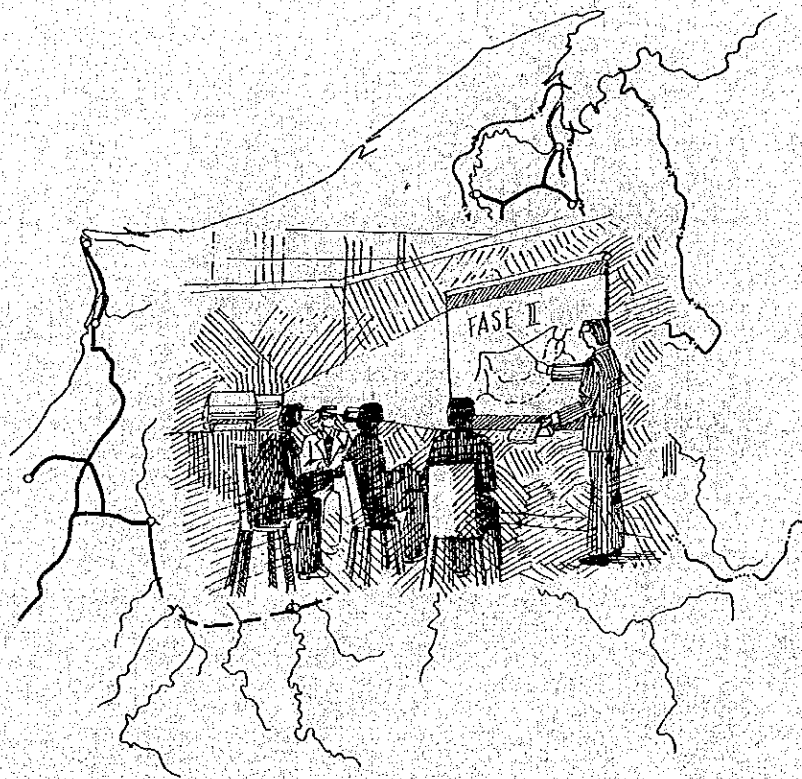
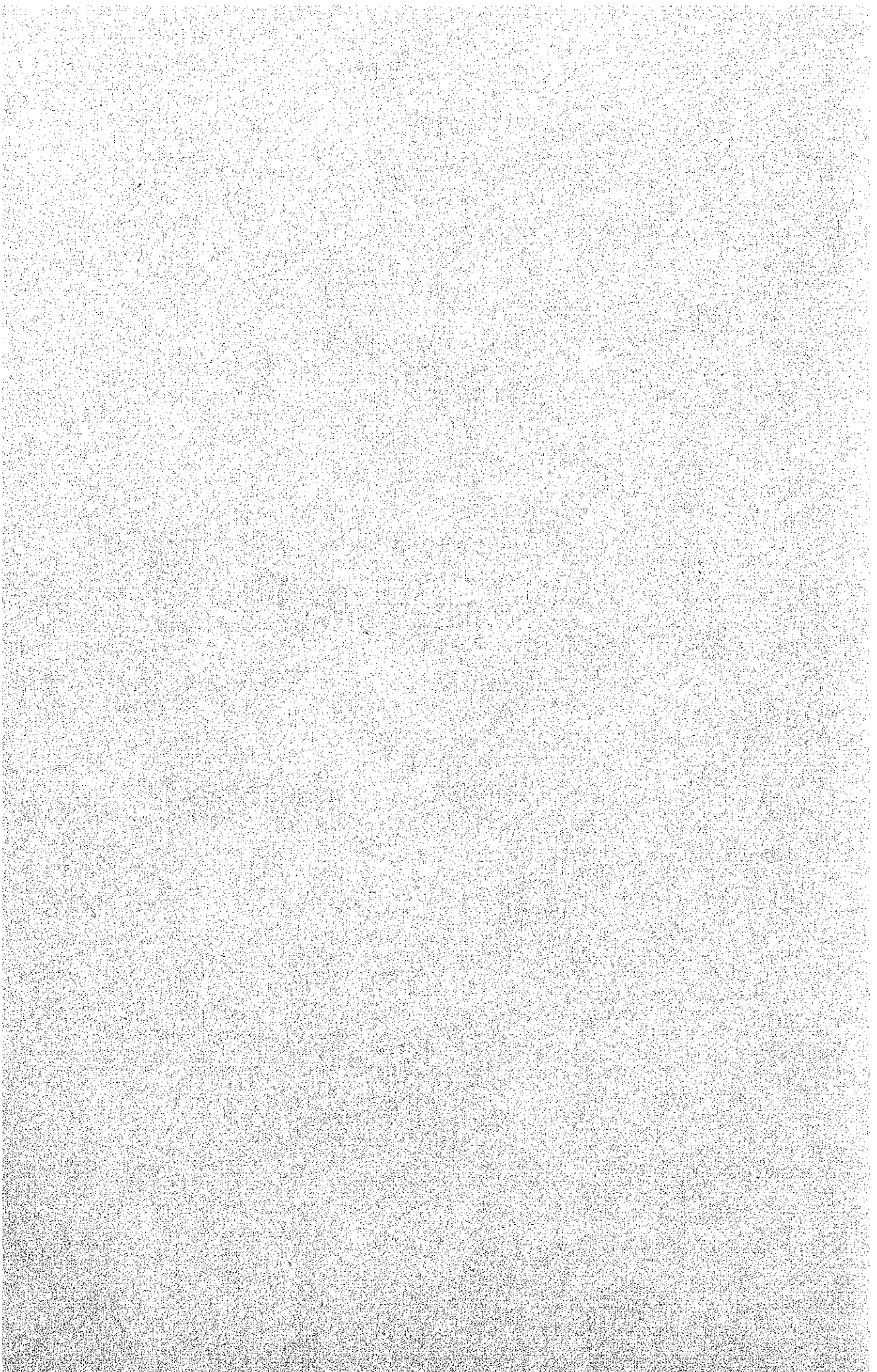


## Chapter 11

# POLICY OF PHASE II SURVEY





## **POLICY OF SURVEY IN PHASE II**

In the site investigation of Phase II, mainly the detailed technical study will be carried out along the discussed routes in this report, based on the topographical map in a scale of 1/10,000 which were made by the aerial photograph survey.

And also the supplementary survey on development programme of agriculture and forestry will be added, together with the traffic survey on seasonal changes and the data collection for the estimation of benefit in determining the optimum route.

### **11-1 TECHNICAL STUDY**

In order to determine the optimum route, following detailed studies will be performed.

#### **11-1-1 Hydrology**

- a) The method of hydraulic analysis of the river at the crossing point by bridges.
- b) The storage capacity of rivers.
- c) The record on the past floods and their area.
- d) Investigation of the small and middle scale rivers.

#### **11-1-2 Soil and Geological Condition, Aggregate Material**

- a) The supplementary CBR test on the subgrade material of the optimum route.
- b) The geotechnical survey of the foundation at the bridging site (the standard penetration test).
- c) Investigation of the access road and buried potential of limestone quarries, site.
- d) Investigation of the access road and buried potential of gravel quarries to be developed, and tests for the aggregate.

### 11-1-3 Construction Cost

- a) The kinds of construction material in the market and the taxes rate for their market price.
- b) Economic life, costs for major repairs and overhaul.

### 11-1-4 Construction Method

- a) Equipment and plants of the P.W.D, equipment lease companies (in Singapore) and the size, capacity and technical experience of local contractors.
- b) Construction schedule, administration and method of projects of similar nature.

**ECONOMIC AND TRAFFIC SURVEY**

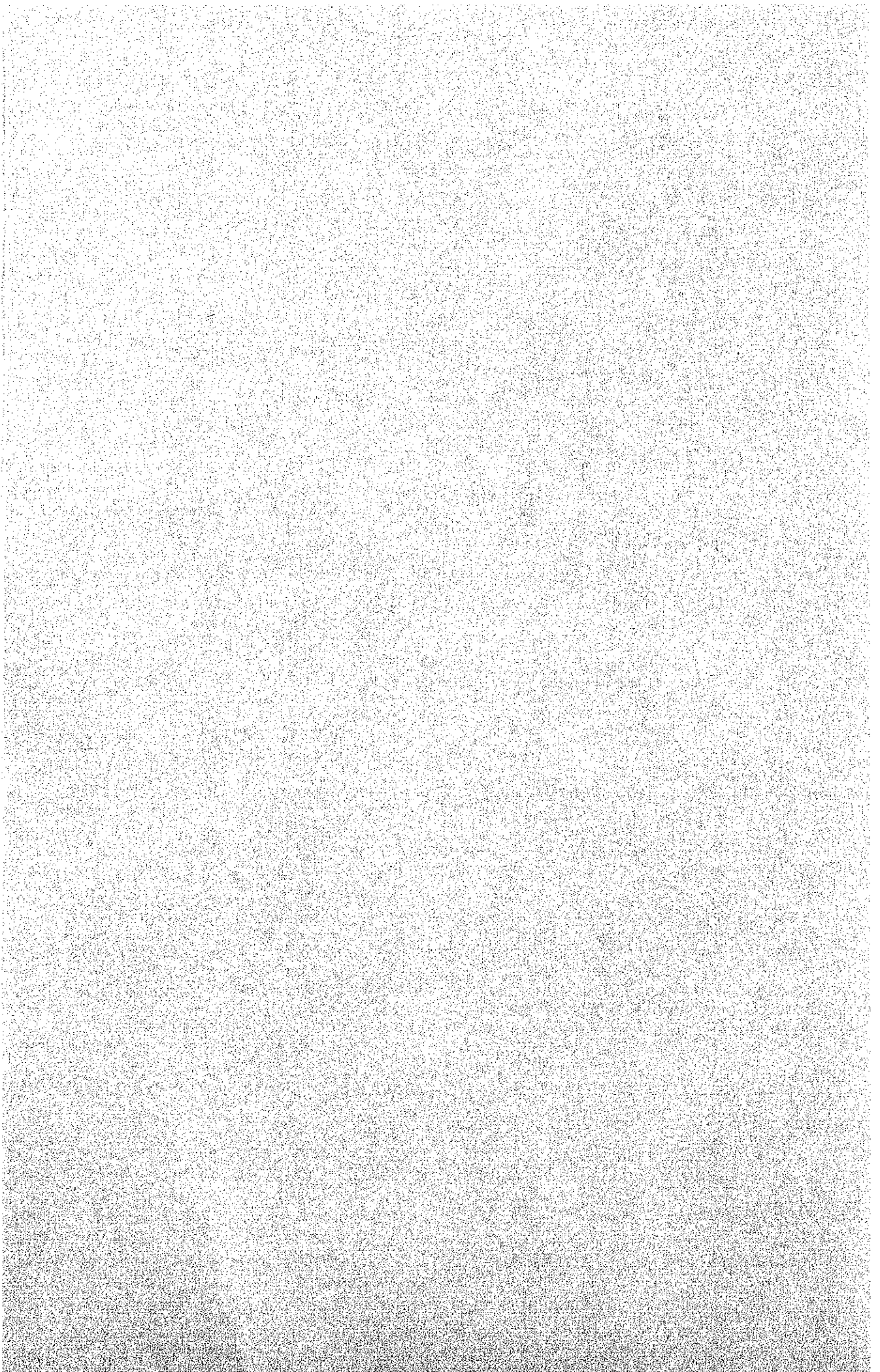
In order to determine the optimum route, the supplementary investigations will be carried out on following points.

- a) Agricultural development potentials
- b) Agricultural products
- c) Improvement programme of and its possibility of points along the route including first Long Lama
- d) Farmer's economy
- e) Potential of tourism development of Mulu National Park
- f) Investigation for the accuracy improvement of the transportation cost data.
- g) Supplemental reviews on the development potential of Foresty and its industrialization
- h) Performance of case studies on the changes which took place in the area by the road construction, where had been no roads.  
(on the road, Miri-Bintulu, Simmangang - Sibuan, etc.)

Based on the results of Phase II investigation, the preliminary designs and economic analysis will be prepared, then the overall evaluations and recommendations of the project will be provided in the Final Report.



# APPENDIX





Appendix Table A-1-1 SARAWAK GROSS DOMESTIC PRODUCT AND PER CAPITA GDP, 1967-1975

Sector	1970 Prices										Average Annual Growth Rate (%)		
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1967-1975	67-70	67-73	70-75
Agriculture, Forestry and Fishery	267	305	343	319	292	282	327	-	355	2.0	6.7	1.0	3.1
a) agriculture/livestock				168									
b) forestry/logging				133									
c) fishery				18									
Manufacturing	69	73	77	77	66	62	50	-	92	-0.1	3.9	-5.0	2.6
Building and Construction	43	44	41	45	49	51	55	-	68	5.9	0.7	4.4	8.4
Commerce	191	210	233	222	256	279	294	-	270	5.2	5.7	7.2	3.8
a) transport/communication	37	42	50	31	63	72	78	-	57	7.3	-3.5	13.5	10.1
b) whole sale/retail trade	90	103	117	125	126	135	143	-	138	5.6	11.5	7.5	2.5
c) banking/insurance	11	12	13	13	14	17	18	-	17	6.5	6.0	8.4	6.0
d) ownership of dwellings	53	53	53	53	53	55	55	-	58	1.1	0.0	0.7	1.9
Services	140	141	145	127	150	170	176	-	210	5.3	-2.6	4.0	10.0
a) public administration/defence	44	45	45	45	46	62	62	-	63	5.7	0.7	6.2	7.8
b) electricity/water	9	9	10	12	12	14	15	-	22	11.6	10.2	9.7	13.3
c) services	87	87	90	70	92	94	99	-	125	4.3	-6.0	2.0	10.8
Sub-total	710	773	839	790	813	844	902	-	995	3.6	4.1	3.1	4.9
Mining and Quarrying	2	7	16	30	114	155	152	-	157	77.1	144.8	112.8	31.0
Grand Total	712	780	855	820	927	999	1,054	1,177	1,152	6.5	5.3	6.5	7.3
Population (Mid-year Estimates)	901,663	923,592	944,029	967,274	994,535	1,022,382	1,063,300	-	1,102,956	2.6			
Per Capita GDP (M\$)	790	845	906	889	932	977	991	-	1,044	3.3			
Annual Rate of Growth													
a) GDP (%)	9.6	9.6	0.6	7.8	7.8	5.5	-	4.5					
b) Per Capita GDP (%)	7.0	7.2	-1.9	4.8	4.8	1.4	-	2.6					

Source: State Planning Unit, Sarawak

Appendix Table A-1-2 EXPORTS OF MAJOR COMMODITIES, SARAWAK

Commodity Section	(Unit of Measurement)	1975		1977	
		Quantity	Value (M\$000)	Quantity	Value (M\$000)
0. Food		53,234	111,323	58,145	155,255
(1) White Pepper	(ton)	9,644	39,041	7,363	42,494
(2) Black Pepper	(ton)	20,229	61,854	19,432	90,208
(3) Sago Flour	(ton)	22,506	5,305	29,717	8,312
(4) Prawns, Fresh and Frozen	(ton)	855	5,123	1,633	14,241
2. Crude Materials Inedible		-	161,779	-	405,816
(1) Sawlogs	(H. ton)	696,989	63,729	3,470,109	254,200
(2) Sawn Timber	(H. ton)	170,823	62,184	231,589	88,755
(3) Rubber	(ton)	28,579	35,866	37,665	62,861
3. Mineral Fuels		4,398,306	1,025,319	5,387,587	1,423,247
(1) Petroleum, Crude and Partly Refined	(ton)	3,963,204	917,292	4,995,242	1,310,089
(2) Petroleum Products	(ton)	435,102	108,027	392,345	113,158
4. Animal/Vegetable Oils and Fats		8,007	8,293	16,538	24,645
(1) Coconut Oils, Crude and Refined	(ton)	3,717	4,128	2,198	3,976
(2) Palm Oil	(ton)	3,592	3,887	12,497	19,620
(3) Palm Kernel	(ton)	698	278	1,843	1,049
6. Manufactured Goods			33,157		60,867
(1) Wooden Mouldings and Moulded Board	-	-	8,764	-	16,182
(2) Wooden Dowels	-	-	13,286	-	27,870
(3) Chipwood	-	-	8,588	-	9,327
(4) Veneer Sheets: max 1/5" thick	( <sup>000</sup> sq.ft.)	544	37	n.a.	n.a.
(5) Plywood Plain; 5mm	( <sup>000</sup> sq.ft.)	16,211	2,482	2,901	7,488
Total of Major Exports	-	-	1,339,871	-	2,070,912
Other Exports	-	-	47,524	-	82,336
TOTAL			1,387,395		2,153,248

Source: Preliminary Figures of External Trade, Dept. of Statistics

Appendix Table A-1-3 IMPORT COMMODITY DIVISION AND SECTION  
(M\$ million)

Commodity Section/Division	1975	1977
0 Live animals, other pets and animals for zoos	1.71	1.43
1 Meat, edible offal and meat preparations	7.16	10.13
2 Daily produce and birds' eggs	19.71	23.41
3 Fish and other marine animals, except mammals and preparations thereof	9.61	11.81
4 Cereals and cereal preparations	67.14	89.91
5 Fruits and vegetables	13.27	15.96
6 Sugar, sugar preparations and honey	31.36	33.35
7 Coffee, tea, cocoa, spices and manufactures thereof	4.91	7.12
8 Feeding stuffs for animals, excluding unmilled cereals	21.60	32.32
9 Miscellaneous food preparations	6.18	8.70
0* FOOD AND LIVE ANIMALS	182.65	234.15
11 Beverages	11.29	16.18
12 Tobacco and tobacco manufactures	27.25	35.51
1* BEVERAGES AND TOBACCO	38.54	51.69
21 Hides, skins and furskins, undressed	-	-
22 Oil-seeds, oil-nuts and oil kernels	3.81	3.98
23 Crude rubber and similar natural gums and synthetic rubber	0.04	0.09
24 Wood	11.12	23.04
25 Paper-making material	0.36	0.27
26 Textile fibres and waste	0.45	0.68
27 Crude fertilizers and minerals other than fuels and precious stones	4.99	5.50
28 Metallic ores and concentrates	0.17	0.06
29 Crude animal and vegetable materials, inedible	1.44	1.55
2* CRUDE MATERIALS, INEDIBLE, EXCEPT FUELS	22.38	35.17
32 Coal, coke and related fuels	0.05	0.02
33 Petroleum and petroleum products	140.69	123.72
34 Gas	1.62	1.40
3* MINERAL FUELS, LUBRICANTS AND RELATED MATERIALS	142.41	125.14
41 Animal oils and fats, unprocessed	0.48	0.40
42 Vegetable oils and fats, unprocessed	1.89	2.08
43 Animal and vegetable oils and fats, processed and waxes of animal or vegetable origin	0.03	0.04
4* ANIMAL AND VEGETABLE OILS AND FATS	2.40	2.52
51 Chemical elements and compounds	8.33	9.12
52 Mineral tar and crude chemicals obtained from coal, petroleum and natural gas	0.08	4.68
53 Dyeing, tanning and colouring materials	6.20	8.79
54 Medicinal and pharmaceutical products	8.62	13.26
55 Essential oils and perfume materials, toilet, polishing and cleaning preparations	12.48	20.22
56 Fertilizers, manufactured	15.87	15.64

Appendix Table A-1-3 (continued)

(M\$ million)

Commodity Section/Division	1975	1977
57 Explosives	1.54	0.94
58 Artificial plastic materials, regenerated cellulose, artificial resins and related materials	6.15	8.15
59 Miscellaneous chemical materials and products	9.23	11.89
5* CHEMICALS AND PRODUCTS OF CHEMICALS INDUSTRIES	68.50	92.69
61 Leather, leather manufactures not elsewhere specified, dressed furs and parts of footwear and saddlery of any material	0.04	0.05
62 Rubber manufactures not elsewhere specified	8.32	11.25
63 Wood or cork manufactures, not elsewhere specified or included	2.01	2.91
64 Paper, paperboard and manufactures thereof	9.25	12.47
65 Textile yarn, fabrics and made-up articles related products, except clothing	21.64	23.50
66 Non-metallic mineral manufactures, not elsewhere specified or included	28.12	28.94
67 Iron and steel and alloys of iron except cerium alloys	47.04	48.02
68 Non-ferrous metals	2.73	3.43
69 Manufactures of metals	22.62	31.67
6* MANUFACTURED GOODS CLASSIFIED CHIEFLY BY MATERIALS	141.77	162.24
71 Machinery other than electric but not excluding machinery driven by electric motors	74.84	176.20
72 Electric machinery, apparatus and appliances	60.77	71.04
73 Transport equipment	41.48	85.39
7* MACHINERY AND TRANSPORT EQUIPMENT	177.09	332.63
81 Sanitary, plumbing, heating and lighting fixtures and fittings and blinds	2.42	2.74
82 Furniture	2.53	2.82
83 Travel goods, handbags and similar articles	1.16	1.80
84 Clothing	12.16	15.84
85 Footwear	7.54	8.67
86 Professional, scientific and controlling instruments, optical and photographic goods, watches and clocks	5.73	8.00
89 Miscellaneous manufactured articles	14.81	20.64
8* MISCELLANEOUS MANUFACTURED ARTICLES	49.95	60.51
91 Postal packages	15.23	14.64
93 Special transactions	9.01	3.48
94 Live animals not commonly used for food	0.02	0.01
95 Weapons except military	0.02	0.02
96 Unissued coins	0.94	1.69
97 Gold	-	0.99
9* TRANSACTIONS AND COMMODITIES NOT ELSEWHERE SPECIFIED	25.22	20.83
** TOTAL OF IMPORT	850.91	1,117.56

Appendix Table A-1-4 DISTRIBUTION OF POPULATION BY AGE-GROUP, 1970, SARAWAK

Age-group	Urban		Rural		Total	
	Number	(%)	Number	(%)	Number	(%)
0 - 4	21,890	(14.5)	141,976	(17.2)	163,866	(16.8)
5 - 9	21,172	(14.0)	143,733	(17.4)	164,905	(16.9)
10 - 14	20,190	(13.3)	101,124	(12.3)	121,314	(12.4)
15 - 19	19,896	(13.2)	79,849	(9.7)	99,745	(10.2)
20 - 24	14,851	(9.8)	61,253	(7.4)	76,104	(7.8)
25 - 29	11,172	(7.4)	52,966	(6.4)	64,138	(6.6)
30 - 34	9,023	(6.0)	44,937	(5.4)	53,960	(5.5)
35 - 39	7,170	(4.7)	41,440	(5.0)	48,610	(5.0)
40 - 44	6,001	(4.0)	36,286	(4.4)	42,287	(4.3)
45 - 49	4,680	(3.1)	30,987	(3.8)	35,667	(3.6)
50 - 54	4,248	(2.8)	29,500	(3.6)	33,748	(3.5)
55 and Over	10,844	(7.2)	61,081	(7.4)	71,925	(7.4)
<b>Total</b>	<b>151,137</b>	<b>(100.0)</b>	<b>825,132</b>	<b>(100.0)</b>	<b>976,265</b>	<b>(100.0)</b>

Appendix Table A-1-5 LABOUR FORCE DISTRIBUTION BY INDUSTRIAL SECTOR, 1970 SARAWAK

	(%)							
	Malay	Malanau	Iban	Land Dayak	Other Indigenous	Chinese	Others	Total
Agriculture, Forestry and Fishery	21.9	26.4	61.0	48.6	55.7	11.2	10.2	34.4
Mining and Quarrying	0.3	0.1	0.03	0.4	0.4	0.2	0.2	0.2
Manufacturing	6.6	10.2	6.1	5.2	3.6	8.7	8.8	7.1
- agricultural products re- quiring substantial processing	3.0	4.2	5.4	4.9	2.8	3.7	6.9	4.2
- others	3.6	6.0	0.7	0.3	0.8	5.0	1.9	2.9
Building and Construction	0.8	0.6	0.2	0.4	0.2	1.9	1.5	0.9
Commerce	2.9	1.9	0.4	0.6	0.7	9.3	6.8	3.8
- transport/storage/communi- cation	1.5	0.5	0.1	0.2	0.2	2.1	2.2	1.0
- others	1.4	1.4	0.3	0.4	0.5	7.2	4.7	2.8
Services	11.9	4.0	2.4	4.6	3.0	8.2	21.9	6.4
- electricity/gas/water/ sanitary services	0.5	0.2	0.1	0.1	0.1	0.2	0.8	0.2
- others	11.4	3.8	2.3	4.5	2.9	8.0	21.1	6.2
Industry not adequately described	3.5	2.5	3.0	7.5	3.8	4.5	4.2	4.0
<b>Total Experienced Labour Force</b>	<b>47.9</b>	<b>45.7</b>	<b>73.1</b>	<b>67.3</b>	<b>67.4</b>	<b>44.0</b>	<b>53.6</b>	<b>56.8</b>
Not working but looking for first job	1.4	1.0	0.8	0.6	0.5	1.7	1.5	1.2
<b>Total Labour Force</b>	<b>49.3</b>	<b>46.7</b>	<b>73.9</b>	<b>67.9</b>	<b>67.9</b>	<b>45.7</b>	<b>55.1</b>	<b>58.0</b>
Not in Labour Force	50.7	53.3	26.1	32.1	32.1	54.3	44.9	42.0
<b>Grand Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Appendix Table A-1-6 LABOUR FORCE DISTRIBUTION BY OCCUPATIONAL SECTOR, 1970 SARAWAK  
(%)

	(%)							
	Malay	Melanau	Iban	Land Dayak	Other Indigenous	Chinese	Others	Total
Professional, Technical & Related Workers	1.5	1.3	0.7	1.2	1.0	2.8	10.8	1.7
Administrative & Managerial Workers	0.2	0.1	0.1	0.03	0.1	0.7	1.1	0.3
Clerical & Related Workers	2.2	0.9	0.4	0.6	0.5	3.4	3.1	1.7
Sales Workers	0.9	0.8	0.2	0.4	0.3	6.0	3.7	2.2
Service Workers	6.3	1.3	1.1	2.4	1.0	3.0	6.8	2.8
Agricultural, Animal Husbandry & Forestry Workers, Fishermen & Hunters	25.0	31.6	66.4	53.2	58.2	14.3	16.5	38.5
Production & Related Workers, Transport Equipment Operators & Labourers	8.3	7.2	1.2	1.9	2.4	9.3	7.4	5.6
Occupation not adequately Described	3.5	2.5	3.0	7.5	3.9	4.5	4.2	4.0
<b>Total Experienced Labour Force</b>	<b>47.9</b>	<b>45.7</b>	<b>73.1</b>	<b>67.2</b>	<b>67.4</b>	<b>44.0</b>	<b>53.6</b>	<b>56.8</b>
Not Working but looking for first job	1.3	1.0	0.8	0.7	0.5	1.7	1.5	1.2
<b>Total Labour Force</b>	<b>49.2</b>	<b>46.7</b>	<b>73.9</b>	<b>67.9</b>	<b>67.9</b>	<b>45.7</b>	<b>55.1</b>	<b>58.0</b>
Not In Labour Force	50.8	53.3	26.1	32.1	32.1	54.3	44.9	42.0
<b>Grand Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Appendix Table A-1-7 PRODUCTION OF SAWLOGS, 1976

Timbers	Section				: Tons/CF	
	Kuching	Sibu	Bintulu	Miri	Total	(%)
Belian	330	1,103	4,511	2,258	8,202	(0.3)
Others, Class A	4	106	20	14	144	(0.0)
Ramin	162,170	75,655	51,497	90,694	380,016	(15.5)
Class C	14,456	73,969	89,290	318,996	496,711	(20.2)
Class D	107,801	74,000	131,808	220,740	534,349	(21.7)
Alan	113,924	102,600	16,295	353,371	586,190	(23.9)
Others, Class E	94,757	175,777	107,216	74,256	452,006	(18.4)
Total	493,442	503,210	400,637	1,060,329	2,457,618	(100.0)
(%)	(20.1)	(20.5)	(16.3)	(43.1)	(100.0)	

Appendix Table A-1-8 SAWMILL OPERATION IN SARAWAK, 1976 <sup>1/</sup>

Section	Number of mills				Average Monthly Labour Employment					Timber Conversion		Recovery Rate
	Vertical Bandmill	Horizon- tal Bandmill	Circular Saw	Total	Chinese	Iban	Malay	Others	Total	Input (Hoppus Tons)	Output (Cubic Tons)	%
												%
Kuching	3	17	14	34	583	509	602	72	1,766	207,455.77	98,519.47	47.49
Sibu	14	15	5	34	733	336	486	277	1,832	158,693.00	86,058.48	54.23
Bintulu	11 <sup>2/</sup>	1	11 <sup>3/</sup>	21	81	43	89	6	219	62,466.67	24,621.18	39.41
Miri	13	2	16	31	333	288	259	68	948	112,920.68	46,491.22	41.17
Total	39	35	46	120	1,730	1,176	1,436	423	4,765	541,536.12	255,690.35	47.22

Source: Annual Report of the Forest Department, 1976

<sup>1/</sup> The input-output statistics of Sarawak Woodchip Co. Sdn. Bhd. (Factory) is not included in the above Table. The input was 228,449.5 metric tons and its output was 159,515.0 metric tons. The recovery rate was 70%.

<sup>2/</sup> Includes 3 Belian Sawmills

<sup>3/</sup> Includes 8 Belian Sawmills

Appendix Table A-1-9 EXPORT OF TIMBER BY PORT OF CLEARANCE

Port of Clearance	Tons/CF					
	Sawn Timber		Round Timber		Total	
	1975	1976	1975	1976	1975	1976
Kuching	274	357	34,821	71,860	35,095	72,217
Sibu	6,166	1,268	3,351	20,629	9,517	21,897
Tg. Mani	148,899	191,774	187,840	423,718	336,739	615,492
Bintulu	1,263	1,002	99,871	237,828	101,134	238,830
Miri	10,621	6,392	299,598	800,266	310,219	806,658
Marudi	2,548	2,207	-	-	2,548	2,207
Limbang	344	414	39,784	47,854	40,128	48,268
Lawas	569	72	10,612	15,575	11,181	15,647
Sundar	139	0	21,112	20,862	21,251	20,862
<b>Total</b>	<b>170,823</b>	<b>203,486</b>	<b>696,989</b>	<b>1,638,592</b>	<b>867,812</b>	<b>1,842,078</b>

Appendix Table A-1-10 EXPORTS OF TIMBER

Year	Round Timber					Sawn Timber						
	Ramin	Meranti	Other Non-Conifer Wood	Conifer Wood	Total (000 Tons/CF)	Export Value (M\$ million)	Ramin	Meranti	Other Non-Conifer Wood	Conifer Wood	Total (000 Tons/CF)	Export Value (M\$ million)
1965	62.5	131.6	476.3	4.2	672.6	47.3	170.3	10.3	10.7	0.5	191.8	35.2
1966	100.3	303.6	667.0	0.3	1,071.2	82.5	142.3	3.4	10.9	0.0	156.6	26.3
1967	89.0	480.2	673.2	0.7	1,243.1	99.8	176.3	4.9	13.1	0.0	194.3	36.2
1968	87.5	563.2	1,004.5	0.7	1,655.9	138.7	198.7	4.6	16.3	0.0	219.6	42.4
1969	41.0	743.9	911.2	1.2	1,697.3	143.4	199.6	4.1	11.4	0.1	215.2	43.2
1970	18.4	661.0	1,053.2	0.3	1,732.9	148.4	207.1	4.0	11.0	0.0	222.1	49.8
1971	1.3	573.6	836.9	0.2	1,412.0	120.8	184.0	4.1	11.0	-	199.1	47.1
1972	-	333.3	769.3	4.8	1,107.4	83.5	186.9	5.1	22.7	0.0	214.7	50.9
1973	0.9	242.2	800.4	6.4	1,049.9	123.9	161.7	6.9	13.0	0.0	181.6	87.0
1974	-	197.2	733.9	3.4	934.5	108.2	128.2	5.2	18.0	0.5	151.9	57.7
1975	0.3	210.1	485.9	0.7	697.0	63.7	147.3	3.9	19.4	0.3	170.9	62.2
1976	-	450.6	1,181.7	6.3	1,638.6	242.1	187.8	3.6	11.6	0.5	203.5	117.0



Appendix Table A-2-1 POPULATION DISTRIBUTION BY RACE, 1970

Race	Sarawak		4th Div.		5th Div.	
	Number	(%)	Number	(%)	Number	(%)
Malay	182,709	(18.7)	17,371	(12.8)	12,713	(34.6)
Melanau	53,234	(5.5)	7,837	(5.8)	66	(0.2)
Sea Dayak (Iban)	302,984	(31.1)	47,544	(35.0)	4,734	(12.9)
Land Dayak (Bidayuh)	83,276	(8.5)	645	(0.5)	90	(0.2)
Other Indigenous <sup>1/</sup>	49,960	(5.1)	27,144	(20.0)	13,747	(37.4)
Chinese	294,020	(30.1)	34,230	(25.1)	5,131	(14.0)
Others	9,735	(1.0)	1,147	(0.8)	250	(0.7)
TOTAL	975,918	(100.0)	135,918	(100.0)	36,731	(100.0)

Source; Sarawak Annual Statistical Bulletin, 1976

<sup>1/</sup> Including Bisayas, Kedayans, Kayans, Kelabits, Dusun etc.

Race	Niah-Suai-Siputi							
	Miri Sub-dist.		Sub-dist.		Baram Dist.		Limbang Dist.	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Malay	9,311	(26.1)	3,334	(15.2)	2,255	(5.7)	5,941	(30.0)
Melanau	1,561	(4.4)	606	(2.7)	135	(0.3)	47	(0.2)
Sea Dayak(Iban)	2,722	(7.6)	10,554	(48.0)	11,940	(30.2)	4,551	(23.0)
Land Dayak(Bidayuh)	264	(0.7)	34	(0.2)	43	(0.1)	55	(0.3)
Other Indigenous	1,039	(2.9)	4,219	(19.2)	19,628 <sup>2/</sup>	(49.7)	5,982 <sup>1/</sup>	(30.2)
Chinese	20,059	(56.2)	3,178	(14.4)	5,361	(13.6)	3,167	(16.0)
Others	746	(2.1)	61	(0.3)	146	(0.4)	64	(0.3)
TOTAL	35,702	(100.0)	21,986	(100.0)	39,508	(100.0)	19,807	(100.0)

Source; 1970 Census of Population and Housing, Dept. of Statistics

<sup>1/</sup> Including Bisayas (2,827), Kedayans (2,267), Murut (482) and Kelabit/Tabun (453).

<sup>2/</sup> Including Kayan (6,936), Kenyah (6,587), Kelabit (2,003), Penan (2,221), etc.

Appendix Table A-2-2 KAMPONGS WITH THE POPULATION OF 500 AND MORE IN BARAM DISTRICT, 1977/1978

Name of Kampong	Population		Race <sup>1/</sup>
	1977	1978	
Lubok Nibong	n.a.	1,290	Ma/CH
Sg. Selipin	533	600	I/mixed
Lg. Pilah	702	702	KN
Lg. Miri	539	539	KN
Lg. Laput	713	713	KN
Lg. Bemang	944	1,044	KN
Lg. Terawan	614	614	Ky
Lg. Atip	624	624	KN
Lg. Bedian	578	578	Ky
Lg. Jee	587	587	Ky
Lg. Moh	651	651	Ky

<sup>1/</sup> Ma; Malay, CH; Chinese, KN; Kenyah, Ky; Kayan, I; Iban

Appendix Table A-2-3 ESTIMATED FUTURE POPULATION BY DIVISION

Division	Population					Annual Growth Rate (%)		
	1977	1982	1987	1992	2002	77-82	82-92	92-02
First Div.	430,670 (37.1)	501,959 (38.2)	581,561 (39.4)	673,113 (40.5)	890,233 (42.6)	3.11	2.98	2.84
Second Div.	157,758 (13.6)	174,044 (13.3)	190,834 (12.9)	209,022 (12.6)	247,564 (11.8)	1.98	1.85	1.71
Third Sixth Seventh Div.	359,713 (31.0)	391,446 (29.8)	423,558 (28.7)	457,810 (27.5)	528,024 (25.3)	1.71	1.58	1.44
Fourth Div.	169,276 (14.6)	197,774 (15.1)	229,694 (15.5)	266,500 (16.0)	354,177 (17.0)	3.16	3.03	2.89
Fifth Div.	42,507 ( 3.7)	47,125 ( 3.6)	51,925 ( 3.5)	57,153 ( 3.4)	68,359 ( 3.3)	2.08	1.95	1.81
TOTAL	1,159,924 (100.0)	1,312,348 (100.0)	1,477,572 (100.0)	1,663,598 (100.0)	2,088,357 (100.0)	2.50	2.40	2.30

Appendix Table A-2-4 EXPORTS OF AGRICULTURAL PRODUCTS BY PORT IN THE STUDY AREA

Commodity	Tons					
	Miri		Marudi		Limbang	
	1976	1977	1976	1977	1976	1977
Rubber	664	1,023	718	531	552	659
White Pepper	999	1,122	102	53	3	5
Black Pepper	112	214	54	61	11	53
Sago Flour	2	2	-	-	-	-
Coconut Oils	1,042	767	18	1	-	-
<b>Total</b>	<b>2,819</b>	<b>3,128</b>	<b>892</b>	<b>646</b>	<b>566</b>	<b>717</b>

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	1. LIMEI PUTEH	2. KUALA TINJAR
Area (Acre)	5,400. The area could possibly be extended east into the Buzang River system. Acreage under primary forest: 4,300 Acreage under title: nil.	9,700. The area could be extended down the Maran River slightly. Acreage under primary forest: 5,000. Some is possible old secondary forest. Acreage under title: 315
Dominant Topography	Low to moderately high and steep ridges and hills of Terrain Classes 4 and 6. Slope facets of Terrain Class 8 are common and small areas of Terrain Class 1 probably occur in places.	Flat to gently sloping alluvial basins of Terrain Class 1.
Main Soils	The Nyalau Family of soils is dominant in hill areas, with subordinate Merit Family soils in places. River levees contain Sentilajau silt and river basins Malang soils.	The Bijat Family of soils is dominant except on the levees of main rivers and ox-bow lakes where Malang soils occur. Patches of Anderson Family peat, both at the surface and beneath the clay soils may be present in the Tasong area.
Present Cultivation	Mainly hill rice, some swamp rice and seedling rubber close to rivers.	Mainly swamp and hill rice; scattered fruit and vegetable gardens near villages; small patches of seedling rubber close to rivers.
Main Hazards	Low soil fertility and strong risk of gully erosion with Nyalau soils on slopes exceeding 15-20, areas which should be avoided where possible.	Periodic flooding and the presence of deep peat.
Land Suitability	Many small hill areas are too steep for agriculture, large areas are marginal; alluvial valleys and low hills are the most suitable for agriculture. A semi-detailed soil survey would be necessary to delimit the small areas of steep land with shallow soils.	Most is suitable for the cultivation of mainly irrigated crops; the patches of deep peat are unsuitable for cultivation and are probably most common in the Tasong area. A thorough appreciation of the flooding, drainage and irrigation problems is required before development.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	3. KUALA TUIOH	4. KUALA PEKING	5. IKANG
Area (Acre)	6,300. The area could be extended considerably up the Tutoh River. Acreage under primary forest: 300. Some is possible old secondary forest. Acreage under title: 279.	5,700. There is little scope for extension Acreage under primary forest: 2,000. Small areas are possibly old secondary forest. Acreage under title: nil.	7,500. The area could be extended up the Baran River considerably. Acreage under primary forest: 700. Small areas are possibly old secondary forest. Acreage under title: nil.
Dominant Topography	Flat to gently sloping alluvial land of Terrain Class 1.	Flat to gently sloping alluvial land of Terrain Class 1.	Flat to undulating alluvial land of Terrain Class 1.
Main Soils	Bijat and Malang Family soils are dominant with possibly small patches of surface peat, and sandy levee soils of the Sentilajau Family.	Bijat family soils are dominant with the possibility of shallow surface peat and deep peat beneath shallow clay south of the Peking River.	Bijat and Malang Family soils are dominant, the latter on river banks and close to streams. Patches of Anderson Family peat soils may occur, particularly close to swamp margins.
Present Cultivation	Mainly swamp and hill rice; scattered fruit and vegetable gardens near villages; a few small seedling rubber gardens close to rivers.	Mainly swamp rice and small scattered seedling rubber gardens close to rivers.	Mainly swamp rice with vegetable, fruit and rubber gardens adjacent to rivers.
Main Hazards	Periodic flooding.	Periodic flooding.	Periodic flooding.
Land Suitability	Most is suitable for cultivation, partly of irrigated crops, partly for dry land crops. A thorough appreciation of the flooding, drainage and irrigation problems is required before development.	Most land is suitable for the cultivation of irrigated crops. Areas south of the Peking River may be marginal or unsuitable due to the presence of peat. A thorough appreciation of the flooding, drainage and irrigation problems is required before development.	Most land is suitable for cultivation, partly of irrigated crops, partly of dry land crops. There are possibly patches of peat unsuitable for cultivation. A thorough appreciation of the flooding, drainage and irrigation problems is required before development.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	6. TERU	7. PEKING	8. BAIN-LAMA
Area (Acre)	3,000. The area could be extended east considerably into the upper Karas River. Acreage under primary forest: 400. Some is possibly old secondary forest. Acreage under title: nil.	10,000. There is a little scope for extension of the block onto low hills on all margins. Acreage under primary forest: 5,000. Acreage under title: nil.	21,700. The area could be extended onto rather high hill land mainly in the south. Acreage under primary forest: 11,500. Acreage under title: nil.
Dominant Topography	Flat to gently sloping alluvial land of Terrain Class 1.	Low to moderately high, gentle to steeply sloping hills. Small slope facets of Terrain Class 8 are probably common.	Low to moderately high hills and ridges with gentle to steep slopes of Terrain Classes 4 and 6. Many small slope facets occur of Terrain Class 8.
Main Soils	Bijat soils are dominant with subordinate Mukah, and probably Anderson family peat, in places.	Merit Family soils are dominant with subordinate Malang, Bijat and Anderson soils in small valleys.	Merit Family clayey soils are dominant, with locally Nyalau soils and Merit soils with sandy upper subsoils. Small valleys contain Malang and Bijat family soils with a few patches of Anderson Family peat.
Present Cultivation	Mainly swamp rice and a few seedling rubber gardens close to rivers.	Mainly hill rice, and seedling rubber gardens close to villages.	Largely hill rice with a few small seedling rubber gardens close to villages.
Main Hazards	Periodic flooding and the presence of deep peat close to swamp margins.	Low to moderately high, gently to steeply sloping hills. Small slope facets of Terrain Class 8 are probably common.	Low soil fertility and sheet and gully erosion on unprotected steep slopes. Shallow soils in places.
Land Suitability	Much land is suitable for the cultivation of irrigated crops mainly patches of unsuitable deep peat may be present. A thorough appreciation of the flooding, drainage and irrigation problems is required before development.	Most of this block is thought to be suitable, or in places marginal for the cultivation of dry land, annual or perennial crops.	Most of this block is thought to be suitable for the cultivation of dry land, annual and perennial crops, although many small patches may be marginal or unsuitable due to steep slopes and shallow soils.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	9. SELEMEN-AROH	10. MALOI-TABIH
Area (Acres)	8,600. There is little extra hill land available but much alluvial land adjacent to the Barau River. Acreage under primary forest: 2,400. Acreage under title: nil.	7,500. The area could be extended slightly on to higher hill land mainly to the south. Acreage under primary forest: 6,800. Acreage under title: nil.
Dominant Topography	Low to moderately high, gentle to steep hills and ridges of Terrain Class 4 and 6. Many small slope facets of Terrain Class 8 occur.	Low to moderately high, gentle to steep hills and ridges of Terrain Classes 4 and 6. Many small slope facets of Terrain Class 8 occur and patches of Terrain Class 7 may be common.
Main Soils	Merit Family soils are dominant with subordinate Nyala soils mainly on the crests of high ridges. Malany and Bijat soils have been noted in small valleys.	Merit Family soils are probably dominant with Nyala soils being confined largely to the higher ridges. Valleys contain both Semilajau and Malany soils and on the northern margin Anderson Family peat occupies some valleys.
Present Cultivation	Mainly hill rice with seedling rubber gardens close to villages.	Mainly hill rice and rubber. In the Tabih (Semang) area R.F.S. 'A' rubber has been planted successfully.
Main Hazards	Low soil fertility and sheet and gully erosion in unprotected steep slopes. Shallow soils in places.	Low soil fertility and sheet and gully erosion on steep slopes. Shallow soils in places.
Land Suitability	Most of the block is thought to be suitable for the cultivation of dry land, annual and perennial crops, although many small patches may be marginal of unsuitable due to steep slopes and shallow soils.	Much of the block is thought to be suitable or marginal for the cultivation of dry land, perennial and annual crops; small areas are likely to be unsuitable due to steep slopes and shallow soils. A semi-detailed survey may be necessary to delimit the worst areas.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	11. TERAWAN-WEST	12. TERAWAN-EAST
Area (Acres)	3,300. There is a little scope for extension on the northern margin onto hill land, possibly containing poor terrace soils and alluvial land. Acreage under primary forest: 2,900. Timber is being extracted in the north. Acreage under title: nil.	2,300. It may be possible to extend the area eastwards onto higher hills and westwards onto alluvial land. Acreage under primary forest: 2,400. Acreage under title: nil.
Dominant Topography	Moderately high to high, moderately steep to steep ridges of Terrain Class 6 occur in the north. Dissected, rather lower hills of Terrain Classes 4 and 6 occupy the southern part. Slope facets of Terrain Class 8 are probably most common in the ridges to the north.	Low to moderately high hills and ridges with gentle to steep slopes of Terrain Classes 4 and 6. Slope facets of Terrain Class 8 may be common.
Main Soils	Mixed Merit and Nyala family soils occur and possibly gravelly Sabang soils in the north. The Nyala members are confined mainly to high ridges. Minor patches of deep peat occur in marginal valleys.	Mixed Merit-Nyala family soils are dominant with long narrow belts of Malany and Semilajau soils in few valleys.
Present Cultivation	Mainly hill rice in the north.	A small patch of land is cultivated for hill rice in the north.
Main Hazards	Low soil fertility, sheet and gully erosion on higher steep hills and ridges and shallow soils.	Low soil fertility, sheet and gully erosion on high steep hills and shallow soils.
Land Suitability	Much of the land is marginal to suitable for the cultivation of dry land, perennial and annual crops. There are probably many small areas of unsuitable land on steep slopes. A semi-detailed soil survey may be necessary to delimit the worst areas.	Much of the land is marginal or suitable for the cultivation of dry land annual and perennial crops. A semi-detailed soil survey may be necessary to delimit the worst areas.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	13. GAK	14. BEREI SELAMAT-WEST	15. BEREI SELAMAT-EAST
Area (Acres)	3,600. It may be possible to extend the area north and south into higher hills. Acreage under primary forest: 3,400. Part of the area is being exploited for timber. Acreage under title: nil.	7,200. There is little scope for expansion of this area. Acreage under primary forest: 6,400. Acreage under title: nil.	1,500. There is little scope for extending this block. Acreage under primary forest: nil. Acreage under title: nil.
Dominant Topography	Low to moderately high hills and ridges with gentle to steep slopes of Terrain Classes 4 and 6. There are probably many slope facets of Terrain Class 8 and small areas of Terrain Class 7.	Low to moderately high hills and ridges with gentle to steep slopes in Terrain Classes 4 and 6. Many slope facets of Terrain Class 8 occur and there may be some hills of Terrain Class 7.	Low to moderately high, gentle to steep hills and ridges of Terrain Classes 4 and 6. Many slope facets of Terrain Class 8 occur.
Main Soils	Mixed Merit and Nyala family soils with Bijat and Malany soils in the valleys.	Merit family soils are dominant. Small valleys on margins contain Anderson Family peat.	Merit Family soils are thought to occur throughout the area with subordinate Kapit soils on steep slopes.
Present Cultivation	nil.	Part of the area is planted with hill rice in the west.	nil.
Main Hazards	Low soil fertility, sheet and gully erosion on steep slopes and shallow soils.	Low soil fertility, sheet erosion on unprotected steep slopes and shallow soils.	Low soil fertility, erosion on unprotected steep slopes and shallow soils.
Land Suitability	Much of the land is marginal or suitable for the cultivation of dry land perennial and annual crops. Many small areas consist of slopes too steep for cultivation. A semi-detailed soil survey may be required for the delimitation of the worst areas.	Most of this block is considered to be suitable for agriculture although many small areas of marginal and unsuitable land occur, mainly on steep slopes.	Most of the land is marginal to suitable for the cultivation of dry land, perennial and annual crops. Further field investigations may prove that the steep land is extensive.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	16. ULU TERAVAN	17. ULAT-NORTH	18. ULAT-SOUTH
Area (Acres)	2,200. Extensions to this block might be made to the north on alluvial and/or peat land. Acreage under primary forest: all. Acreage under title: nil.	1,200. It may be possible to extend this area north to higher hill land. Acreage under primary forest: nil. Acreage under title: nil.	2,000. It may be possible to extend this block north among higher hill land. Acreage under primary forest: 200. Acreage under title: nil.
Dominant Topography	Flat alluvial land.	Low to moderately high, gentle to steep hills and ridges of Terrain Classes 4 and 6. Many slope facets of Terrain Class 8 occur.	Low to moderately high hills and ridges with gentle to steep slopes in Terrain Classes 4 and 6. Many slope facets of Terrain Class 8 occur and there may be some hills of Terrain Class 7.
Main Soils	It is thought that Bijat and Malany family soils are dominant but it is possible that many parts contain deep surface peat or peat beneath shallow clay.	Merit Family soils are thought to be dominant probably with Malang and Bijat soils in the small valleys.	Merit Family soils are dominant. Small valleys on the margins contain Anderson Family peat.
Present Cultivation	nil.	nil.	nil.
Main Hazards	Periodic flooding and presence of deep peat.	Low soil fertility, sheet erosion on unprotected steep slopes and shallow soils.	Low soil fertility, sheet erosion on unprotected steep slopes and shallow soils.
Land Suitability	Land suitable for the cultivation of irrigated crops is probably dominant, although the possible presence of much peat unsuitable for cultivation must not be discounted. A semi-detailed survey would be required to delimit the unsuitable land, and a thorough appreciation of the flooding, drainage and irrigation problems is required before any development takes place.	Most of the land is marginal to suitable for the cultivation of dry land, perennial and annual crops. Further field investigations may prove that the steep land is extensive.	Most of this block is considered to be suitable for agriculture although many small areas of marginal and unsuitable land occur, mainly on steep slopes.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

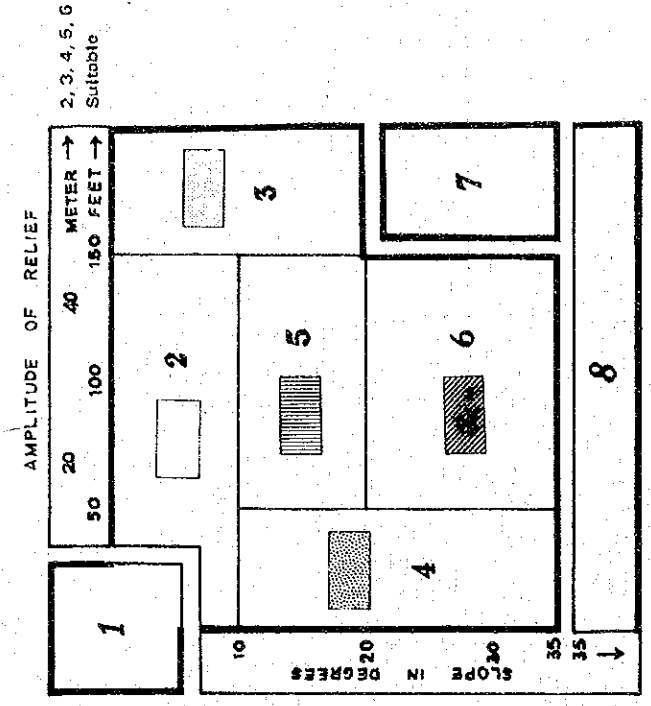
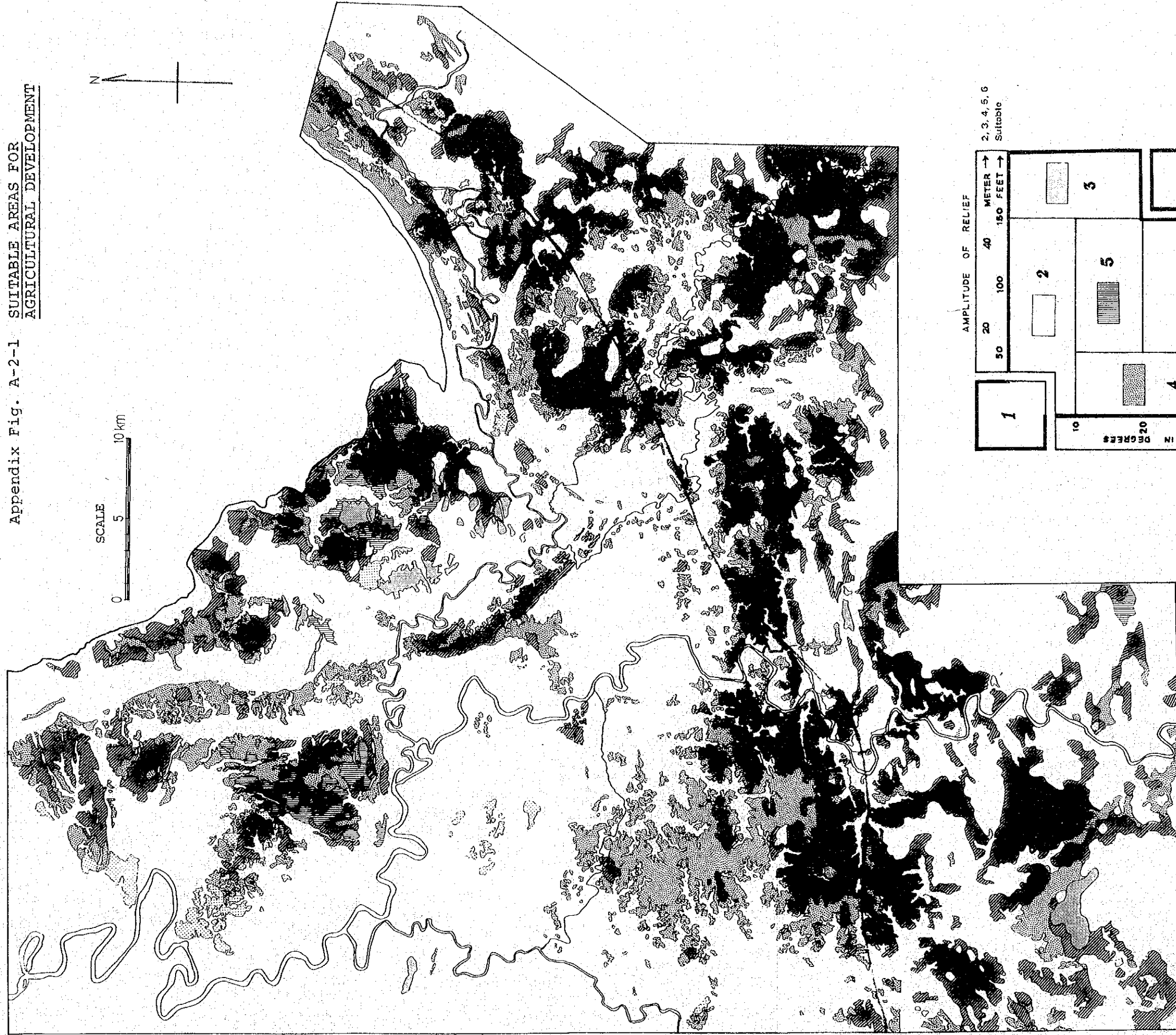
Block	19. DEMANG	20. LABAI
Area (Acres)	3,600. It may be possible to extend this block southwards among higher hill land. Acreage under primary forest: all. Acreage under title: nil.	4,000. This block could probably be extended to the east and south among higher hill land if necessary. Acreage under primary forest: all (1). Acreage under title: nil.
Dominant Topography	Low to moderately high, gentle to steep hills and ridges of Terrain Classes 4 and 6. Many small slope facets of Terrain Class 8 occur and patches of Terrain Class 7 may be present.	Low to moderately high, gentle to steep hills and ridges of Terrain Classes 4 and 6. Many small slope facets of Terrain Class 8 occur and patches of Terrain Class 7 may be present.
Main Soils	Merit Family soils are thought to be dominant with Anderson Family peat and Malang and Bijat soils in the valley on the margins.	Merit Family soils are dominant with subordinate Nyalau soils in a few places on the higher ridges.
Present Cultivation	Small areas in the north are in use for hill rice cultivation.	It is probable that small parts are used for hill rice cultivation (none in 1951 air photographs).
Main Hazards	Low soil fertility and sheet and gully erosion on steep slopes. Shallow soils in places.	Low soil fertility and sheet and gully erosion on steep slopes. Shallow soils in places.
Land Suitability	Much of the block is thought to be suitable or marginal for the cultivation of dry land, perennial and annual crops; small areas are likely to be unsuitable due to steep slopes and shallow soils. A semi-detailed survey may be necessary to delimit the worst areas.	Much of the block is thought to be suitable or marginal for the cultivation of dry land, perennial and annual crops; small areas are likely to be unsuitable due to steep slopes and shallow soils. A semi-detailed survey may be necessary to delimit the worst areas.

Appendix Table A-2-5 DESCRIPTION OF AGRICULTURAL POTENTIAL AREA

Block	21. NYALIN	22. ATIP	23. MELANA
Area (Acres)	14,500. Extensions to this block could probably be made to the south and possibly to the west among higher hills. Acreage under primary forest: 7,300. Acreage under title: nil.	1,400. Extensions to this block can only be made into alluvial land on the margins. Acreage under primary forest: 100. Acreage under title: nil.	2,500. Slight extensions to this block can be made to the east. Acreage under primary forest: 200. Acreage under title: nil.
Dominant Topography	Low to moderately high, gentle to steep hills and ridges of Terrain Classes 4 and 6. Many small slope facets of Terrain Class 8 occur and patches of Terrain Class 7 may be present.	Low to moderately high, gentle to moderately steep hills of Terrain Class 4. Slope facets of Terrain Class 8 are few.	Low to moderately high hills and ridges with gentle to steep slopes in Terrain Classes 4 and 6. Many slope facets of Terrain Class 8 occur and there may be some hills of Terrain Class 7.
Main Soils	Merit Family soils are dominant, and Nyalau Family soils are thought to occur also in the east, mainly in higher hills. Small valleys contain Malang and Bijat soils mainly.	Merit soils are dominant with subordinate Bijat and Mubuh soils in the common atter valleys.	Merit Family soils are dominant, in places Kapit Family soils occur.
Present Cultivation	Parts in the east are used for hill rice cultivation. Small fruit, coffee and rubber gardens, some R.P.S.'A's, are located near rivers.	Almost wholly hill rice.	Mainly hill rice cultivation, with fruit, coffee and seedling rubber gardens close to rivers.
Main Hazards	Low soil fertility and sheet and gully erosion on steep slopes. Shallow soils in places.	Soil fertility, sheet erosion on unprotected steep slopes and shallow soils.	Low soil fertility, sheet erosion on unprotected steep slopes and shallow soils.
Land Suitability	Much of the block is thought to be suitable or marginal for the cultivation of dry land, perennial and annual crops; small areas are likely to be unsuitable due to steep slopes and shallow soils. A semi-detailed survey would be necessary to delimit the worst areas.	Most of this block is considered to be suitable for cultivation of dry land, perennial and annual crops. Small patches of marginal land may occur where there are steep slopes.	Much of this block is considered to be marginal to suitable for cultivation. Many small areas may be unsuitable due to steep slopes. A semi-detailed soil survey would be required to delimit the worst areas.

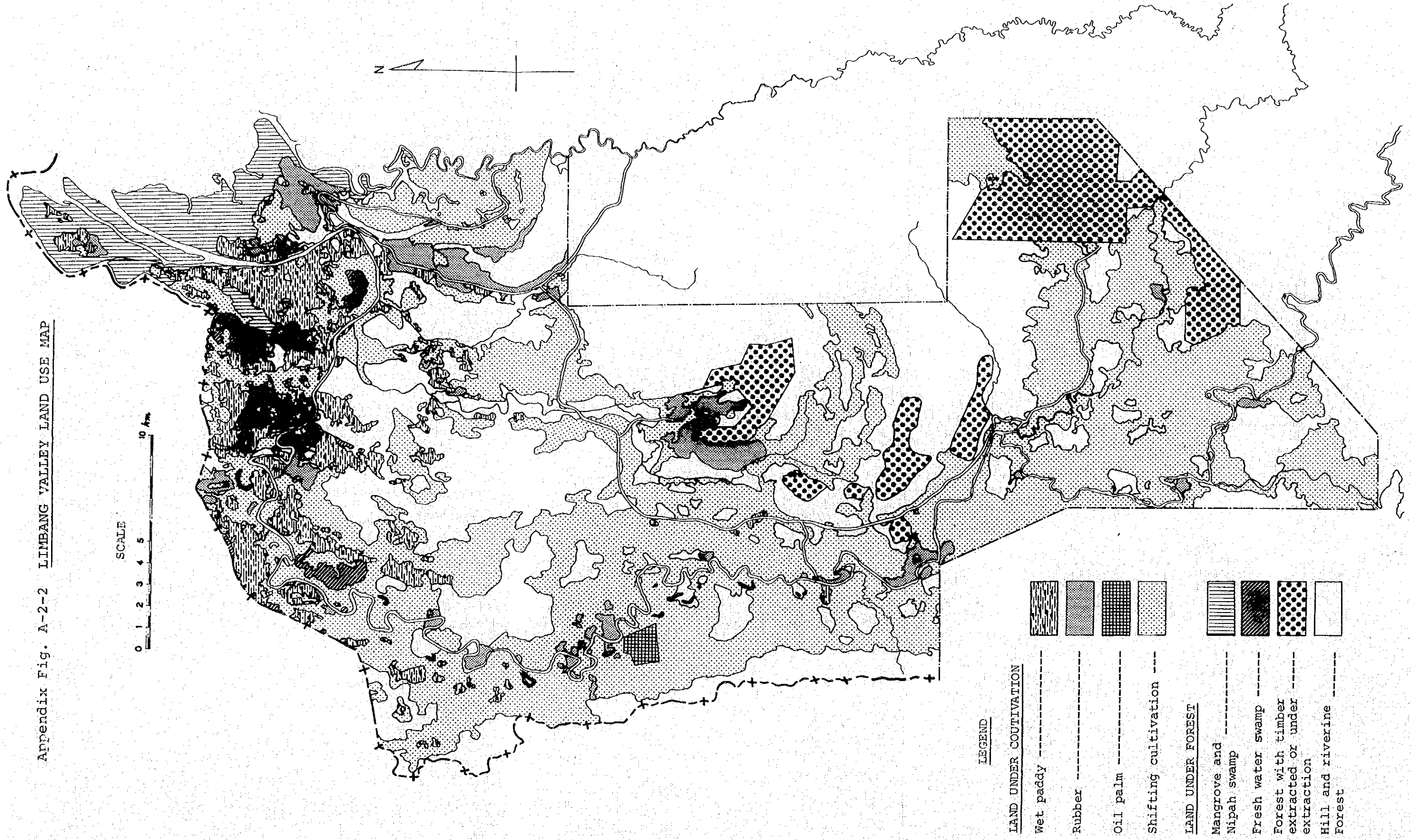


Appendix Fig. A-2-1 SUITABLE AREAS FOR AGRICULTURAL DEVELOPMENT





Appendix Fig. A-2-2 LIMBANG VALLEY LAND USE MAP



LEGEND

LAND UNDER CULTIVATION

- Wet paddy -----
- Rubber -----
- Oil palm -----
- Shifting cultivation -----

LAND UNDER FOREST

- Mangrove and Nipah swamp -----
- Fresh water swamp -----
- Forest with timber extracted or under extraction -----
- Hill and riverine Forest -----



Appendix Table A-2-6 HILL TIMBER PRODUCTION, 1977

Species	Fourth Div.			Fifth Div.			000HT
	Export	Sawmill	Total	Export	Sawmill	Total	
Meranti	366.9	1.9	368.8	61.0	1.8	62.8	
Ranggu	4.9	neg.	4.9	neg.	-	neg.	
Kapor	83.8	1.2	85.0	11.8	0.8	12.6	
Keruing	44.9	1.5	46.4	7.9	0.4	8.3	
S. Batu	35.5	1.2	36.7	1.0	0.6	1.6	
Resak	0.5	0.1	0.6	neg.	-	neg.	
Sepetir	8.4	0.1	8.5	neg.	-	neg.	
Medang	1.4	0.1	1.5	neg.	-	neg.	
Bindang	0.1	-	0.1	10.4	-	10.4	
Kerukup	neg.	-	neg.	neg.	-	neg.	
Others	76.3	1.1	77.4	2.0	neg.	2.0	
Total	622.7	7.2	629.9	94.1	3.6	97.7	

Source; Forest Department Annual Report, 1977, Miri Section

Appendix Table A-2-7 SWAMP TIMBER PRODUCTION

Species	Fourth Div.			Fifth Div.			000HT
	Export	Sawmill	Total	Export	Sawmill	Total	
Ramin	-	60.2	60.2	-	4.9	4.9	
Jongkong	1.3	neg.	1.3	2.6	neg.	2.6	
Sepetir	29.6	0.8	30.4	0.2	neg.	0.2	
Medang	0.5	neg.	0.5	neg.	neg.	neg.	
Semayur	0.4	neg.	0.4	-	-	-	
Kerukup	4.0	1.5	5.5	neg.	-	neg.	
Alan	312.8	38.2	351.0	-	-	-	
Meranti	2.8	0.1	2.9	0.5	-	0.5	
Kapor	7.1	0.7	7.8	0.2	-	0.2	
Others	26.4	1.1	27.5	0.7	0.1	0.8	
Total	384.9	102.6	487.5	4.2	5.0	9.2	

Source; Forest Department Annual Report 1977, Miri Section

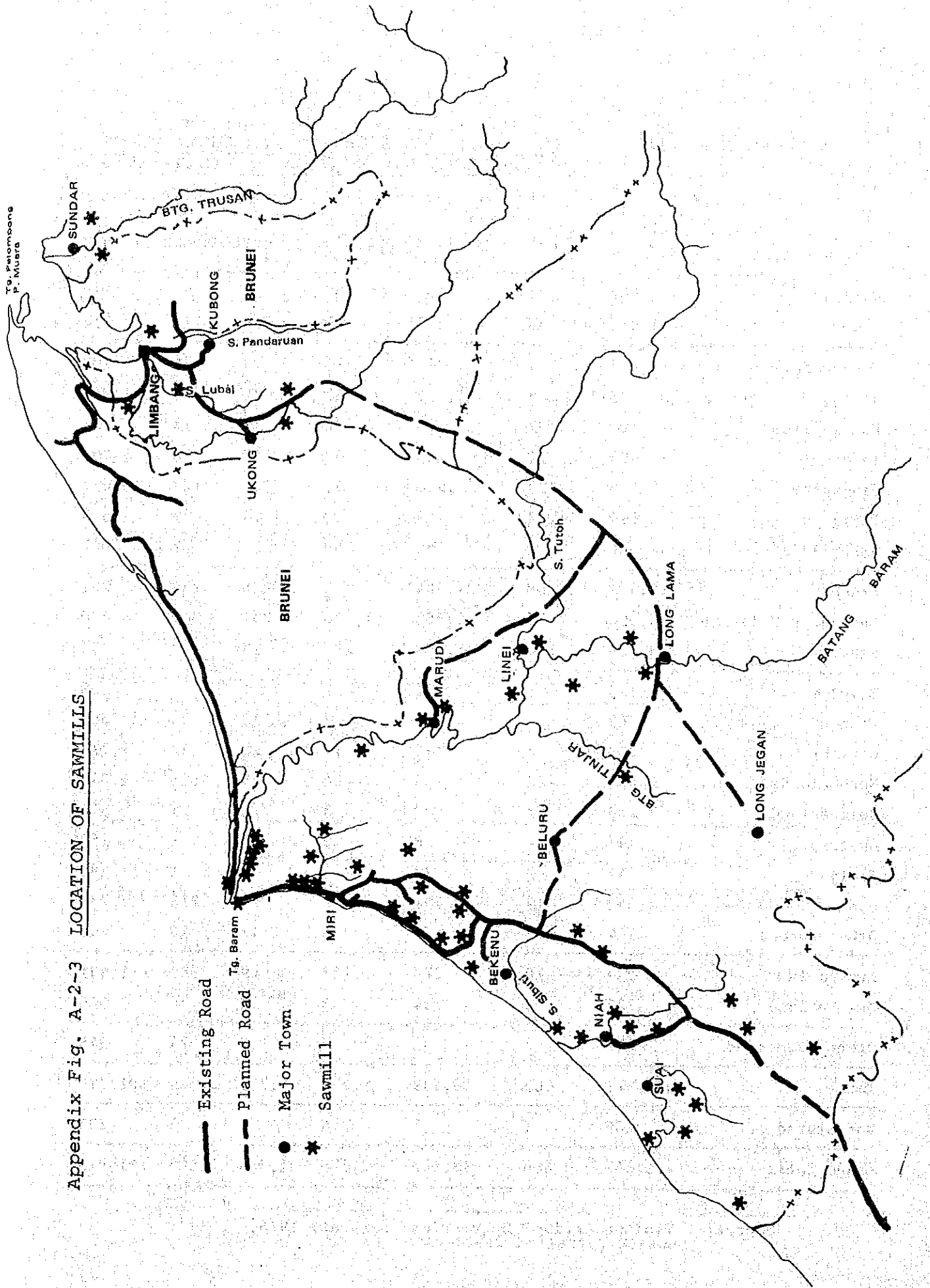
Appendix Table A-2-8 SAWMILL OPERATION IN MIRI SECTION

Section	Number of Sawmills		Total No. Sawmills	Average Labour Employed			Sawn Timber Conversion		Remarks	
	Vertical Band	Horizontal Band		Chinese	Iban	Malay	Others	In-put (hop. ton)		Out-put (Cu. ton)
Miri	14	4	21	268	292	252	18	38	868	
Section			39*	(25)	(23)	(6)	-	(1)	(55)	*Including 3 domestic and belian mills, and 4 new licences issued during the year.
TOTAL:				293	315	258	18	39	913	

NOTE: Figures in brackets denotes the No. of female employees.

Source: Forest Department Annual Report 1977, Miri Section

Appendix Fig. A-2-3 LOCATION OF SAWMILLS



Appendix Table A-2-9 ARRIVALS OF VISITORS BY PERMANENT PLACE OF RESIDENCE AND PURPOSE OF VISIT, 1976

Permanent Place of Residence	Leisure/ Holiday	Education	Business	Official	Transit	Others	Total
Canada	487	3	135	39	32	82	778
U.S.A.	1,971	28	499	45	56	115	2,714
Hong Kong	406	1	245	11	13	26	702
Japan	733	5	1,136	35	24	36	1,969
Philippines	114	2	66	36	23	15	256
Indonesia	698	14	109	57	247	118	1,243
Singapore	5,169	13	4,558	45	145	107	10,037
India	646	2	125	20	16	29	838
Other Asia	266	2	183	38	31	62	582
Brunei	46,441	89	1,954	38	436	274	49,232
Peninsular Malaysia	8,606	305	6,668	1,748	234	859	18,420
Sabah	3,889	164	1,191	227	215	144	5,830
Belgium	125	1	24	1	1	6	158
France	769	3	75	7	13	23	890
Germany	983	2	140	17	23	47	1,212
Netherlands	585	2	156	34	98	166	1,041
Switzerland	265	1	25	3	3	13	310
Austria	147	-	8	2	1	-	158
Italy	244	-	28	5	2	1	280
U.K.	1,546	13	791	92	75	218	2,735
Other Europe	144	-	77	3	12	10	246
Australia	939	10	279	62	48	93	1,431
New Zealand	222	3	34	3	2	36	300
Other Countries	277	2	33	7	5	24	348
Total	75,672	665	18,539	2,575	1,755	2,504	101,710
Not Stated	185	1	8	4	-	5	203
Grand Total	75,857	666	18,547	2,579	1,755	2,509	101,913

Source; Visitor Arrival Statistics, Sarawak, 1976.

Appendix Table A-2-10 ARRIVALS OF VISITORS BY NATIONALITY, SARAWAK

Nationality	1972		1973		1975		1976		Annual Growth Rate(%)
	Persons	(%)	Persons	(%)	Persons	(%)	Persons	(%)	
U.S.A.	2,304	3.8	2,518	3.8	2,889	3.7	3,463	3.7	10.0
Canada	400	0.7	502	0.7	515	0.7	901	1.0	17.9
Japan	1,638	2.7	1,790	2.7	1,973	2.5	1,958	2.1	4.6
India	1,322	2.2	949	1.4	899	1.2	1,090	1.2	-4.3
Brunei	20,559	34.0	22,492	33.9	26,130	33.4	36,778	39.5	14.0
Indonesia	1,019	1.7	1,595	2.4	1,563	2.0	1,169	1.3	2.6
Singapore	6,338	10.5	6,240	9.4	7,814	10.0	8,573	9.2	8.6
Malaysia	16,918	28.0	19,517	29.4	21,664	27.7	24,498	26.3	8.8
Other Asia	1,421	2.3	1,260	1.9	1,184	1.5	1,430	1.5	-0.5
France	487	0.8	662	1.0	972	1.2	974	1.0	19.4
Germany	492	0.8	726	1.1	2,435	3.1	1,416	1.5	39.4
Netherlands	1,515	2.5	1,627	2.5	1,995	2.6	2,225	2.4	10.2
U.K.	3,547	5.9	3,641	5.5	4,428	5.7	4,794	5.1	8.3
Other Europe	1,009	1.7	1,145	1.7	1,406	1.8	1,393	1.5	8.9
Australia	986	1.6	1,156	1.7	1,552	2.0	1,698	1.8	14.8
New Zealand	242	0.4	317	0.5	320	0.4	365	0.4	8.7
Other Countries	246	0.4	250	0.4	410	0.5	434	0.5	17.7
<b>Total</b>	<b>60,443</b>	<b>100.0</b>	<b>66,387</b>	<b>100.0</b>	<b>78,149</b>	<b>100.0</b>	<b>93,159</b>	<b>100.0</b>	<b>10.8</b>
Not Stated	14		2		42		77		-
Stateless Persons	10,684		12,997		8,009		8,677		-
<b>Grand Total</b>	<b>71,141</b>		<b>79,386</b>		<b>86,200</b>		<b>101,913</b>		<b>8.3</b>

Source; Annual Statistical Bulletin, Sarawak

Appendix Table A-2-11 ARRIVALS OF VISITORS BY PURPOSE OF VISIT, SARAWAK

Purpose of Visit	1973	1974	1975	1976 (%)
Leisure/Holiday	71.7	71.3	71.0	74.4
Education	0.1	0.5	0.6	0.7
Business	18.3	19.2	20.3	18.2
Official	2.8	2.7	4.0	2.5
Transit	2.0	1.9	2.2	1.7
Others	5.1	4.4	1.9	2.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source; Annual Statistical Bulletin, Sarawak

Appendix Table A-2-12 ARRIVALS OF VISITORS BY MODE OF TRANSPORT, POINT OF ENTRY AND PURPOSE OF VISIT, 1976

Mode of Transport	Point of Entry	Purpose of Visit					Total	
		Leisure/ Holiday	Education	Business	Official	Transit		Others
AIR	Kuching	14,144	464	10,253	1,767	720	1,230	28,578
	Miri	3,224	56	4,162	439	209	368	8,458
	Others	128	2	100	7	12	33	282
	Sub-total	17,496	522	14,515	2,213	941	1,631	37,318
SEA	Kuching	473	5	40	199	65	128	910
	Limbang	19,502	5	802	31	214	60	20,614
	Lawas	790	7	100	4	4	33	938
	Sundar	1,395	1	26	3	112	10	1,547
	Others	101	-	-	22	249	17	408
Sub-total	22,261	18	987	259	644	248	24,417	
LAND	Sungei Tujoh	37,754	122	3,032	107	153	599	39,767
	Biawak	174	-	-	-	6	20	200
	Others	172	4	13	-	11	11	211
Sub-total	36,100	126	3,045	107	170	630	40,178	
TOTAL		75,857	666	18,547	2,579	1,755	2,509	101,913

Source; Annual Statistical Bulletin, Sarawak, 1976.

Appendix Table A-2-13 ARRIVALS OF VISITORS BY MODE OF TRANSPORT, SARAWAK

Mode of Transport	1972	1973	1975	1976	Average Annual Growth Rate (%)
Air ; Number	24,704	29,460	35,527	37,318	10.7
(%)	(34.7)	(37.1)	(41.2)	(36.6)	
Sea ; Number	17,358	18,708	18,442	24,417	6.9
(%)	(24.4)	(23.6)	(21.4)	(24.0)	
Land ; Number	29,079	31,218	32,231	40,178	7.0
(%)	(40.9)	(39.3)	(37.4)	(39.4)	
Total ; Number	71,141	79,386	86,200	101,913	8.3
(%)	(100.0)	(100.0)	(100.0)	(100.0)	

Source; Annual Statistical Bulletin, Sarawak, 1973 and 1976.



Appendix Table A-2-14

ARRIVALS OF VISITORS BY INTENDED LENGTH OF STAY, 1976

Intended Length of Stay	AIR		SEA		LAND		TOTAL	
	Persons	(%)	Persons	(%)	Persons	(%)	Persons	(%)
Less than 1 day	507	(1.4)	12,856	(53.2)	2,659	(6.6)	16,022	(15.9)
1 - 3 days	8,568	(23.3)	4,771	(19.7)	18,323	(45.8)	31,662	(31.4)
4 - 7 days	11,539	(31.4)	3,547	(14.7)	13,900	(34.7)	28,986	(28.7)
8 - 14 days	10,069	(27.4)	2,456	(10.2)	3,779	(9.4)	16,304	(16.2)
15 - 21 days	1,121	(3.1)	70	(0.3)	251	(0.6)	1,442	(1.4)
22 days to 1 month	587	(1.6)	54	(0.2)	84	(0.2)	725	(0.7)
1 - 3 months	2,406	(6.6)	150	(0.6)	517	(1.3)	3,073	(3.0)
3 - 6 months	660	(1.8)	41	(0.2)	156	(0.4)	857	(0.8)
6 months to 1 year	366	(1.0)	30	(0.1)	178	(0.5)	574	(0.6)
Over 1 year	899	(2.4)	186	(0.8)	210	(0.5)	1,295	(1.3)
Total	36,722	(100.0)	24,161		40,057		100,940	
Not Stated	596		256		121		973	

Source; Annual Statistical Bulletin, Sarawak.

Appendix Table A-2-15








MONTHLY VARIATION OF ARRIVALS OF VISITORS, SARAWAK

(%)

Month	1973	1974	1975	1976
January	6.7	7.1	7.2	6.1
February	7.2	6.8	7.0	7.1
March	6.5	8.0	8.5	7.3
April	9.6	9.3	9.6	8.8
May	8.6	8.0	8.5	9.0
June	8.2	7.9	7.0	7.9
July	9.5	8.6	8.5	8.4
August	10.5	10.2	10.1	8.7
September	7.7	7.9	7.5	9.8
October	8.8	8.7	8.8	7.8
November	7.6	7.2	7.7	8.3
December	9.1	10.3	9.6	10.8
TOTAL	100.0	100.0	100.0	100.0

Source; Annual Statistical Bulletin, Sarawak, 1973 and 1976.

Appendix Fig. A-3-1 TRAFFIC COUNT SURVEY SHEET

Station No.	Date of Count	Weather	Direction										Name of Surveyor	Name of Supervisor	Sheet No.											
			0	1	2	3	4	5	6	7	8	9				10	11	12	13	14	15	16	17	18	19	20
Type of Vehicle	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
1. Car 	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
2. Taxi 																										
3. Van, pick-up 																										
4. Medium truck 																										
5. Heavy truck 																										
6. Truck-trailer 																										
7. Bus 																										
8. Motor cycle																										
9. Bicycle																										
10. Others																										
Total																										

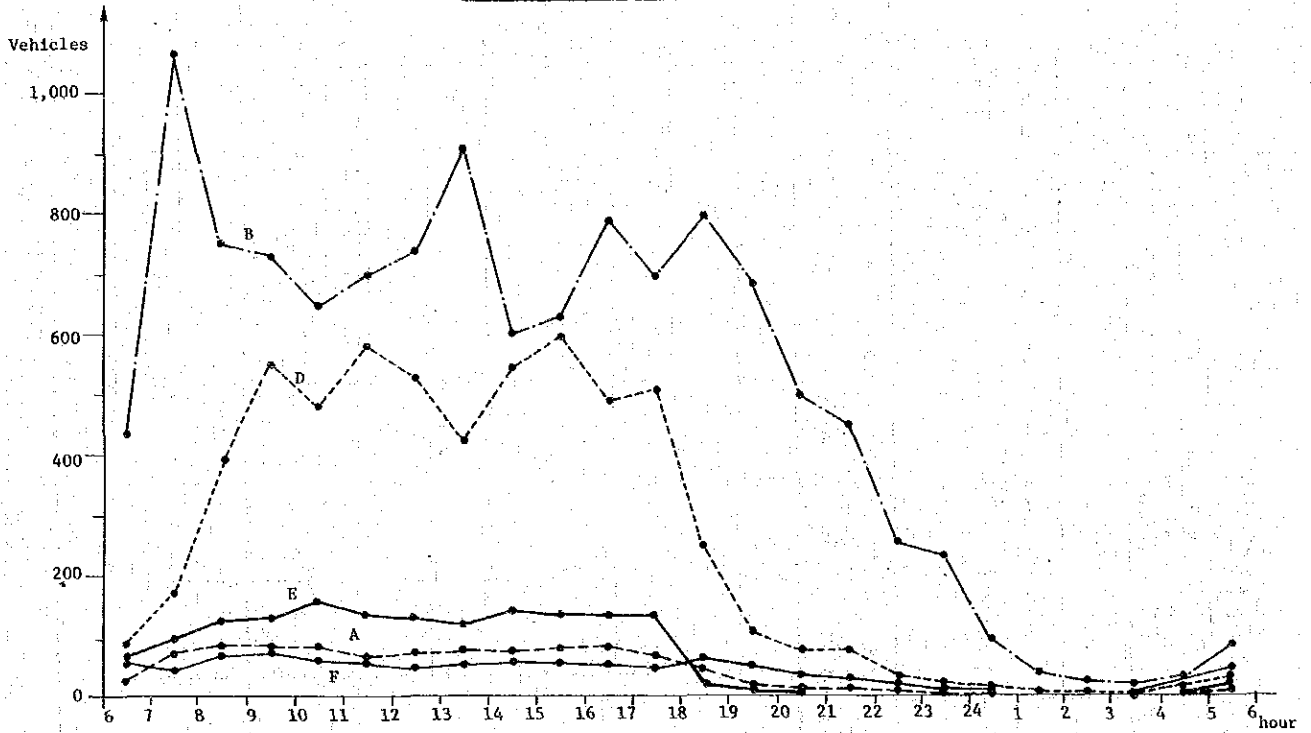
BELURU/LONG LAMA/LIMBANG ROAD PROJECT







Appendix Fig. A-3-5 DAILY VARIATION OF THE ROAD TRAFFIC



Appendix Fig. A-3-6 WEEKLY VARIATION OF ROAD TRAFFIC

