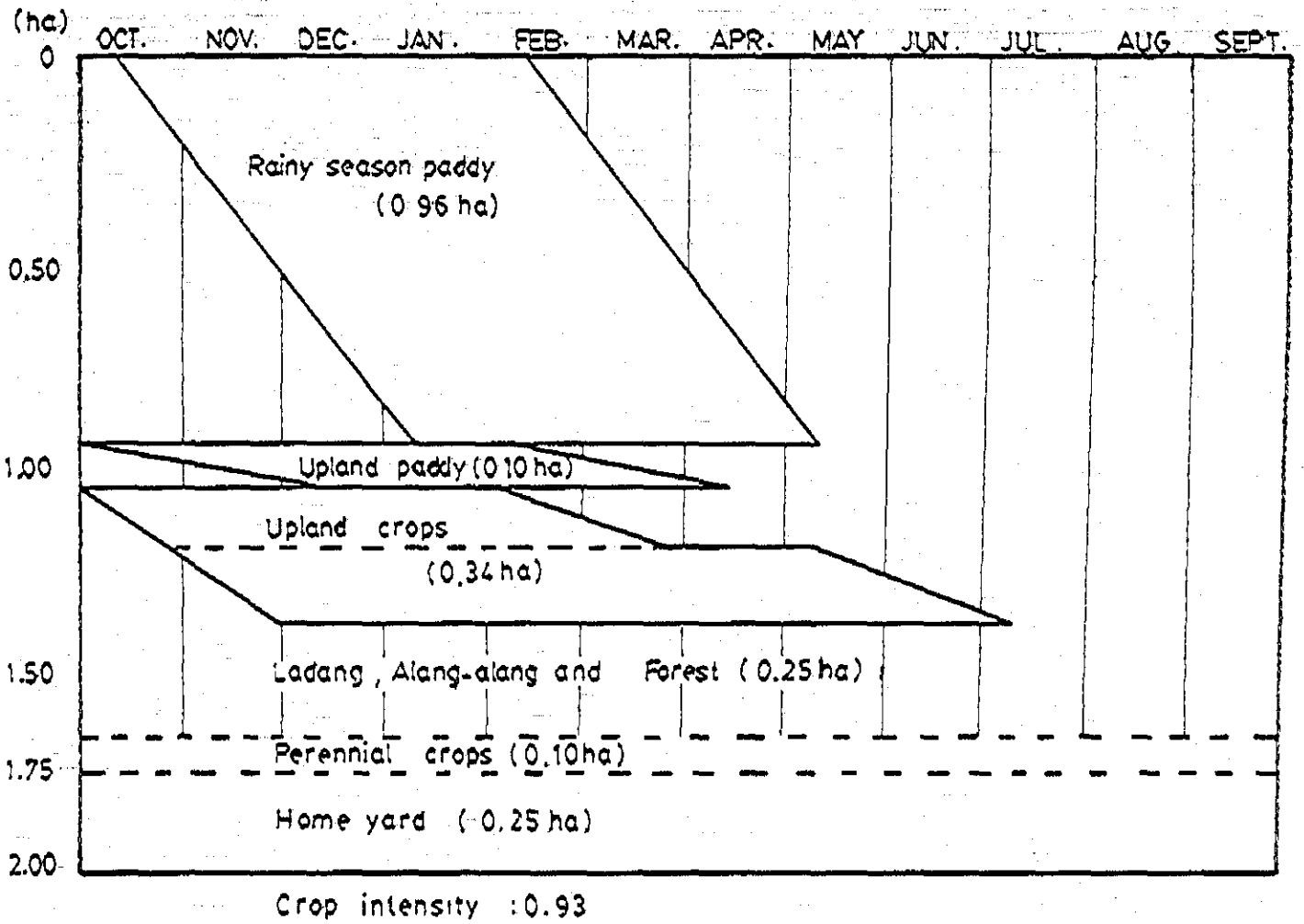
/1 : 1.0 ha of paddy field, 0.75 ha of upland field and 0.25 ha of home yard.

FIG. V-I PRESENT CROPPING PATTERAN TYPE I
(MUNCAK KABAU AREA)



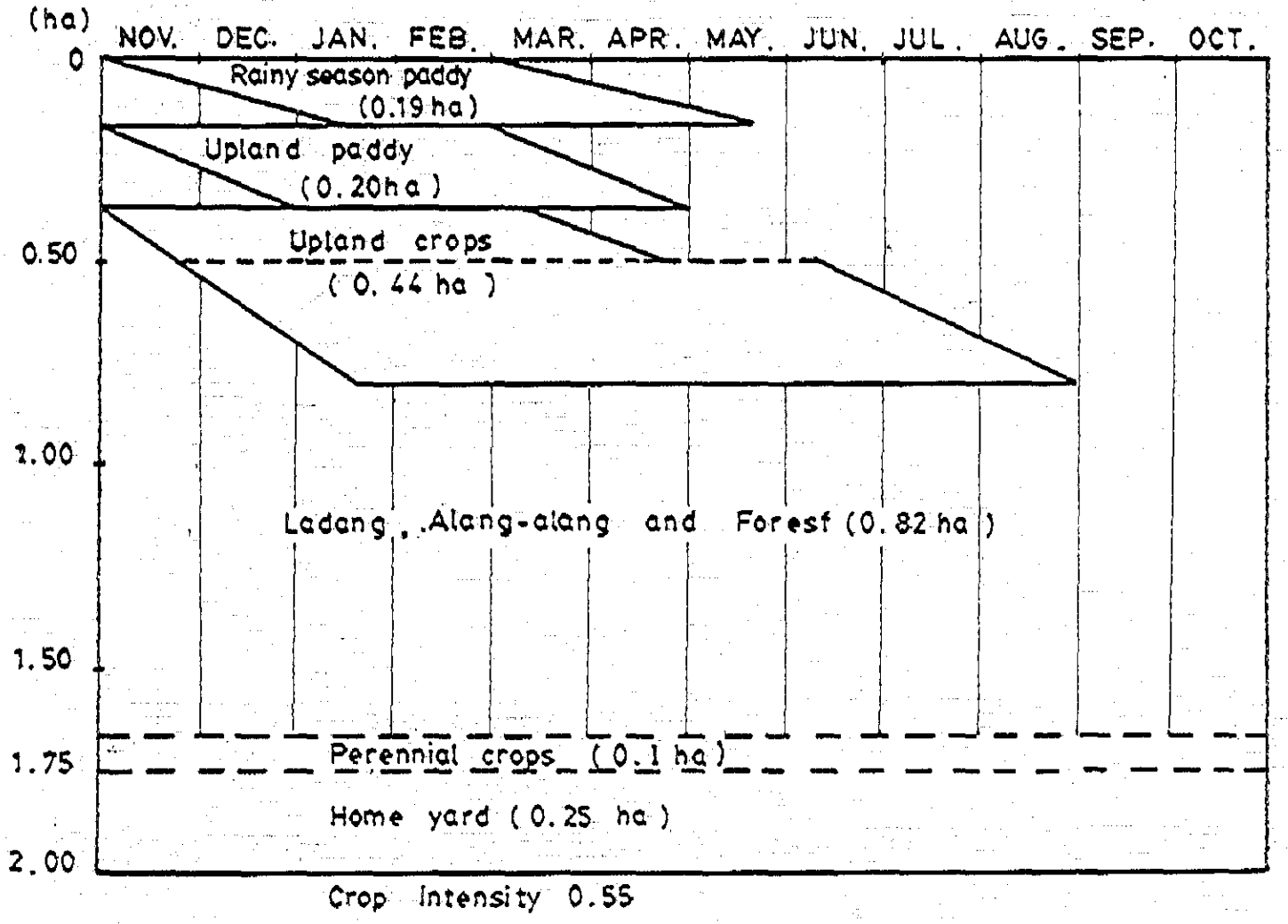
Note; Crop intensity is estimated based upon the farm land of 1.5ha where the land is included present crop cultivated area and fallow land, etc. except perennial crops

FIG.V-2 PRESENT CROPPING PATTERN TYPE II (LEMPUING AREA)



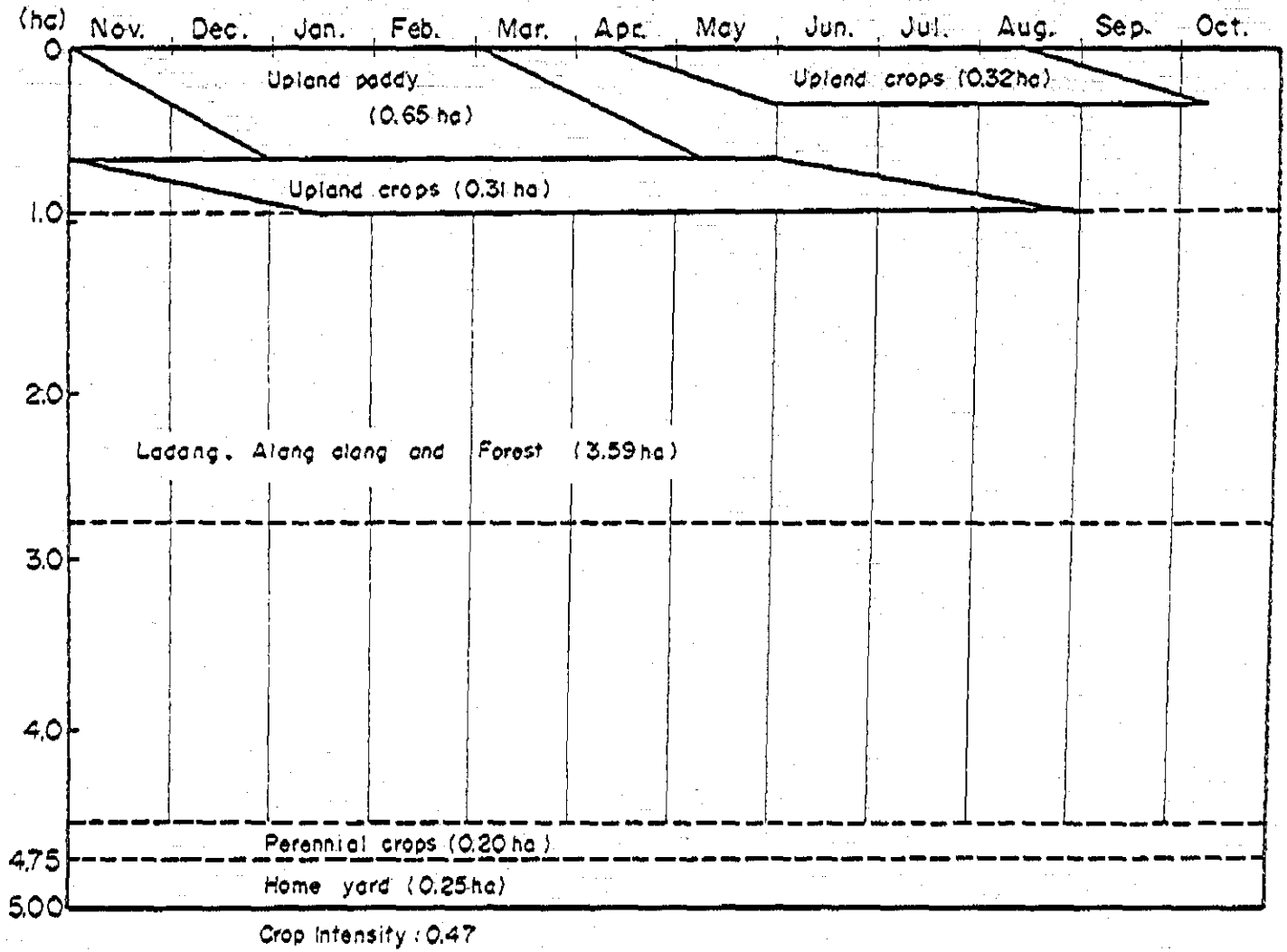
Note; Crop intensity is estimated based upon the farm land of 1.5ha where the land is included present crop cultivated area and fallow land, etc. except perennial crops

FIG. V-3 PRESENT CROPPING PATTERN TYPE III
(TULANGBAWANG WEST SUB-AREA)



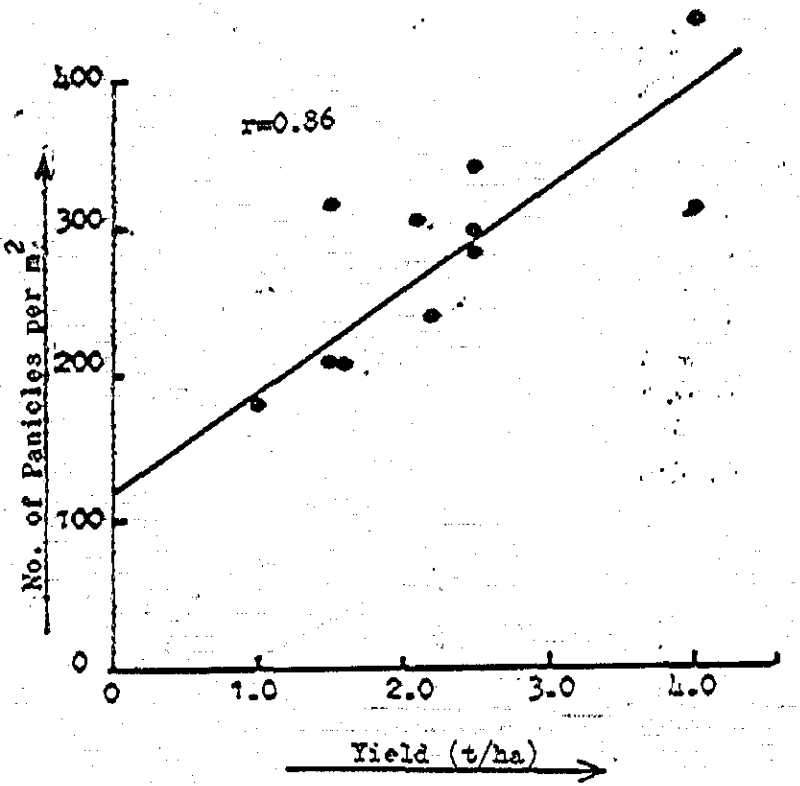
Note; Crop intensity is estimated based upon the farm land of 1.5ha where the land is included present crop cultivated area and fallow land, etc. except perennial crops

Fig. V-4 PRESENT CROPPING PATTERN TYPE IV (TULANGBAWANG EAST SUB-AREA)



Note : Crop intensity is estimated based upon the farm land of 2.75 ha where is included present cropcultivated area and fallow land, etc. except perennial crops.

Fig. V-5 CORRELATION BETWEEN YIELDS AND YIELD COMPONENTS



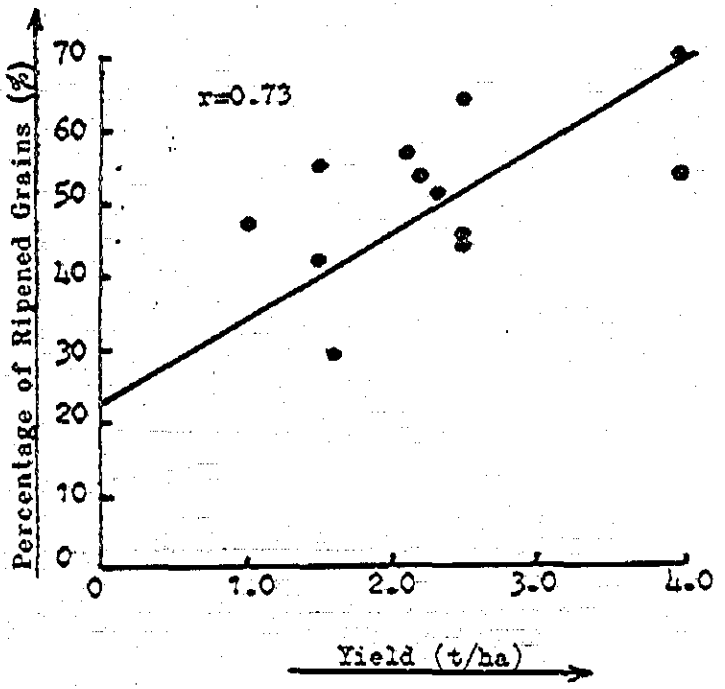


Fig. V-6 MARKETING FLOW OF RICE IN THE PROJECT AREA

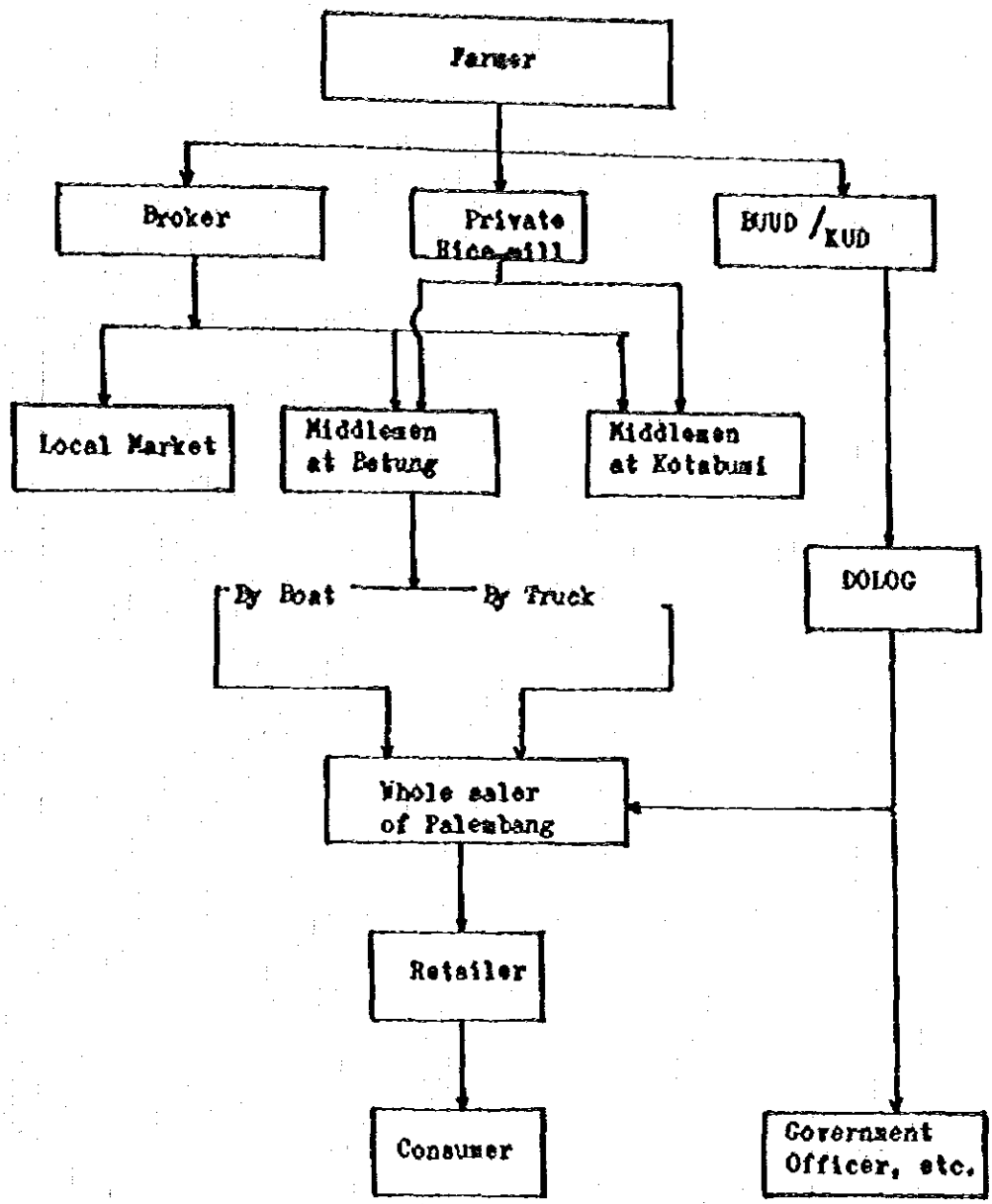


Fig V- 7 PROGRESS OF LOCAL MARKET PRICE OF PADDY

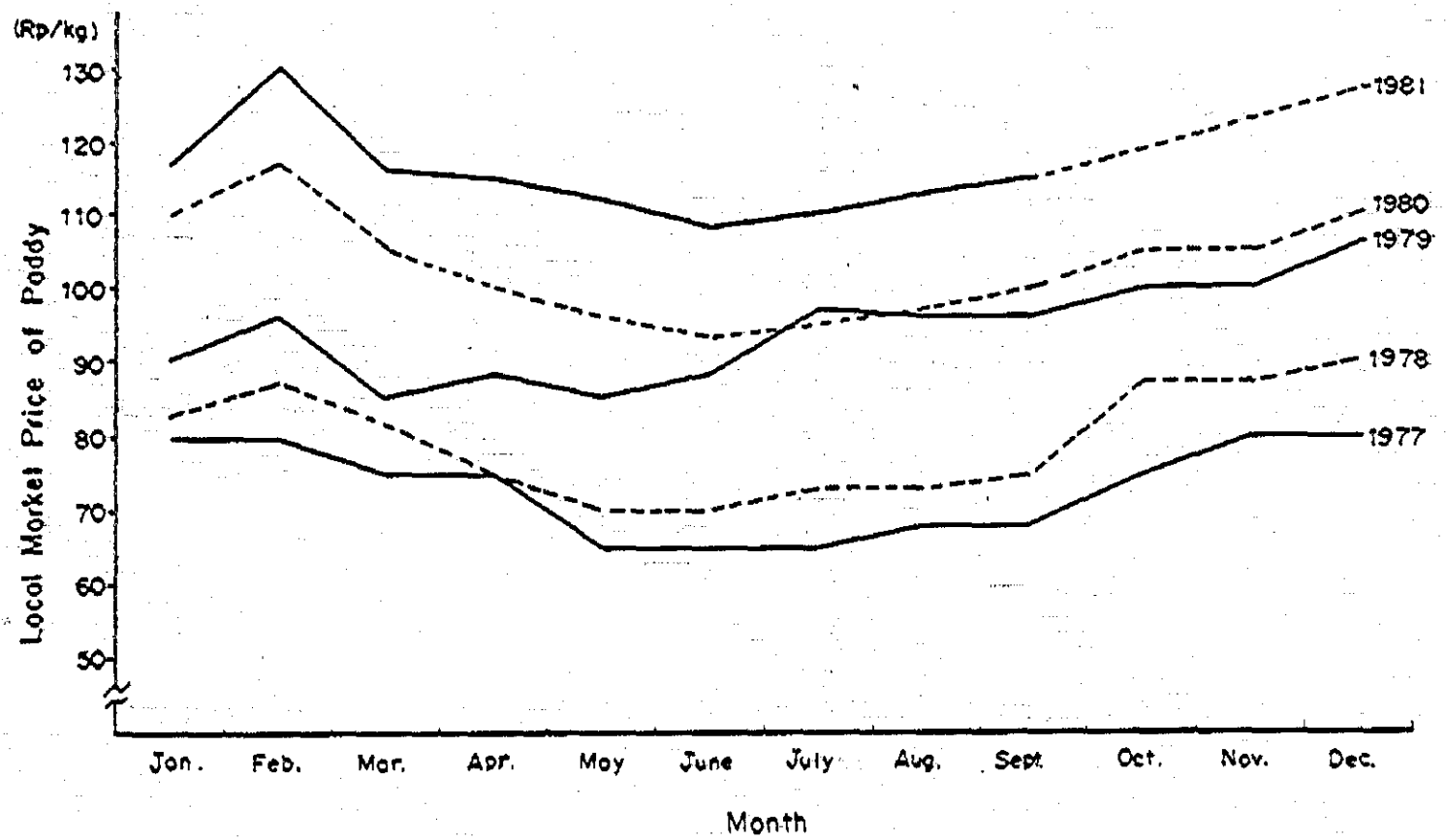


Fig V- 8 Development of Floor and Ceiling Prices and of Market Prices of Unhusked Rice and Milled Rice (Medium Quality)

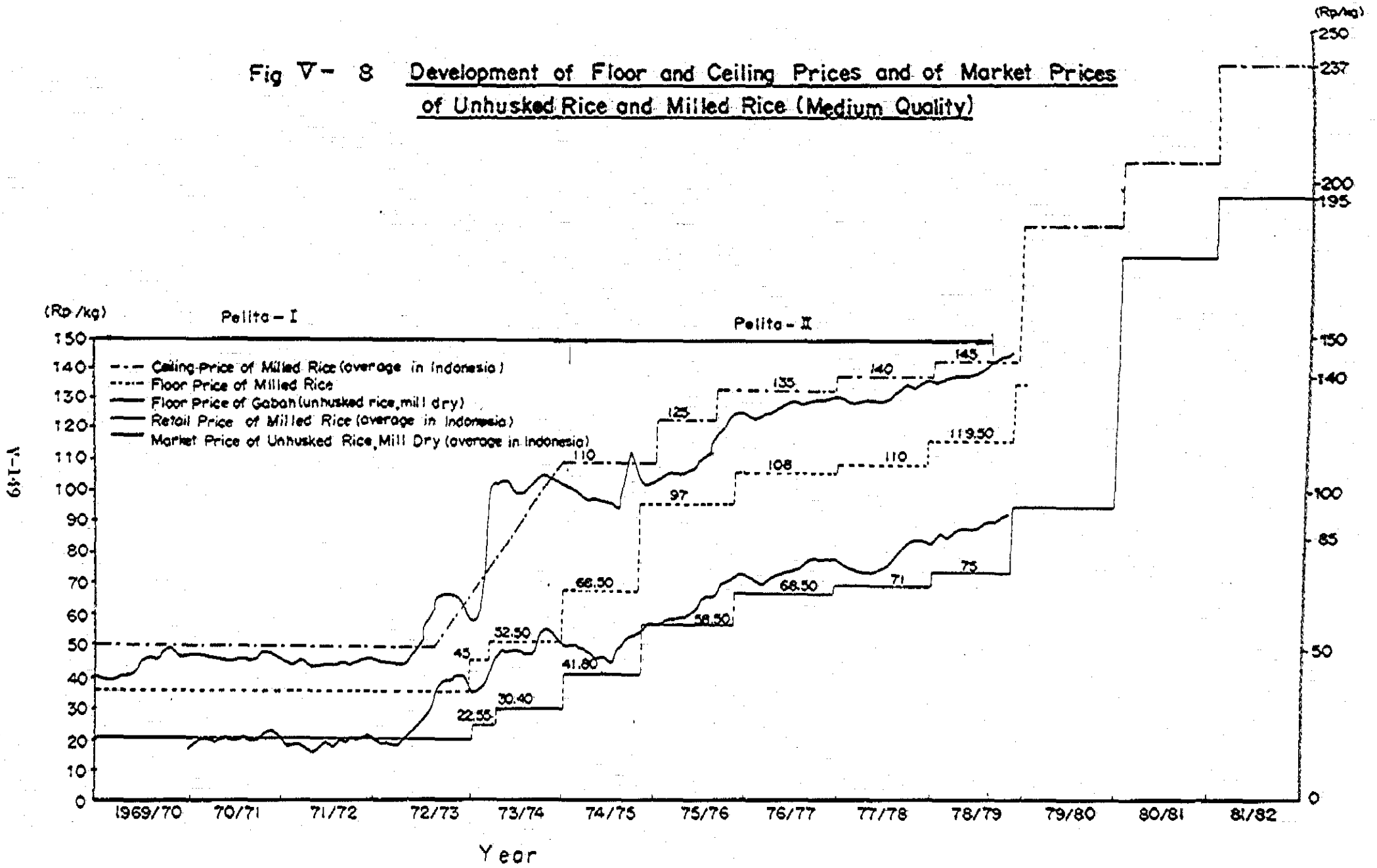
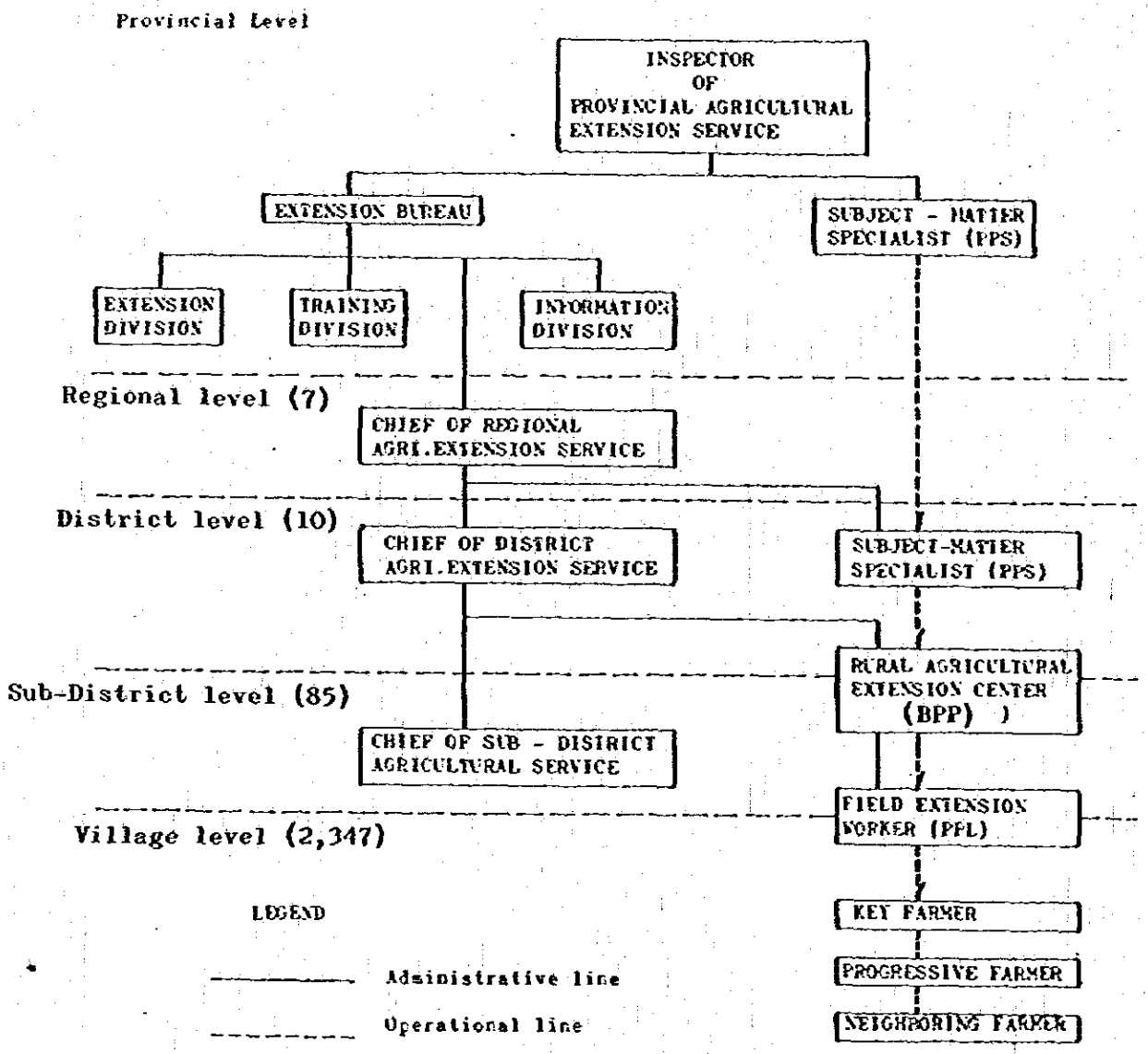
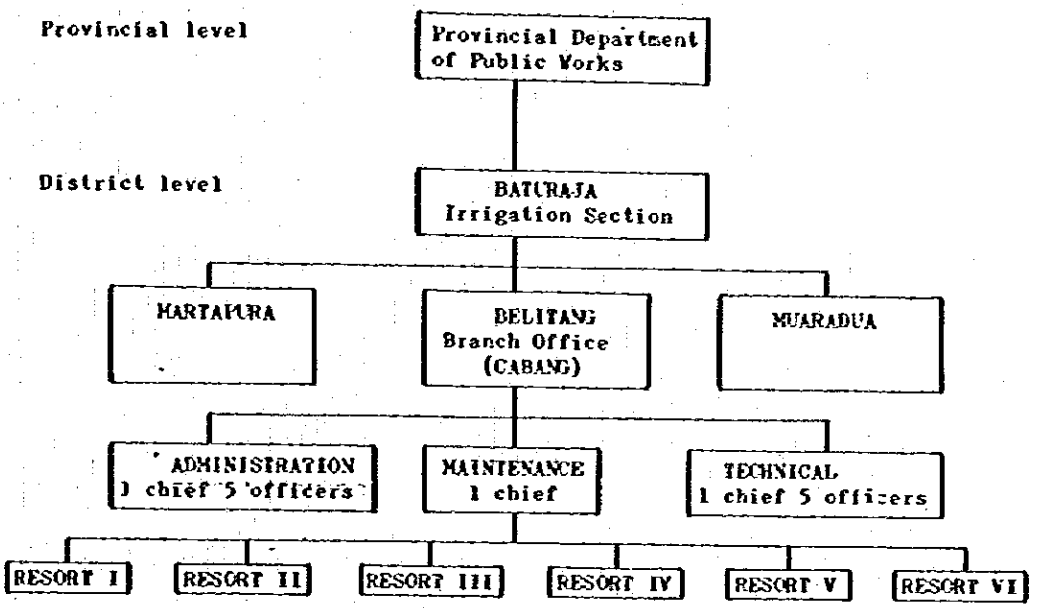


Fig. V-9 ORGANIZATION CHART OF AGRICULTURAL EXTENTION SERVICE IN SOUTH SUMATRA PROVINCE

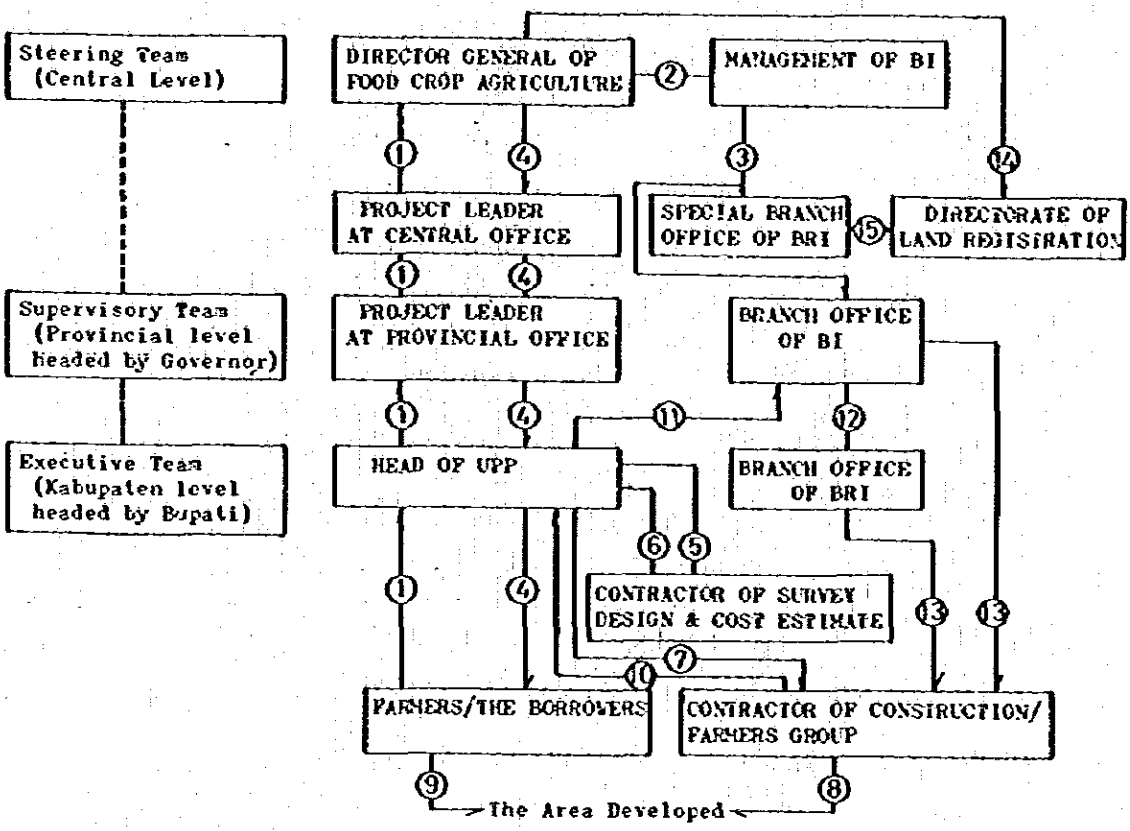


Pig. V-10 ORGANIZATION CHART OF O&M OF IRRIGATION FACILITIES IN THE PROJECT AREA



Main canal(m)	11,900	8,265	10,665	6,250	11,560	18,400
Second canal(m)	7,300	6,600	8,480	3,630	9,000	3,750
Tertis. canal(m)	38,900	69,900	98,800	54,550	65,250	75,300
Irrig. Area (ha)	1,595	2,955	4,210	2,574	3,844	5,416

Fig. V-11 ORGANIZATION AND OPERATION CHART OF LAND DEVELOPMENT PROJECT



1). Prefinancing application
2). Prefinancing request
3). Allocation of prefinancing
4). Information of prefinancing approved
5). Contract for survey, design & cost estimation
6). Submitting the survey results
7). Contract for construction
8). Construction work
9). Statement of completion of paddy field
10). Dellivery document for completion
11). Prefinancing release
12). Prefinancing allocation
13). Payment for construction
14). Making land certificate and land mortgage
15). Payment for certificate

Fig. V-12 ORGANIZATION CHART OF PROVINCIAL DEPARTMENT, TRANSMIGRATION SERVICE OFFICE

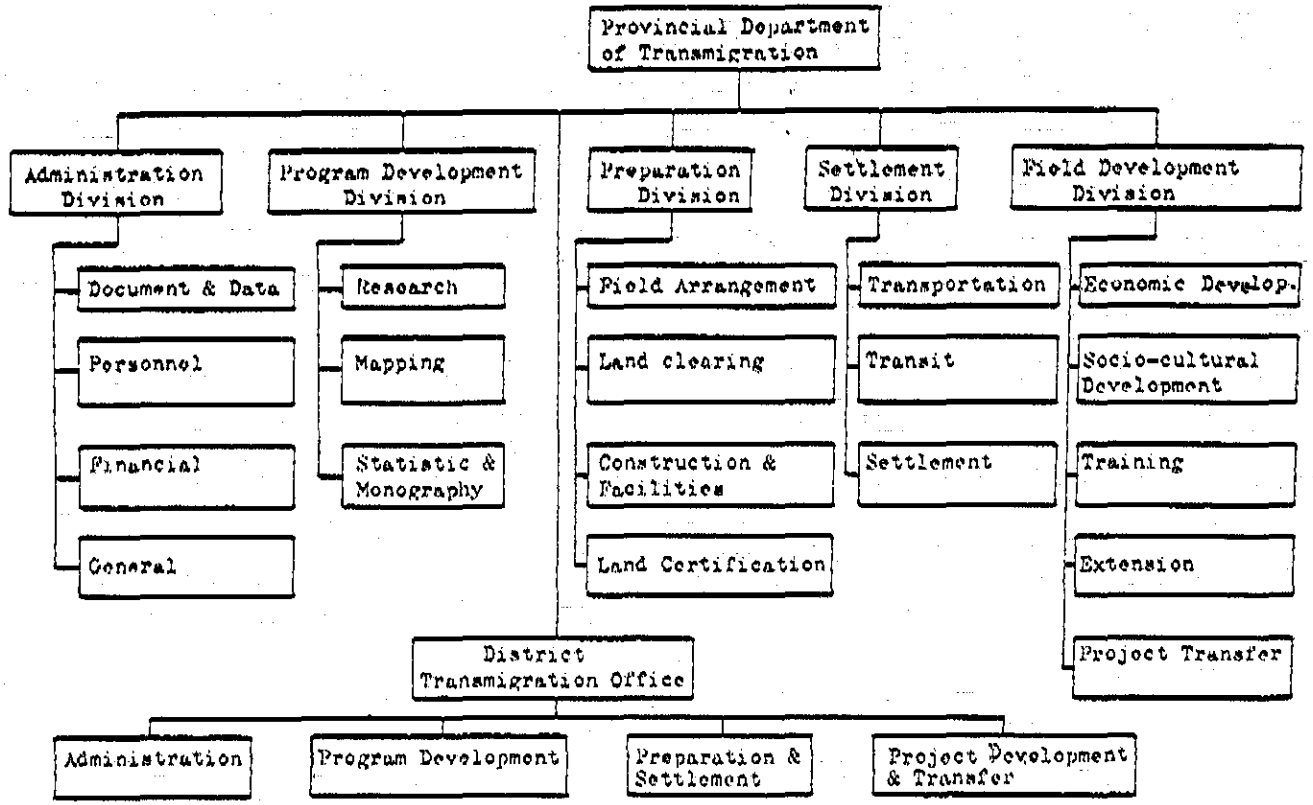


Fig. V-13 CLIMATE CONDITION IN THE PROJECT AREA

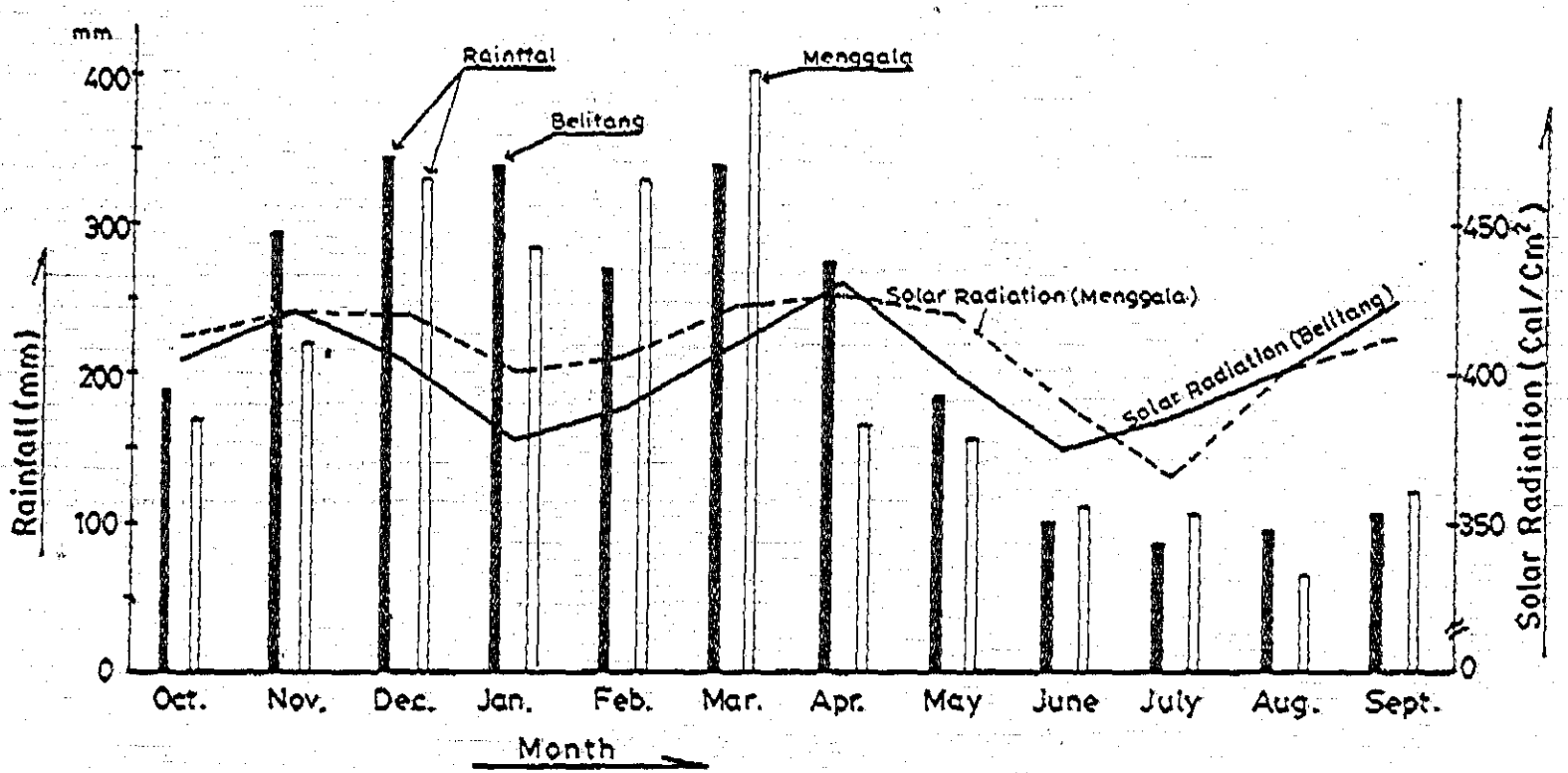
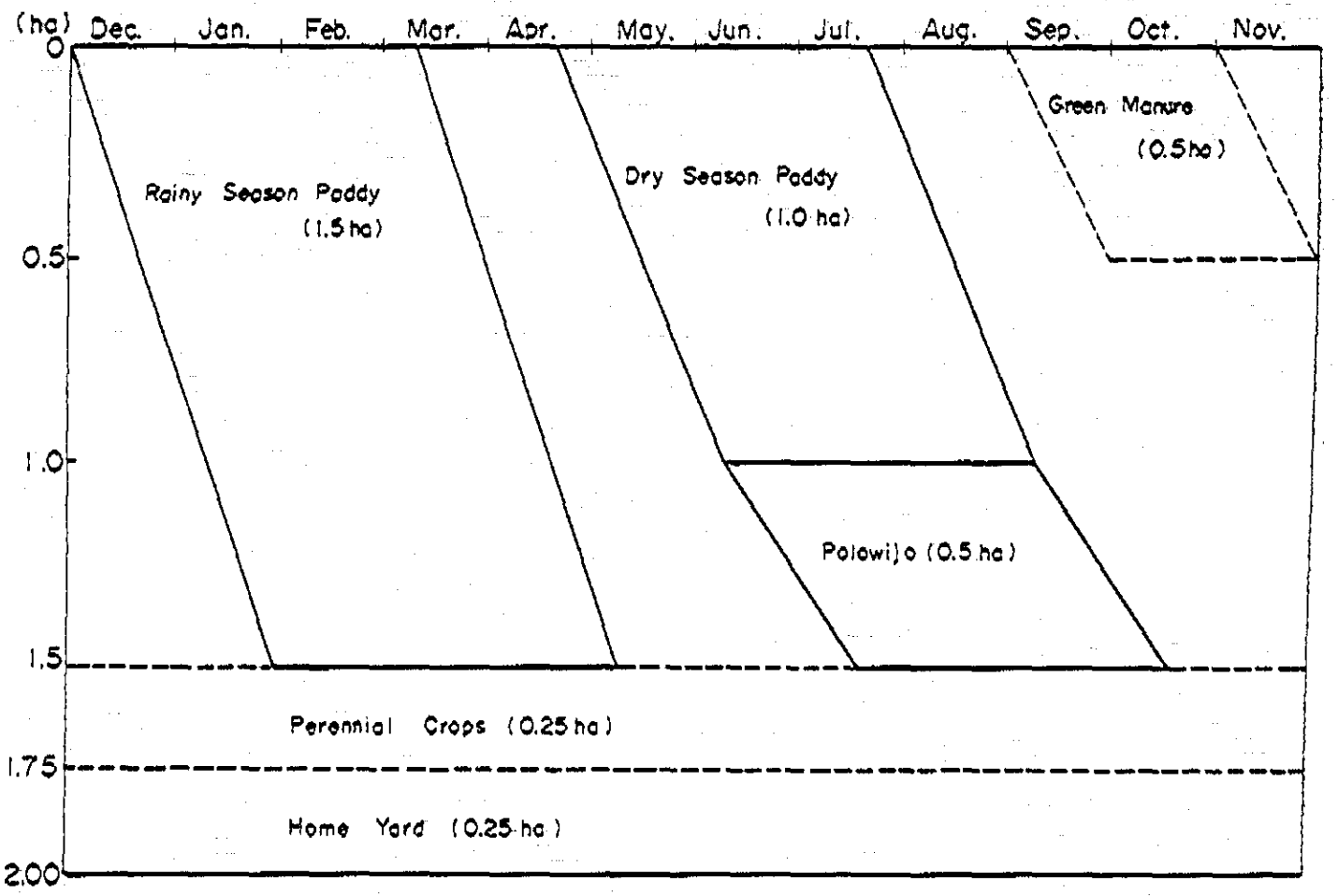


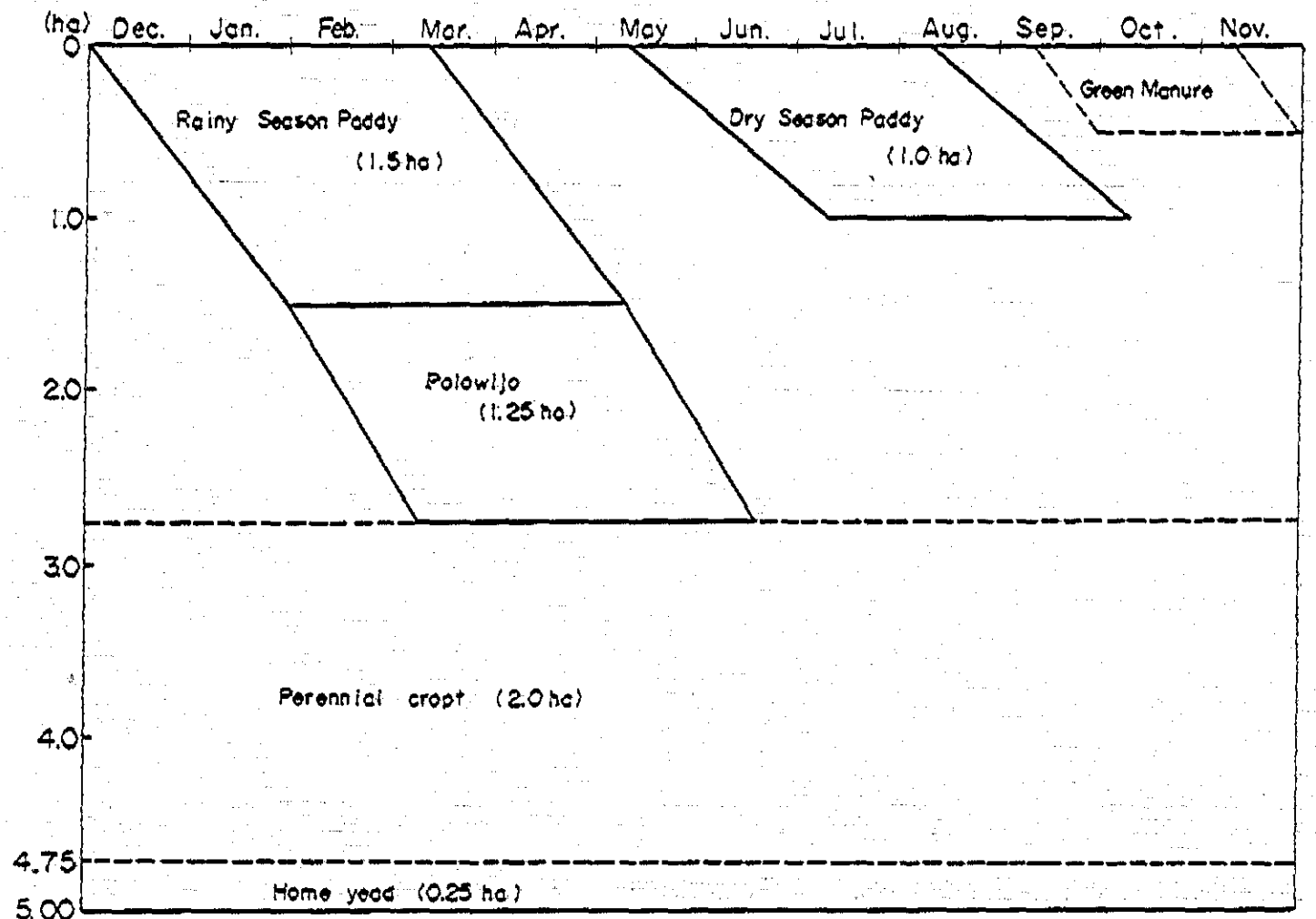
Fig. V-14 PROPOSED CROPPING PATTERN TYPE I

(MUNCAKKABAU LEMPUING AND TULANGBAWANG WEST SUB - AREA)



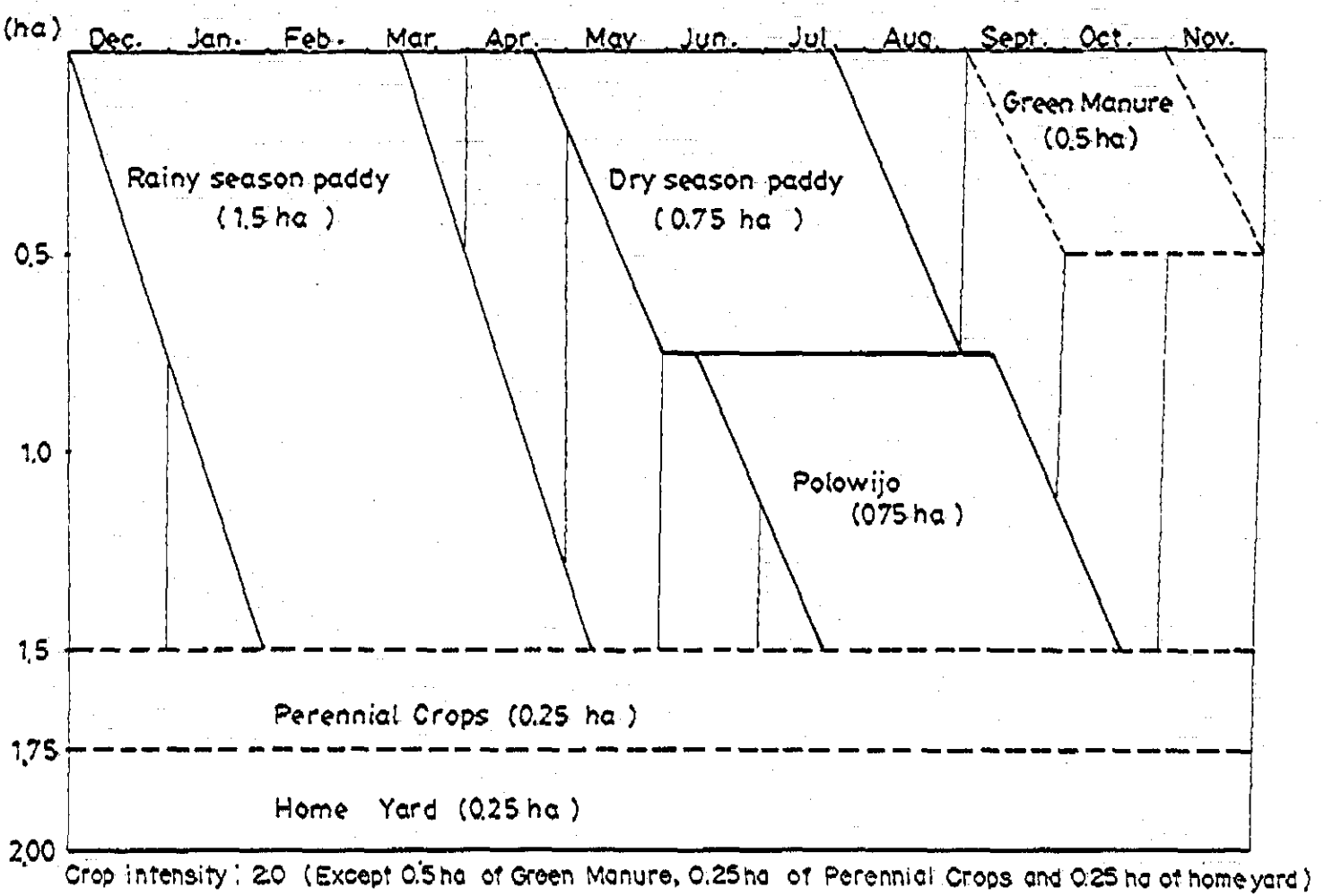
Crop intensity : 2.0 (Except 0.5 ha of Green Manure, 0.25 ha of perennial crops and 0.25 ha of home yard)

Fig.V-15 PROPOSED CROPPING PATTERN TYPE II (TULANGBAWANG EAST SUB - AREA)



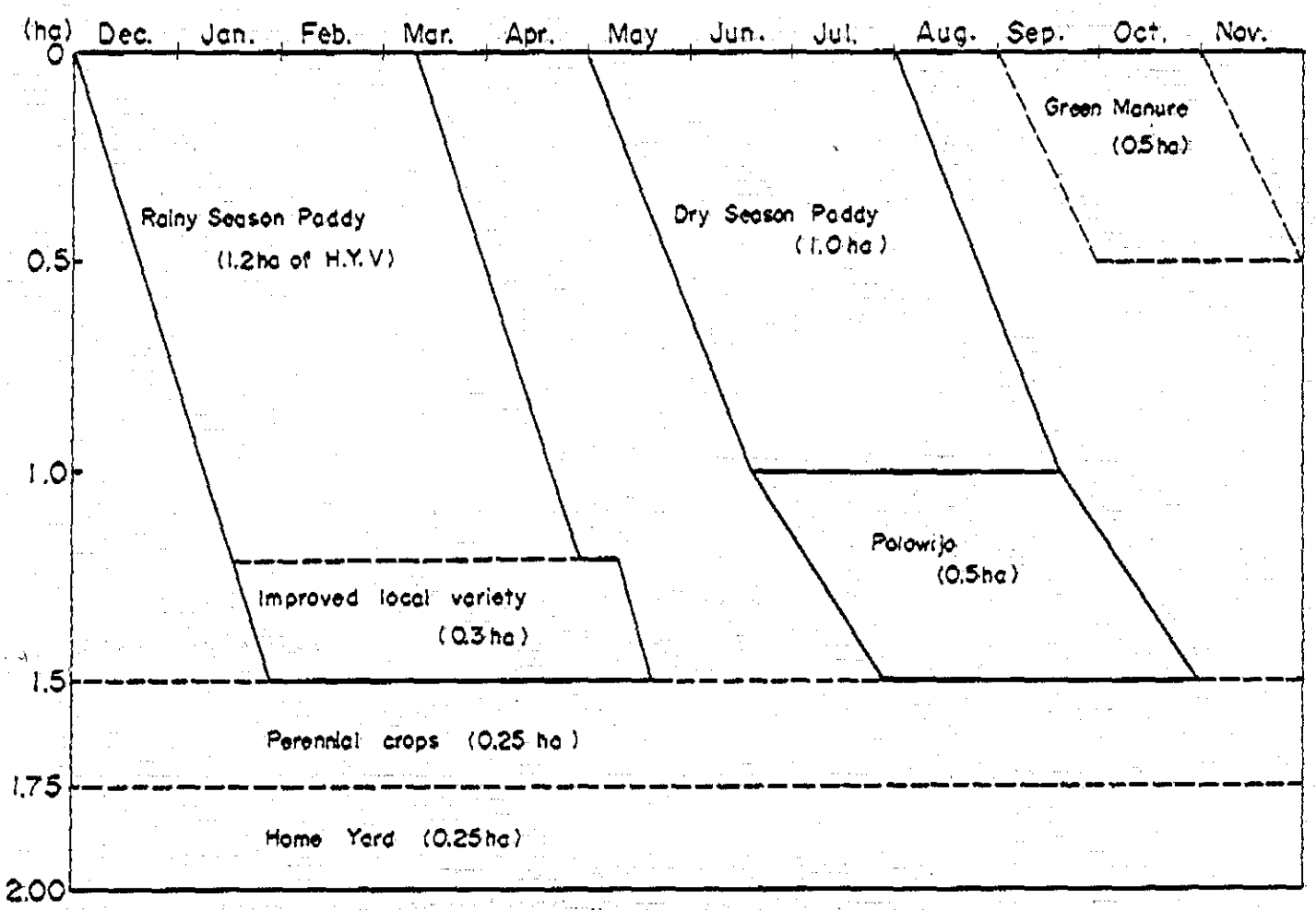
Crop intensity : 1.36 (Except 2.0 ha of perennial crops, 0.5ha of green manure and 0.25ha of home yard)

FIG. V-16 PROPOSED CROPPING PATTERN TYPE I-1
(MUNCAKKABAU, LEMPUING AND TULANGBAWANG WEST SUB-AREA)



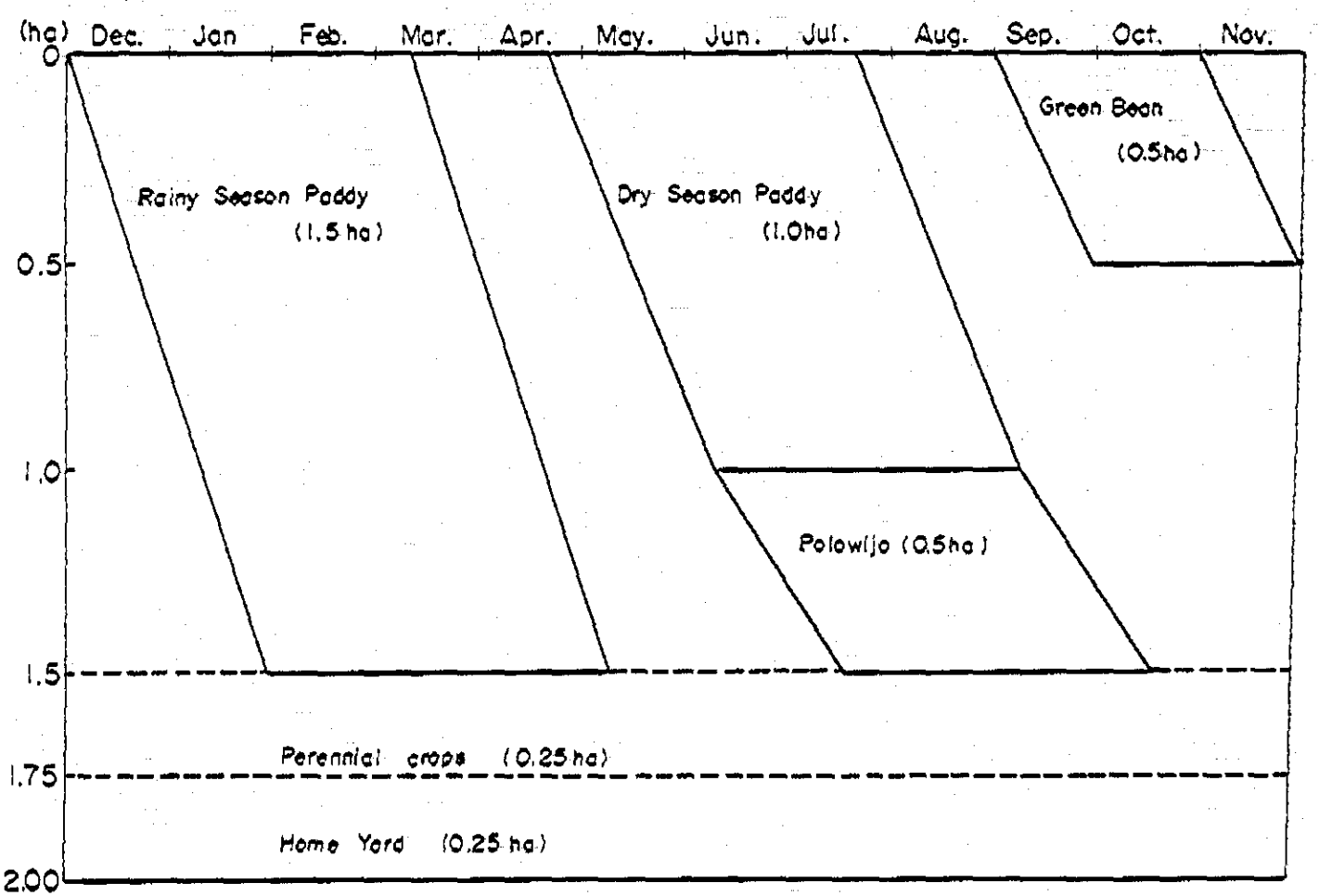
Crop intensity : 2.0 (Except 0.5 ha of Green Manure, 0.25 ha of Perennial Crops and 0.25 ha of home yard)

Fig.V-17 PROPOSED CROPPING PATTERN TYPE I-2 (MUNCAKKABAU. LEMPUING AND TULANGBAWANG WEST SUB-AREA)



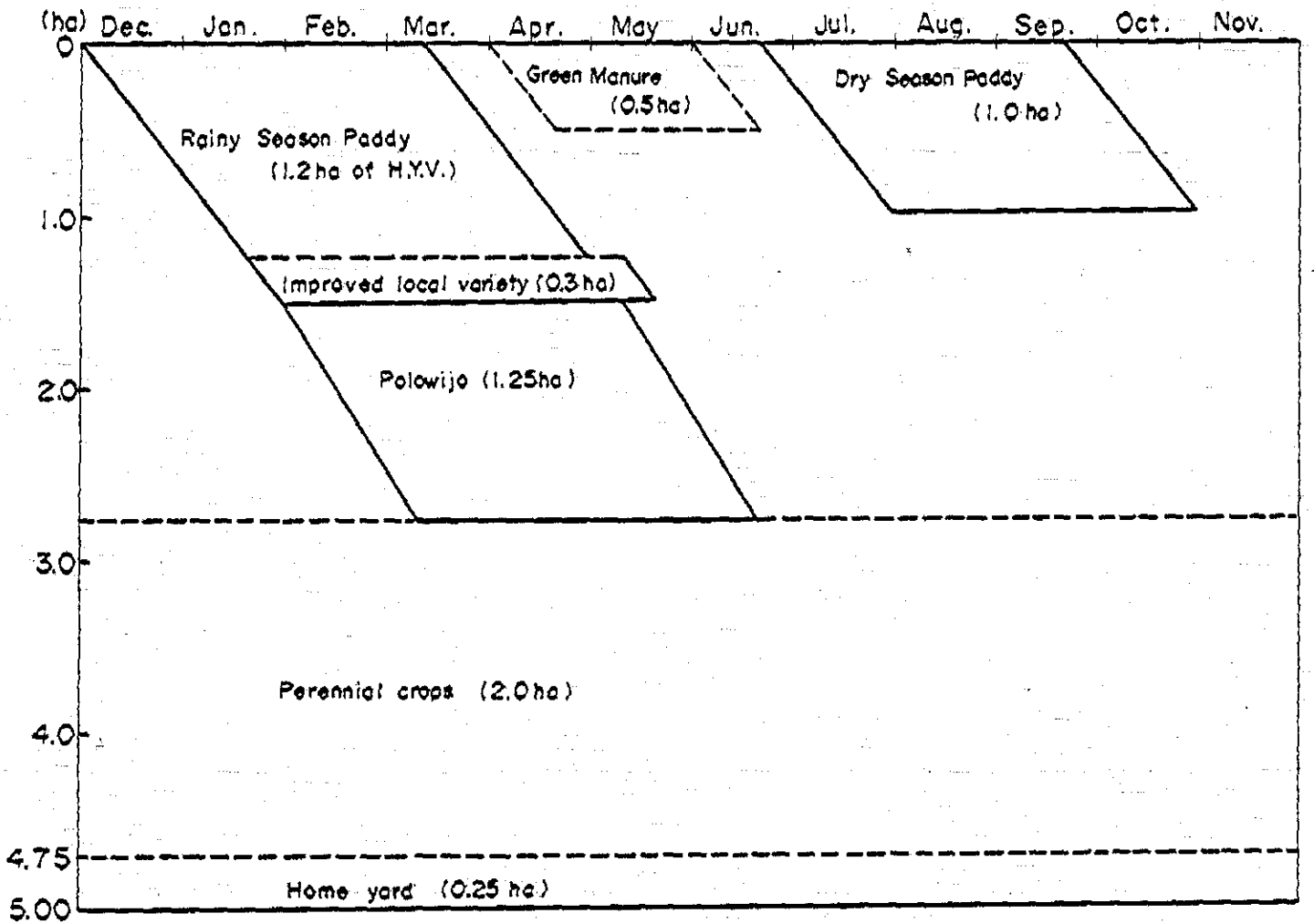
Crop intensity : 2.0 (Except 0.5 ha of Green Manure, 0.25 ha of Perennial Crops and 0.25 ha of home yard)

FIG. V-18 PROPOSED CROPPING PATTERN TYPE I-3
(MUNCAKKABAU LEMPUING AND TULANGBAWANG WEST SUB-AREA)



Crop intensity : 2.33 (Except 0.25ha of perennial crops and 0.25 ha of home yard)

Fig.V-19 PROPOSED CROPPING PATTERN TYPE II-1 (TULANGBAWANG EAST SUB-AREA)



Crop Intensity 1.36 (Except 2.0 ha. of perennial crops, 0.5 ha of green manure and 0.25 ha of home yard)

Fig. V-20 PRESCRIPTION BASED ON YIELD-DIAGNOSIS FOR IMPROVING RICE CULTIVATION

Increase the number of panicles per m^2

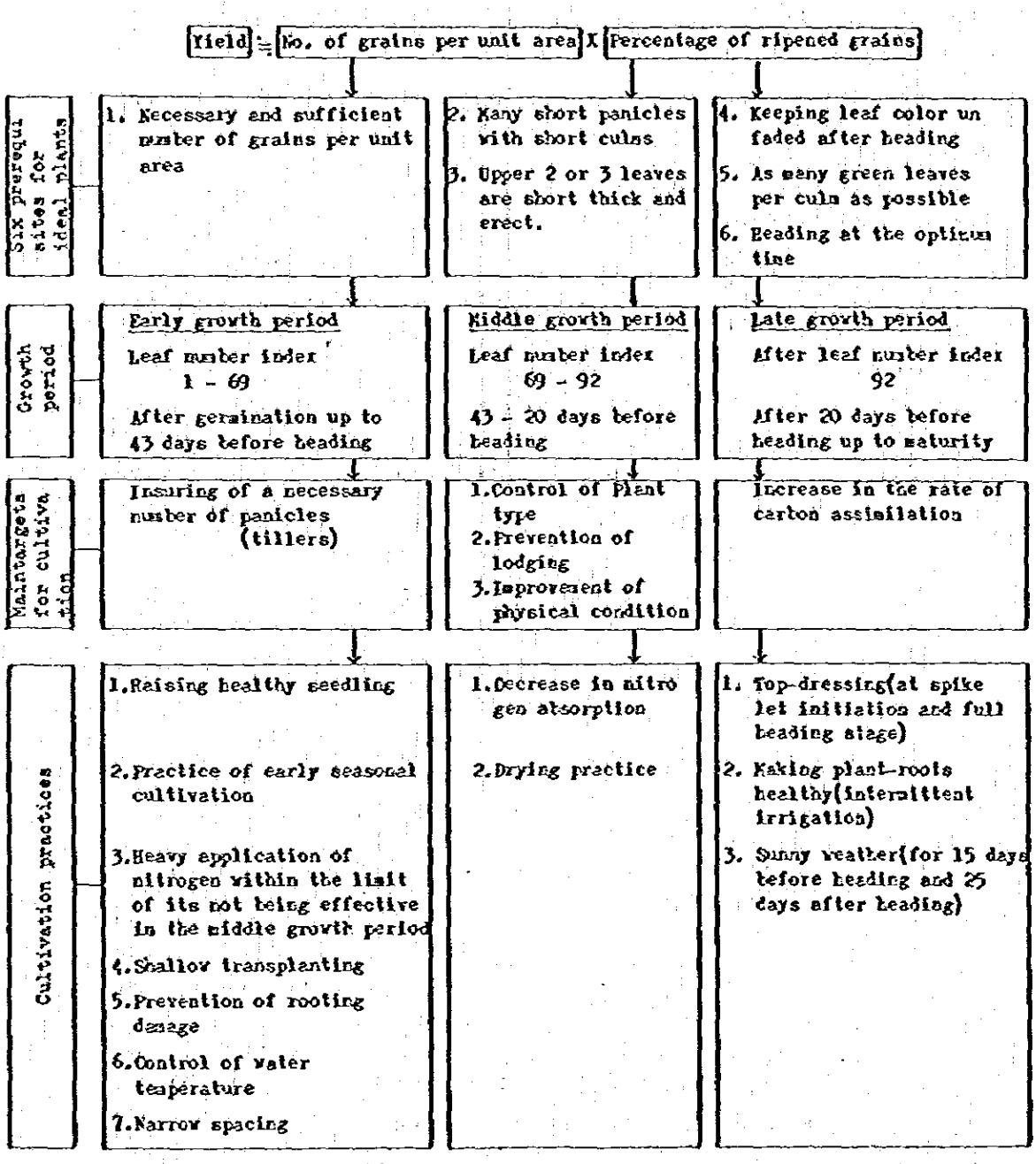
1. Raising healthy seedlings
2. Applying an adequate amount of basal fertilizers
3. Preventing seedling from rooting damege after transplanting
4. Shallow transplanting
5. Careful management
6. Narrow spacing
7. Suppressing non-bearing and weak tillers
8. Using broadcastable seedlings

Increase the percentage of ripened grains

1. Creating favorable conditions during the period from the initiation of young panicles to heading
2. Preventing the production of an excessive number of spikelets
3. Making the rice plant strong and health by the heading time
4. Top-dressing with nitrogenous fertilizers at the full heading time
5. Making the rice plant head at the optimum time when good weather lasts for 15 days before heading and 20 days after heading , for 35 days in total
6. Reducing damage caused by diseases and pests after heading
7. Preventing the plant from lodging
8. Selcting the varieties which yield a high percentage of ripened grains
9. Creating a good plant type
10. Increasing the root activity

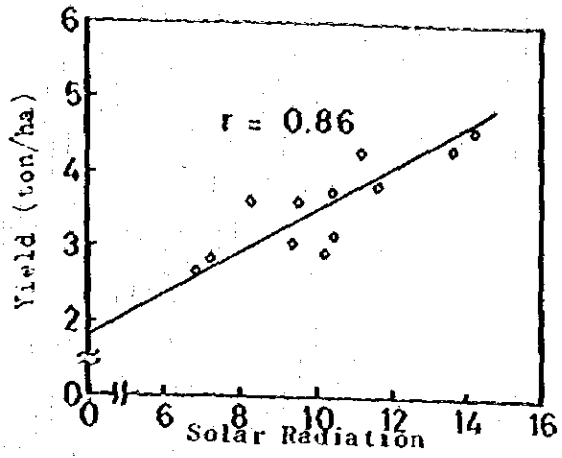
Source : Rice Cultivation for the Million , Dr.Seizo Matsushima
Japan Scientific Societies Press , Tokyo

Fig. V-21 FORMULATION OF YIELD-MAXIMIZING RICE CULTIVATION THROUGH "IDEAL PLANTS"



Source : Rice cultivation for the million, Dr. Seiro Matsushima
Japan Scientific Societies Press, Tokyo

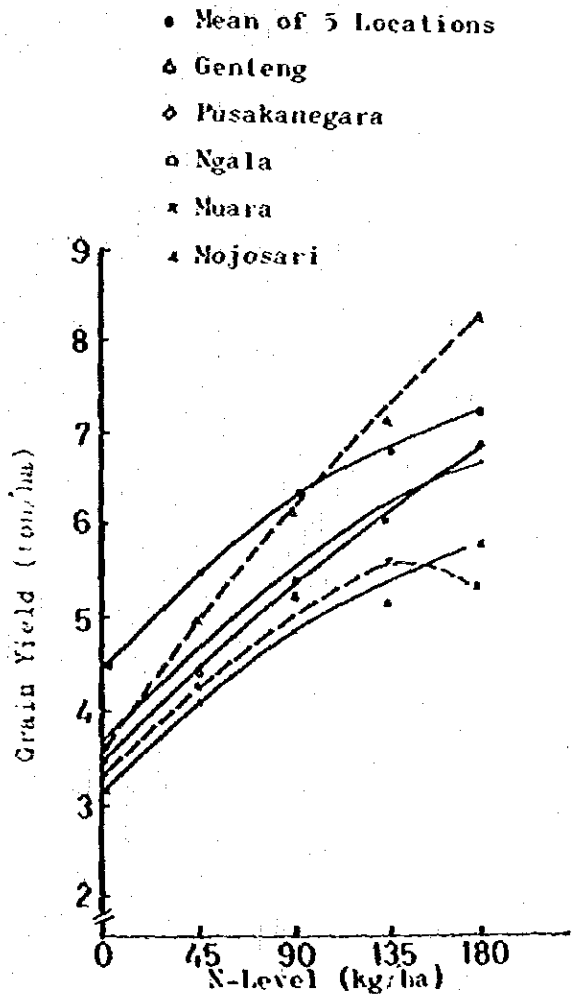
Fig. V-22 CORRELATION BETWEEN YIELD AND SOLAR DADIATION



(For the last 40 days of crop cycle)

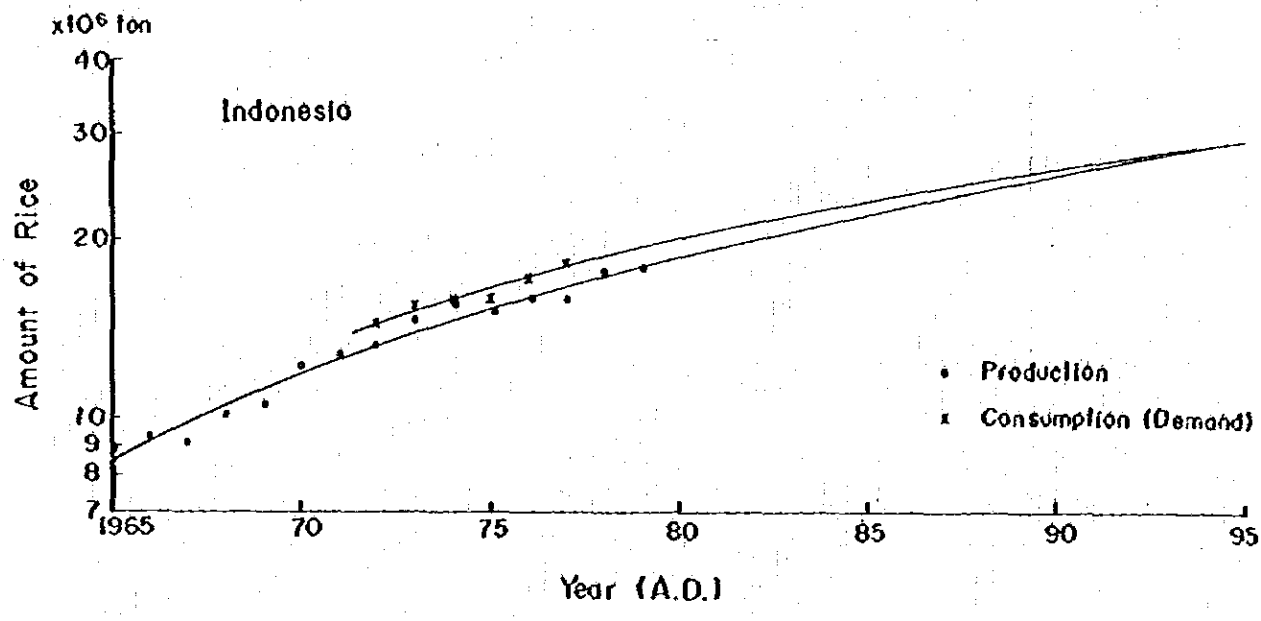
Source:
- J.C.Moomav et al, International Rice Commission News Letter, 1967

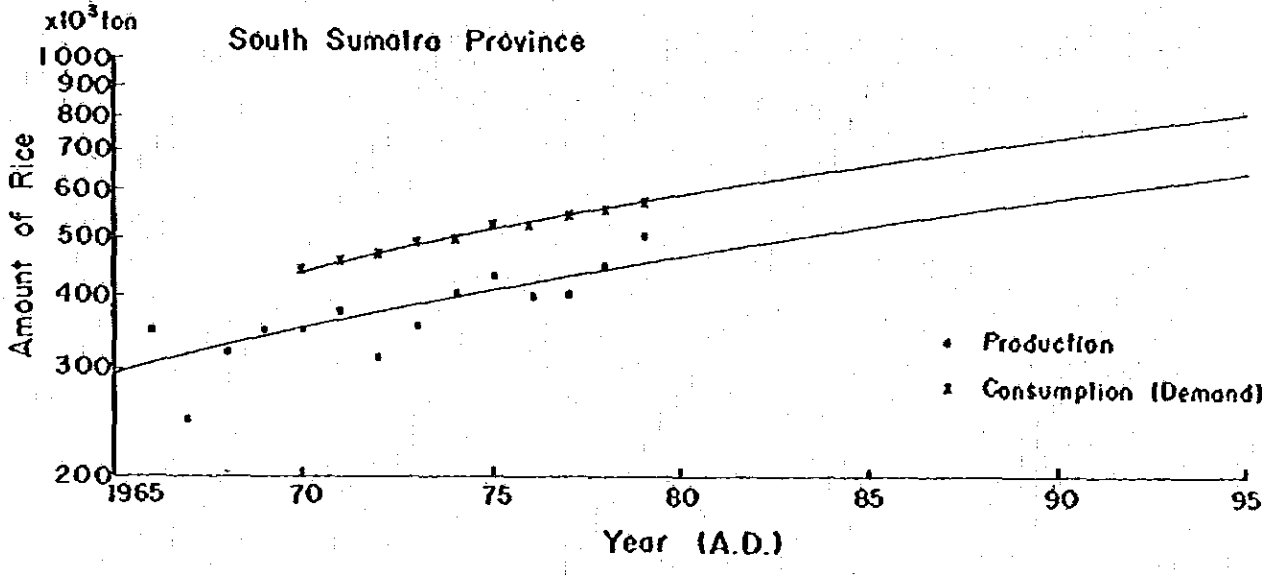
Fig. V-23 RELATION BETWEEN RICE GRAIN YIELD AND INCREASING RATES OF NITROGEN APPLICATION AT 5 DIFFERENT LOCATION



Source:
- Report on Japan-Indonesia Joint Food Crop Research Program, JICA, 1975

Fig.V-24 PROJECTION OF RICE DEMAND AND SUPPLY





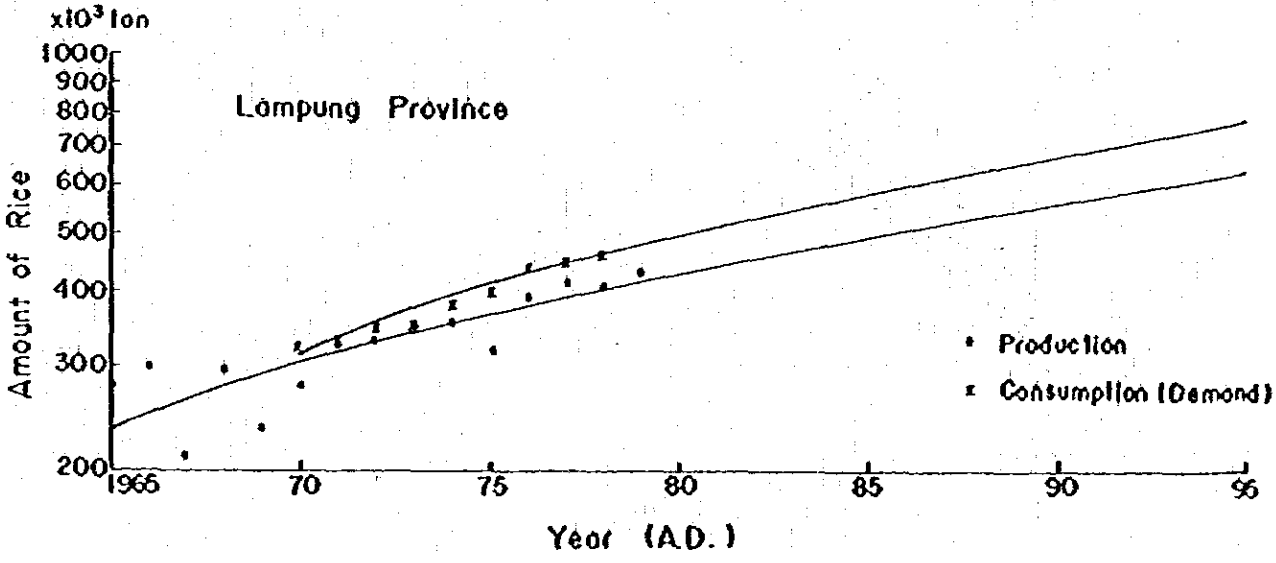


Fig. V-25 PROPOSED ORGANIZATION CHART OF BRANCH STATION OF AGRICULTURAL DEVELOPMENT CENTER, SOUTH SUMATRA PROVINCE

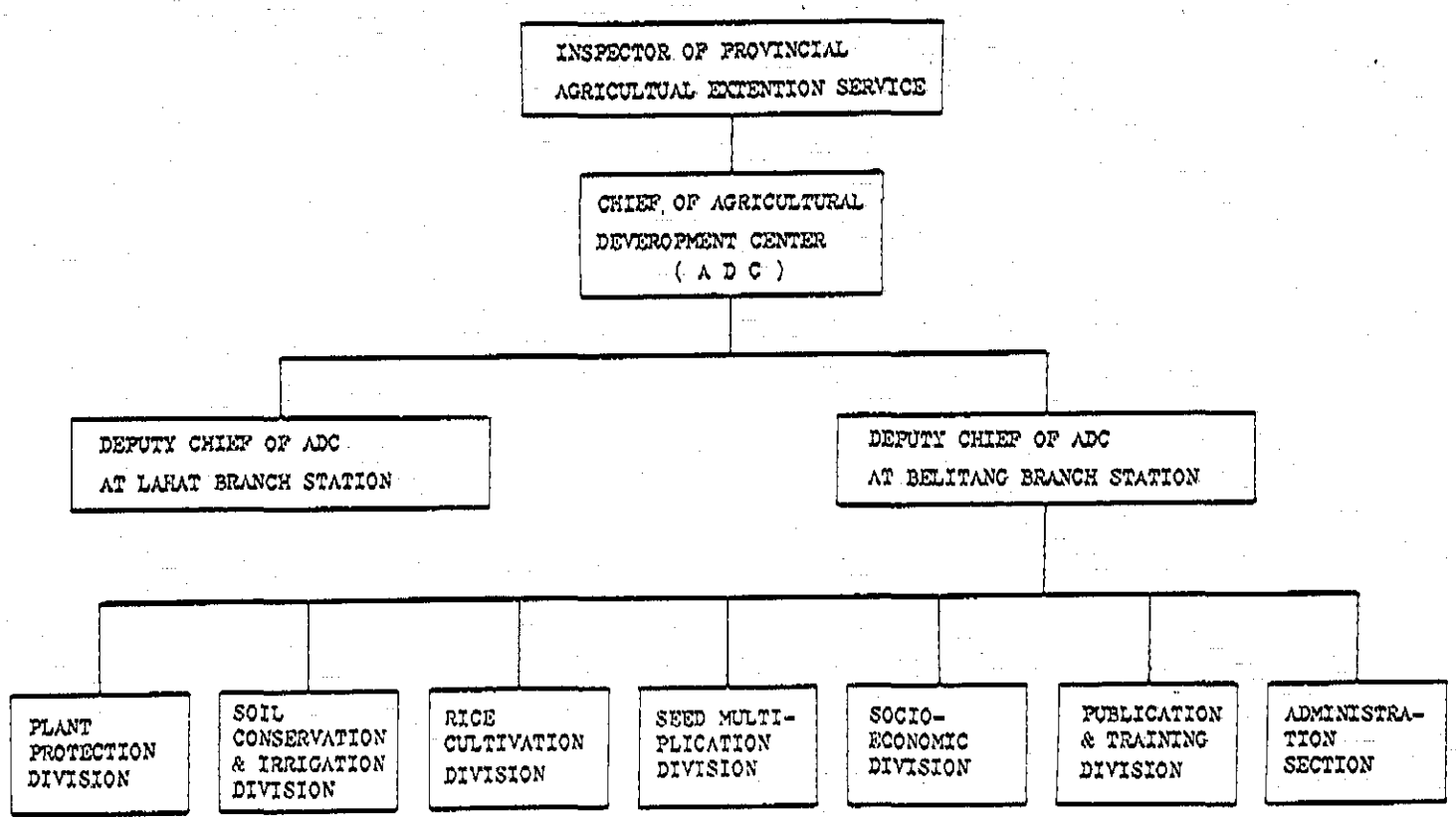
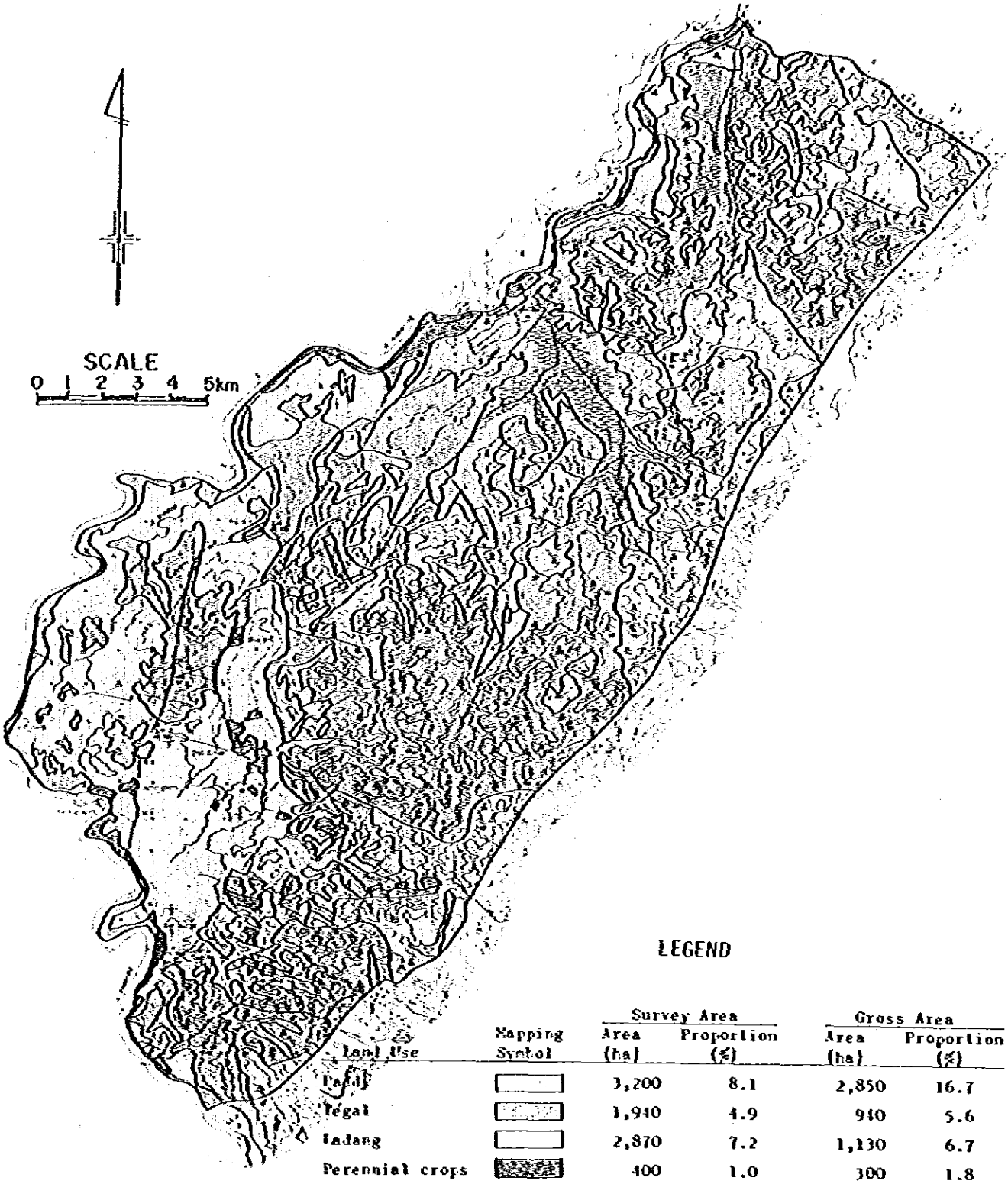


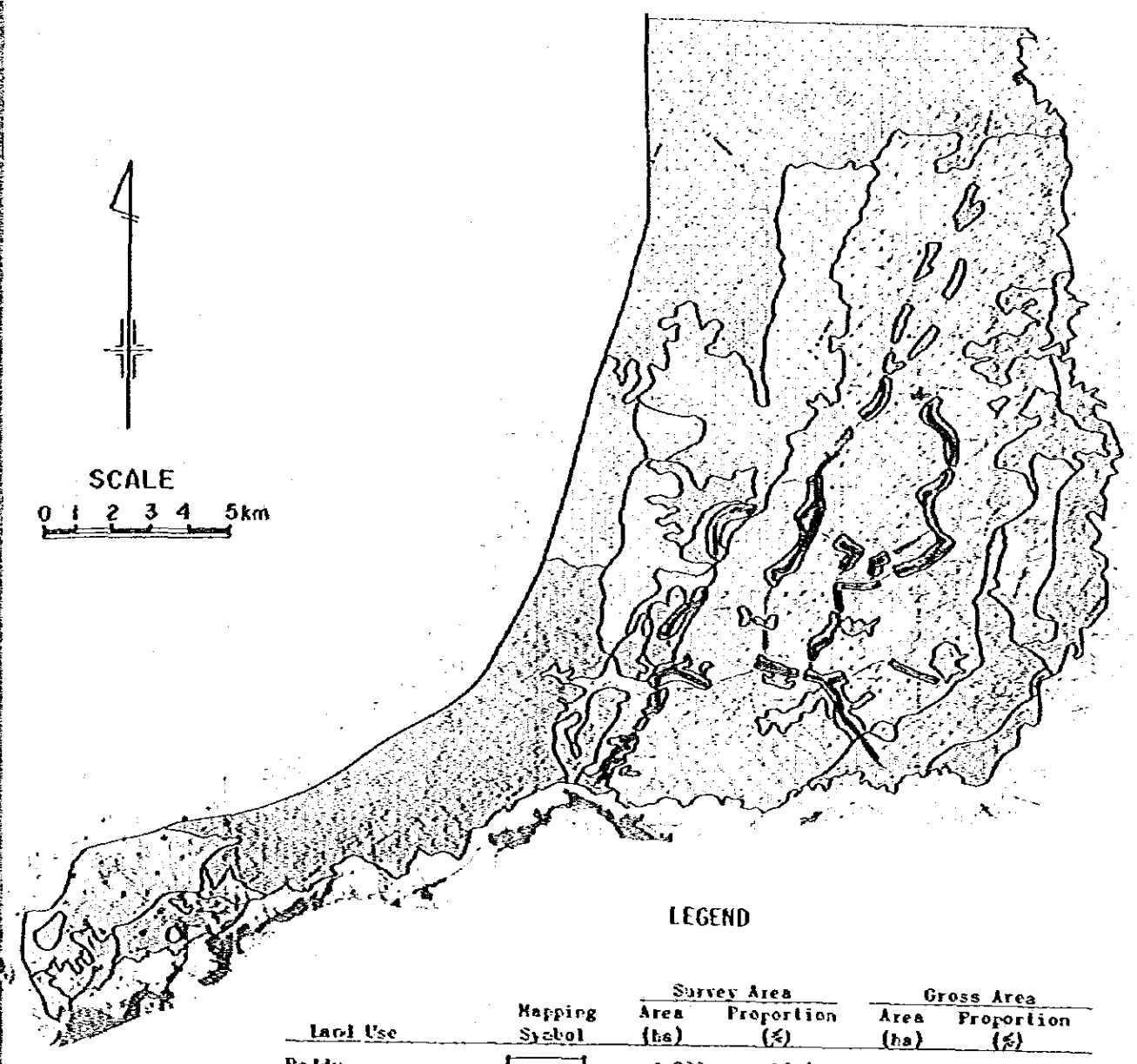
PLATE V-1 LAND USE MAP IN THE MUNCAK KABAU AREA



LEGEND

Land Use	Mapping Symbol	Survey Area Area (ha)	Survey Area Proportion (%)	Gross Area Area (ha)	Gross Area Proportion (%)
Padi		3,200	8.1	2,850	16.7
Tegal		1,940	4.9	940	5.6
Ladang		2,870	7.2	1,130	6.7
Perennial crops		400	1.0	300	1.8
Alang-alang		3,970	10.0	760	4.5
Forest		19,660	49.7	7,670	45.4
Swampy land		4,340	11.0	1,210	7.2
Village		2,180	5.5	1,690	10.0
Others	(road, canal and small river)	1,040	2.6	350	2.1
	Total	39,600	100.0	16,900	100.0

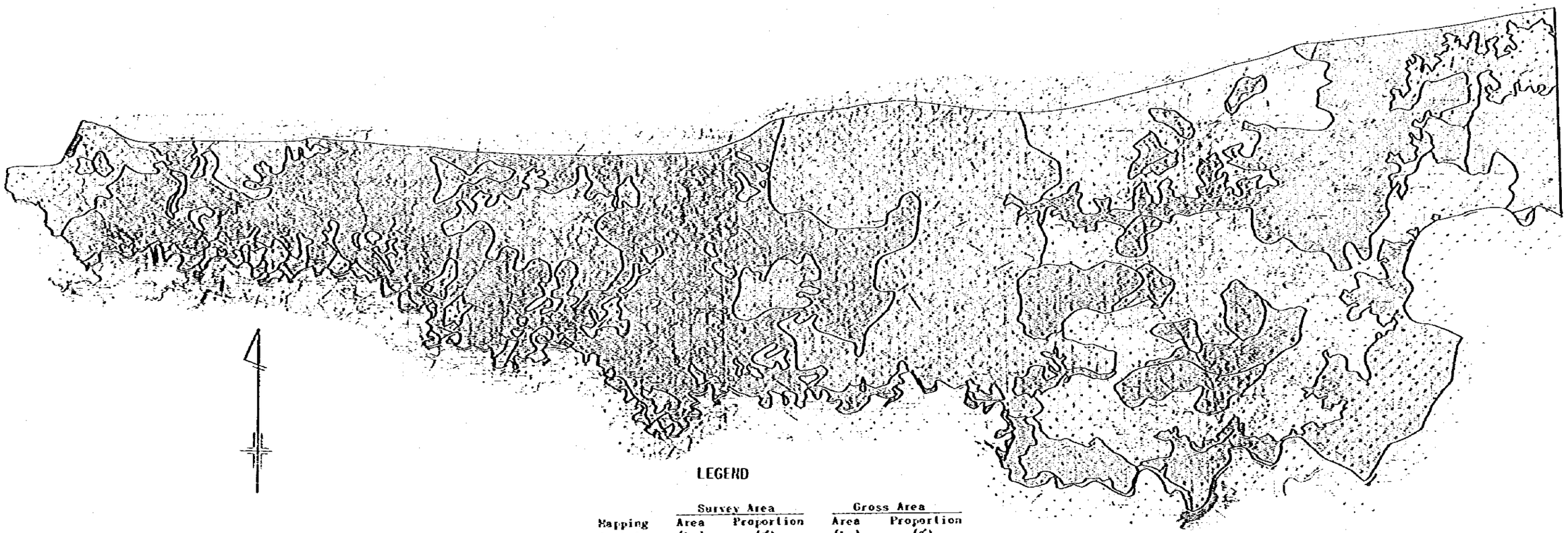
PLATE V-2 LAND USE MAP IN THE LEMPUING AREA



LEGEND

Land Use	Mapping Symbol	Survey Area Area (ha)	Survey Area Proportion (%)	Gross Area Area (ha)	Gross Area Proportion (%)
Paddy		4,900	16.6	4,900	25.3
Tegal		1,100	3.7	1,020	5.3
Ladang		1,800	6.1	1,580	8.1
Perennial crops		600	2.0	500	2.6
Alang-alang		4,200	14.2	2,900	14.9
Forest		8,100	27.3	5,600	28.9
Swampy land		6,400	21.6	800	4.1
Village		1,800	6.1	1,500	7.7
Others	(road, canal and small river)	700	2.4	600	3.1
	Total	29,600	100.0	19,400	100.0

PLATE V-3 LAND USE MAP IN THE TULANGBAWANG AREA



SCALE

0 2 4 6 8 10km

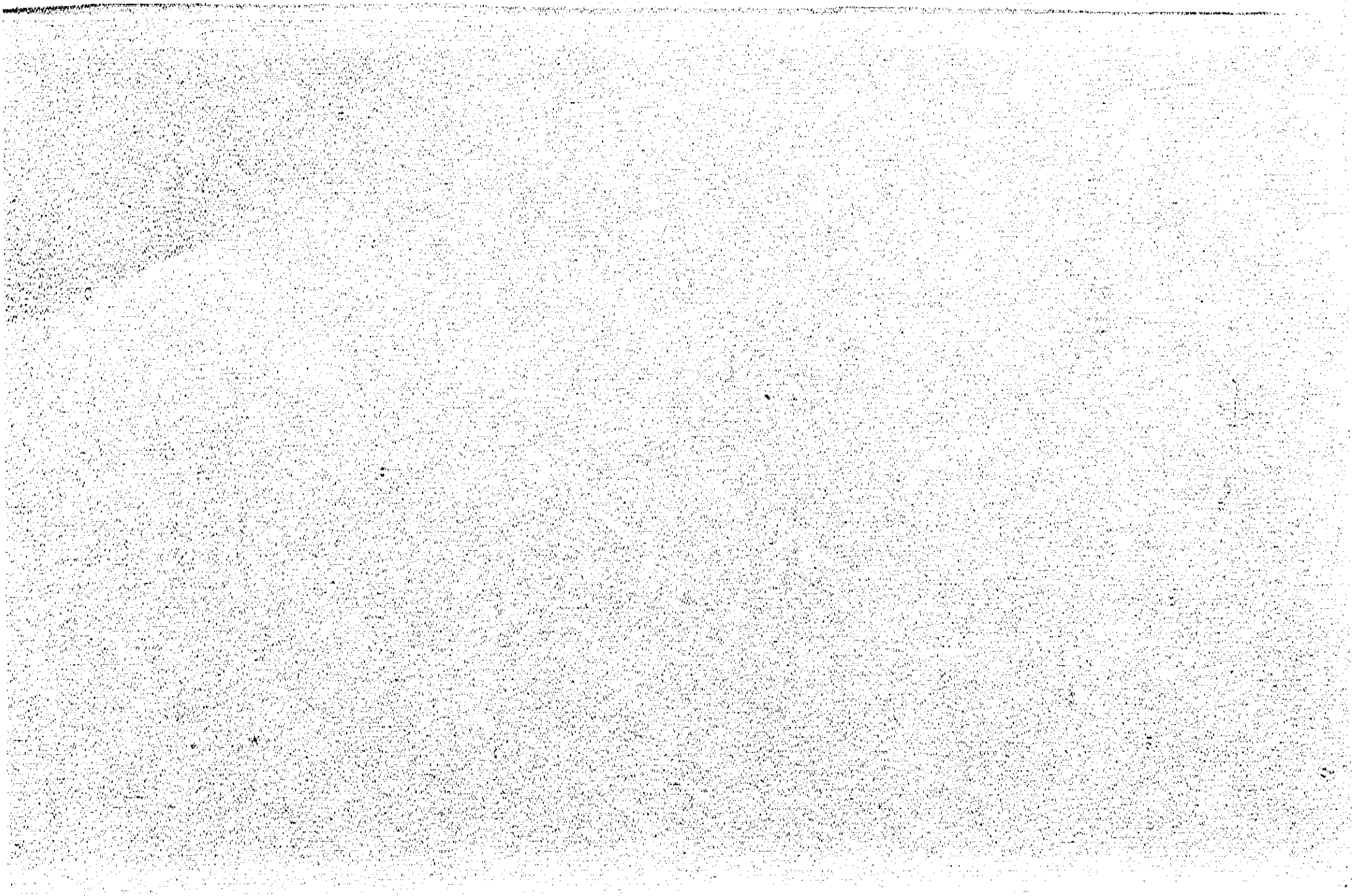
LEGEND

Land Use	Mapping Symbol	Survey Area Area (ha)	Survey Area Proportion (%)	Gross Area Area (ha)	Gross Area Proportion (%)
Paddy		310	0.2	310	0.4
Tegal		5,250	3.4	5,250	6.5
Ladang /1		29,700	19.0	11,400	14.2
Perennial crops		1,000	0.6	1,000	1.2
Alang-alang		33,300	21.3	11,800	14.7
Forest		68,400	43.6	47,600	59.4
Swampy land		15,200	9.7	0	0
Village		100	0.1	100	0.1
Others	(road, canal and small river)	3,240	2.1	2,810	3.5
	Total	156,600	100.0	80,300	100.0

/1 include deforestration area

ANNEX VI

IRRIGATION AND DRAINAGE



ANNEX - VI

IRRIGATION AND DRAINAGE

1. SELECTION OF AREA FOR IRRIGATION DEVELOPMENT

1.1 General

Various data on complex natural resources and interrelated land data have been collected and analyzed in delineating the area for irrigation development. Systematic appraisal for the soils and substrata, topography and drainage conditions is conducted as an integrated study with economics, engineering and other disciplines in selection of land suitable for irrigation and their relative degree of suitability. This chapter aims at the selection of irrigation development areas in the Muncak Kabau, Lempuing and Tulangbawang areas, all of which were proposed in the Draft Comprehensive Study Report prepared by JICA in 1980.

1.2 Factors to be Considered in Selection of Area

(1) Land, soil and topography

The land classification survey related to the soil, topography and drainage characteristics has revealed the grade of irrigation suitability. Typical characteristics of the natural soil bodies involved are texture, structure, depth, stoniness, horizon arrangement and layering, soluble salts (EC), pH, infiltration rate, moisture characteristics, etc.

Micro and macro topography are evaluated with respect to degree and direction of slope, land capability and land development requirement. Irrigability in relation to location and topography is the main point in this context.

The drainability of the area as a whole is considered in relation to the drainage characteristics of the soil and topography.

(2) Crop, value, etc.

The land classification supplemented by overall agricultural studies makes it possible to assess the crop suitability of the soil. In the determining crop values, within the framework of marketing system,

estimates of these benefits are made taking into account not only the gross value of the products, but also the international market price, national demand, the capacity of the existing processing facilities available, etc.

(3) People, social and economic conditions

The field survey includes figures on the population of the area and their social and economic conditions. Their farming experience, farming practices, family labor forces, land holding size, land tenure, agricultural supporting services, etc. are taken into account for future successful development.

(4) Government's policy

The most important factor is the Indonesian Government's development policy. The areas which have been selected for transmigration program, resettlement program or irrigation development program are given a high priority for the selection of project area.

1.3 Area to be Developed under the Project

The land suitability classification in the surveyed area is made on the basis of erodability of lands, cultivable depth of soil, topography, flooding condition, drainability and degree of soil acidity (see ANNEX-II). Following the result on the land suitability classification, the gross irrigable areas for the Muncak Kabau, Lempuing and Tulangbawang development areas are selected by deducting the non-suitable land (Grade-IV) and area which can not be irrigated due to its high topography as compared with the proposed canal water level.

The gross irrigable areas thus selected are classified as follows:

(Unit: ha)

Grade	Muncak Kabau	Lempuing	Tulangbawang
I	3,100	7,900	-
II	1,800	2,500	600
III	12,000	9,000	79,700
Total	16,900	19,400	80,300

Further by deducting the non-irrigable lands such as village compounds, perennial crop fields, roads, canals and forest to be conserved from the above gross areas, the net irrigable areas are obtained to be 10,700 ha in the Muncak Kabau area, 13,100 ha in the Lempuing area and 44,500 ha in the Tulangbawang area respectively as follows:

(Unit: ha)

Area	Muncak Kabau Area	Lempuing Area	Tulangbawang Area
1. Gross irrigable area	16,900	19,400	80,300
2. Non-irrigable area	(6,200)	(6,300)	(35,800)
- Forest to be conserved	150	0	3,200
- Perennial crop fields	1,800	2,200	14,900
- Others (village compounds, canals and roads, etc.)	4,250	4,100	17,700
3. Net irrigable area	10,700	13,100	44,500