

**SOUTH EAST JOHOR PROJECT TANJONG PENGERANG AND
JOHOR TENGAH REGIONAL MASTER PLAN**

FOR
THE GOVERNMENT OF MALAYSIA
AND
THE STATE OF JOHOR

PROGRESS REPORT

No. 4

APRIL 1970

● HUNTING TECHNICAL SERVICES — LAND USE AND AGRICULTURAL CONSULTANTS ●

SOUTH EAST JOHOR PROJECT TANJONG PENGGERANG AND
 JOHOR TENGAH REGIONAL MASTER PLAN STUDY
 FOR THE
 GOVERNMENT OF MALAYSIA & THE STATE OF JOHOR

PROGRESS REPORT NO. 4

<u>CONTENTS</u>	<u>PAGE</u>
PROJECT MANAGEMENT	1
1. Staff	1
2. Administration & Finance	2
3. Schedule of Work	2
4. Surveys, Maps & Reports	3
5. Working Groups	3
 PROGRESS	
SECTION A: NATURAL RESOURCE STUDIES	4
1. Soil Survey	4
Soil Survey Progress Map	following 4
2. Agriculture & Livestock	5
3. Forestry	8
4. Mining & Geology	8
Forest Inventory Map	following 8
Table - Forest Inventory Acreages	8A
5. Water Resources	9
 SECTION B: INFRA-STRUCTURAL URBAN & INDUSTRIAL DEVELOPMENT	10
 SECTION C: SOCIO-ECONOMIC ASPECTS & INDUSTRIAL INFRA-STRUCTURE	11
 APPENDIX	15
Alienation Maps	following 17
Progress Chart	At cover

PROJECT MANAGEMENT

1. STAFF: additional to Report No. 3

<u>Post No:</u>	<u>Name:</u>	<u>Designation:</u>	<u>Chargeable Dates:</u>
7	J.V. Harbord	Project Agronomist	1-7.3.70 17.3.70 -
10	L.E. Palmer	Irrigation Agronomist	8.3.70 -
14	J.G. Potts	Economic Geologist	10.3.70 -
25	Mrs. G.E. Edwards	Social Development Specialist	1.4.70 -
-	M. Watkins	Engineering Geologist	19.4.70 -

NOTE: Report No.2

The chargeable date for A.S. Mackintosh should read 28.2.70.

SPECIAL LEAVE OF ABSENCE:

6	D.A. Holmes	Soil Surveyor	from 3.3.70 to 16.4.70
20	C.B. Edwards	Project Economist	from 23.4.70

COUNTERPART SPECIALISTS:

Inche Uzir bin Abdul Malik of Federal Agricultural Marketing Authority (FAMA) was attached to the project effective from 5th March 1970.

Inche Fattah Chand of the Geological Survey was also attached effective from 20th April 1970.

VISITORS:

Mr. Vernon Robertson, General Manager of Hunting Technical Services visited the project from 1st to 12th April 1970.

2. ADMINISTRATION & FINANCE

- a) Housing, Offices and Transport: Satisfactory.
- b) Equipment: There has been some loss of small items of field equipment through flood damage and other causes.
- c) The Marconi Transceiver on loan from the Department of Orang Asli has been returned.
- d) Staff:
- i. During the period under review 36 University and other students have been employed on Agricultural, Sociological and Physical planning surveys.
 - ii. An active sports section has been set up through the initiative of the local staff.
- e) Funds: The sixth and seventh deposits of local funds have been received.
Approval of Sterling payments to 31.3.70 has been given.
- f) Accounts: The sixth and seventh Statements of Dollar Costs were submitted on the due dates together with supporting analyses of expenditure ranking for Aid Reimbursement.

3. SCHEDULE OF WORK

The programme of work for the next report period is as set out in the progress chart at cover.

4. SURVEYS, MAPS & REPORTS

The 1:63,360 scale base maps covering the project areas are now completed.

The Soil Maps, Terrain Classification Maps and Soil Suitability Maps covering the Johor Tengah Region have been received from the Soil Science Division, work is in hand fair drawing the Land Use Potential Maps derived from this information. A soils report covering the area mapped was also received.

Compilation has started on the Terrain Classification and Soils for the first sheet of the Tanjong Penggerang area and fair drawing will commence as these are completed.

The land alienation map referred to in the February progress report has been received. A note on this appears as an appendix to this report.

5. WORKING GROUPS

Following on the decision of the Steering Committee on 11th March the following Working Groups have been set up and initial meetings held as shown:

Economic Planning Unit Working Group	-	22nd April
State Government Working Group	-	15th April
Livestock Working Group	-	No formal meeting yet only preliminary discussions between individual members.

Federal Land Development Authority (FLDA) - Scheduled for 6th May.

The purpose of each of these working groups is to bring together a small number of Malaysian Officers with a small number of Consultants, for discussion and information, normally on the basis of discussions papers prepared by the Consultants. The meetings held to date have been most informative and very helpful to the Consultants.

PROGRESS

SECTION A: NATURAL RESOURCE STUDIES

1. SOIL SURVEY

Soil Correlation and Mapping

A number of outstanding soil classification problems were solved and mapping has commenced on the northern half of the Penggerang Area.

Draft soil and terrain class maps at a scale of 1:25,000 have been completed for the above area, roughly 125,000 acres. Terrain class maps of this area have been handed to the Drawing Office for reduction to 1:63,360.

The "Land Use Potential Map" for the Johor Tengah Area has been completed and is being fair drawn.

Note: A paper will be presented with the next progress report showing possible crops and acreages.

Trace Line (Rentis) Cutting

For the period under review a total of 113 miles of survey rentis lines were cut. The total mileage cut to date amounts to 346.5 miles, including 11 miles of access lines.

Survey

The total mileage surveyed for the period amounted to 21 miles, which brings the total to 187 miles of completed rentis. A total of 139 observation sites and 6 soil pits were described. 27 soil samples were collected for chemical and mechanical analyses, out of this 6 samples were selected for soil moisture analyses.

SOIL SURVEY RENTIS LAYOUT

SCALE 4 MILES TO 1"



KG. SEDILI BESAR

SOUTH CHINA SEA

SUNGEI JOHORE

(32 Miles)

(11 Miles)

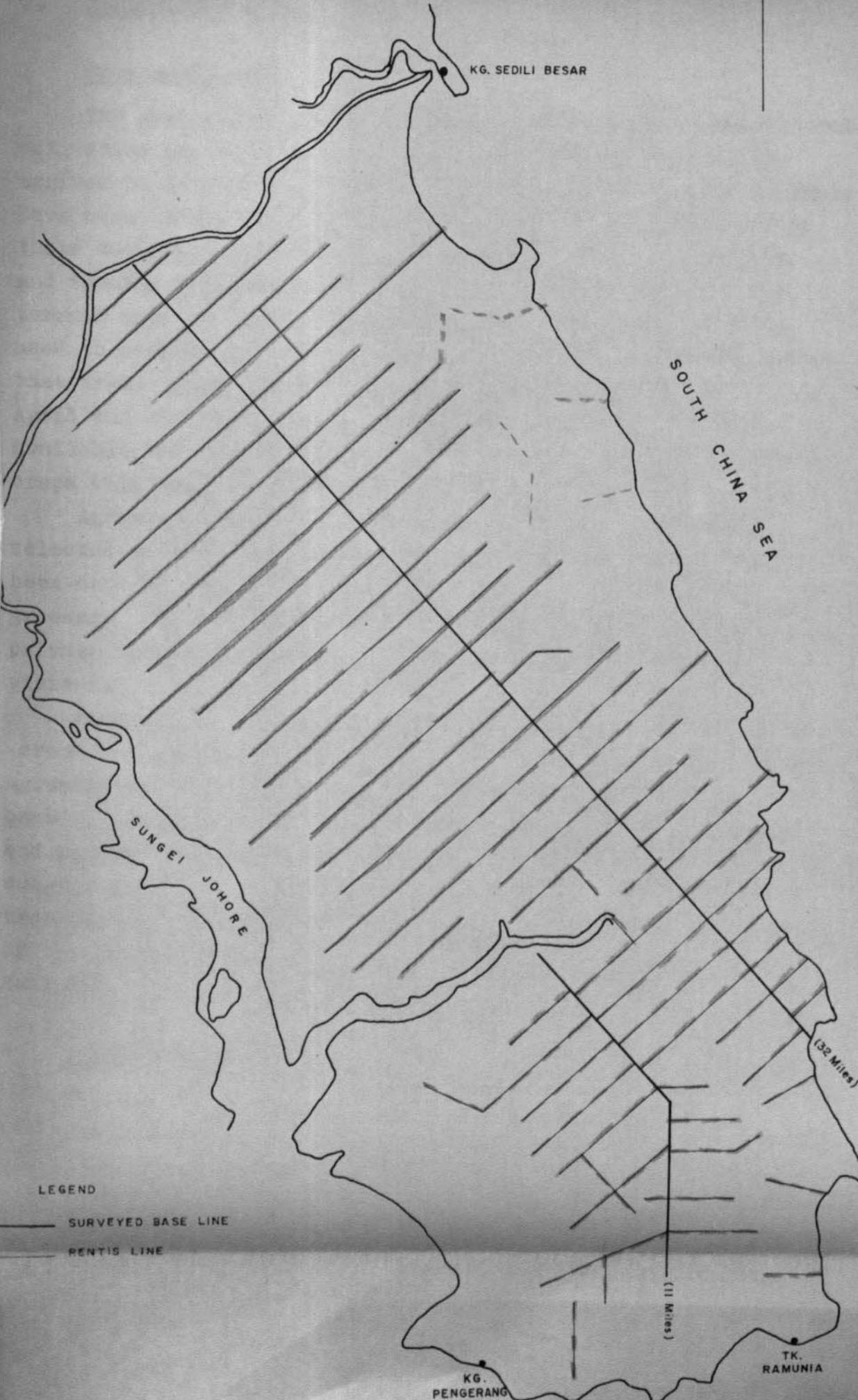
KG. PENERANG

TK. RAMUNIA

LEGEND

— SURVEYED BASE LINE

— RENTIS LINE



2. AGRICULTURE & LIVESTOCK

Crop Husbandry

The preliminary lists of possible and rejected agricultural activities has been reviewed by the Project Agronomist, who arrived in March. The various crops thought to be most suitable have been grouped into classes according to the similarity of their demands, particularly in relation to soils, topography and farming requirements. With the receipt of the soil and terrain maps of Johor Tengah this crop information is being used to prepare a first generalised crop suitability map for that area. This map was completed as at the end of April and the approximate acreages and localities of lands available for growing annual and short and long-term perennial crops will soon be known.

Agronomic data collection has continued on the crops selected as possible enterprises. Several field trips have been made to rubber and oil palm estates and to vegetable growers. The Crop Testing Station at Kong Kong and the nearby private tapioca farm of Johor Tapioca Plantation were also visited.

Analysis of input and output data covering possible annual crops continued. Further information has been sought on the agronomy and processing of ramie fibre, on cultivation of bamboo, and on suitable grasses and legumes for fodder crop and pasture establishment. In connection with this last subject the Project Agronomist paid a brief visit to the tropical pasture research laboratories and experimental station of the Australian Department of Scientific and Industrial Research, Townsville, Queensland.

Livestock Husbandry

The suitability of South East Johor for grass production has been emphasised in previous reports. The draft paper on cattle which was prepared and circulated to the appropriate

rainfall coverage as possible (85, 108, 112, 122 inches per year respectively). The daily rainfall data have been analysed to ascertain the length and frequency ^{of droughts} for each month of the year. Tentative conclusions from the analysis so far made are as follows:-

- i. Padi: A crop could be grown without irrigation if planted in October and harvested in February, provided that soils were used with very low percolation losses. For an off-season crop about half of the crop water requirement would have to be guaranteed from irrigation sources.

- ii. Vegetables: Would require irrigation for continuous production. Areas would be likely to be small, and supplies would best be obtained by pumping at the growers' convenience from small streams or rivers or from shallow wells.

- iii. Annual crops: such as groundnuts, pulses and maize could be grown without irrigation if planted in the autumn for harvesting around February. For summer cultivation such crops might require irrigation. Root crops such as cassava, yams and sweet potatoes would not appear likely to need irrigation, so that by judicious planning of a rotation, it should be possible to avoid the necessity for providing irrigation for all annual crops.

Further analyses are being undertaken to firm up these first general conclusions, and the necessary evaporation data are being collected to enable water requirement to be calculated for any specific crop which may be found to need irrigation.

3. FORESTRY

Of the forty three blocks shown in the forestry inventory map overpage thirty three have been completed with a further three 50 per cent complete. Heavy rains delayed hill forest progress during April. It is hoped that the statistical analysis for the Lowland stratum will be completed by the Commonwealth Forestry Institute in a few weeks.

Defect sampling is in progress in the Johor Lumbering logging area to the north of the Johor Tengah region. To date a total of 387 trees comprising about forty three species have been measured.

A table showing acreages and rentis data is also presented overpage. The rentis cutters actually operate just ahead of the inventory teams.

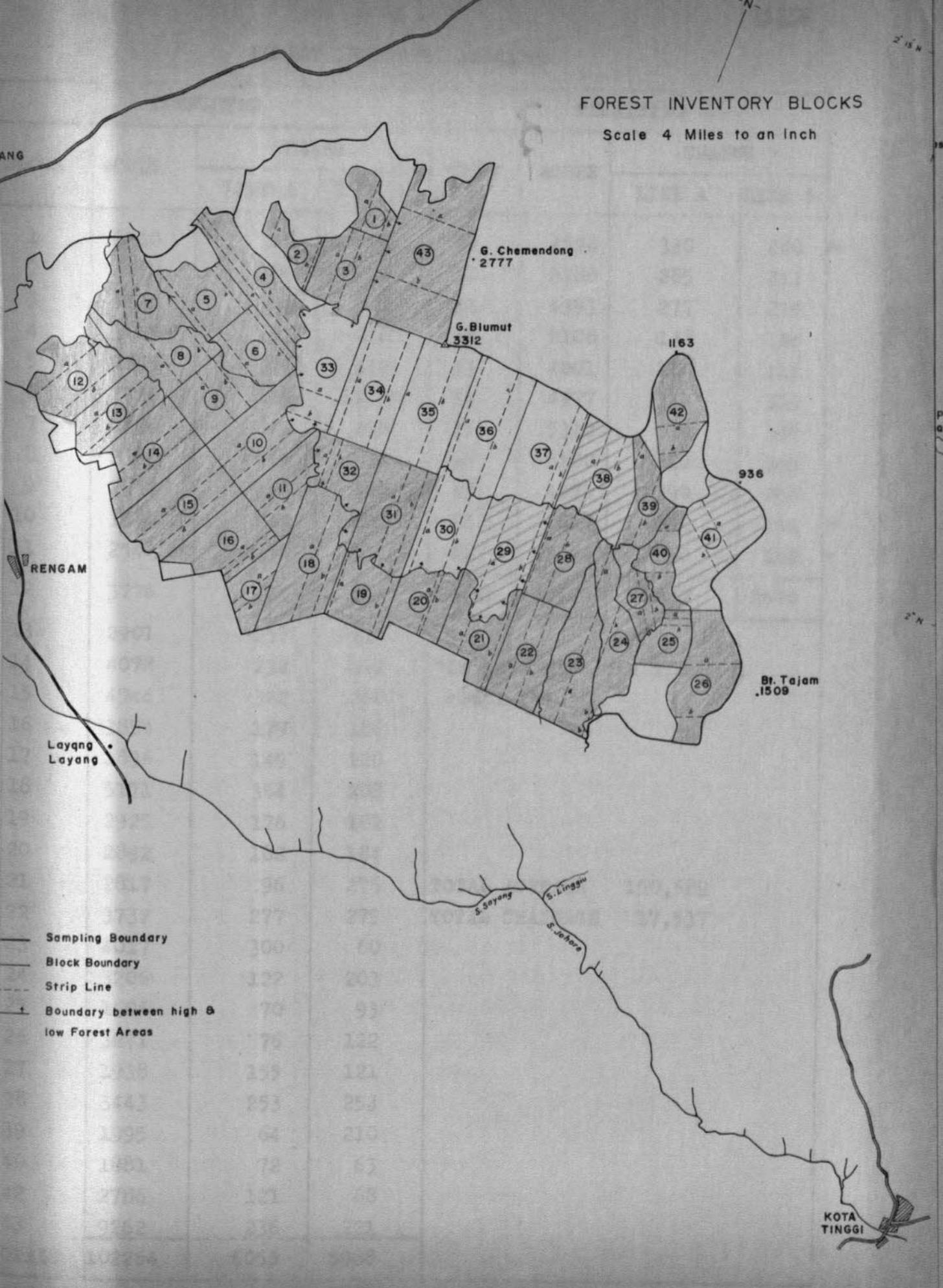
Work on the possible utilisation of those species not taken by the "trade" or which are now burnt during clearing is also in hand.

4. MINING & GEOLOGY

The economic geologist joined the Project team on April 10th. Work has commenced on the collation of data assembled by officers of the geological Survey. A visit was made to the Survey Headquarters at Ipoh on April 20th. The purpose of the visit was to meet the director and assistant director, and to examine survey records. The counterpart geologist from the survey, Mr. Fattch Chand joined the Project at this time and is now stationed at the Survey office in Johor Baharu. He has been responsible for the collection of much of the data now being used. After reading some of the relevant field records work has commenced on the examination and correlation of prospecting records.

FOREST INVENTORY BLOCKS

Scale 4 Miles to an Inch



FOREST INVENTORY ACREAGES

COMPLETED				REMAINING			
BLOCK	ACRES	CHAINS		BLOCK	ACRES	CHAINS	
		LINE A	LINE B			LINE A	LINE B
1	1510	146	87	29	4528	330	240 *
2	1270	80	146	30	3780	285	213
3	3296	212	205	31	4393	277	276
4	3425	415	426	32	2108	138	126
5	2865	222	142	33	4201	110	118
6	2726	136	200	34	4977	319	319
7	2486	203	258	35	5312	319	338
8	2799	162	94	36	5180	322	365
9	2977	160	160	37	4975	390	268
10	3970	214	202	38	3827	240	231 *
11	2547	190	138	41	5144	190	180 *
12	3776	214	247	Total	48425	2820	2674
13	2901	257	274	*In hand with one line completed			
14	4078	232	292				
15	4946	322	268				
16	3854	179	186				
17	1896	149	120				
18	5171	364	208				
19	2925	176	182				
20	2892	182	184				
21	2817	96	276				
22	3732	277	279				
23	4017	300	60				
24	3206	122	203				
25	1606	70	93				
26	3271	76	122				
27	1938	155	121				
28	3443	253	253				
39	1995	64	210				
40	1881	72	63				
42	2786	121	68				
43	9262	236	221				
TOTALS	102264	6055	5988	TOTAL ACREAGE 150,689 TOTAL CHAINAGE 17,537			

5. WATER RESOURCES

Operation of the project hydrological network is progressing satisfactorily. Additional automatic recorders have been installed on the Pengelli, Sayong and Kahang rivers and it is shortly proposed to instal another recorder on the Seluyut in co-operation with the State Public Works Department (PWD). A plan showing the network has been handed to the Department of Irrigation and Drainage (DID). Sediment and water quality sampling have continued on a routine basis. Detectable amounts of arsenic have been found in several rivers. These are:-

<u>River</u>	<u>Arsenic (parts per million)</u>
Sembrong Kechil	0.04
Tempenis (tributary of Linggiu)	0.02
Permandi, Johor, Sayong	0.002 to 0.008

The attention of Economic Planning Unit (EPU) and the State PWD has been drawn to this matter.

A salinity survey has been carried out in the Johor River upstream of the Nam Heng Estate. This was done during end of February and March during low river flow and high tide conditions and the analysis of the samples is being carried out by the Department of Chemistry.

Information has been collected on the cost of the 1969 flood at Kota Tinggi. Excluding agricultural losses and medical costs, which have still to be collected, the cost of this flood was about \$110,000. A Technical appreciation giving guidelines for possible methods if any, of flood mitigation at Kota Tinggi will shortly be prepared.

Possible dam sites on the Linggiu, Kahang and Semangar have been opened up by rentis cuts and the sites have been briefly examined by the engineering geologist. Two other sites, on the Johor and Sayong will also be examined within

the next week. These site examinations, together with a study of existing geological maps and data will enable a preliminary appreciation of the technical feasibility of any site to be made.

Collection of unit costs from various sources has continued and water demand estimates have been extended.

SECTION B: INFRASTRUCTURAL URBAN AND INDUSTRIAL DEVELOPMENT STUDIES

A team of enumerators has been engaged since 18th April correcting and updating information on the survey maps of the existing land use in the following towns:-

Johor Baharu	-	certain areas of the town
Kota Tinggi	-	100 per cent coverage
Rengam	-	100 per cent coverage
Layang Layang	-	100 per cent coverage
Sedili Besar	-	100 per cent coverage
Tanjong Surat	-	certain part of the settlement
Masai	-	100 per cent coverage
Kukup	-	50 per cent coverage

From this research and data gathered by the surveys reported under Section C it is hoped to formulate guidelines for the planning of urban and rural centres of population in the project area.

In addition to the land use aspect of the study data is being collected on types of accommodation, quality of building, schools, open spaces, recreational and shopping centres, distance travelled to work transport facilities and other services.

SECTION C: SOCIO-ECONOMIC ASPECTS AND INSTITUTIONAL
INFRA-STRUCTURE

Progress Report No. 3 noted the urgent need for information from the Socio-Economic Survey 1967/68. No information was received in March or April 1970.

Collin Abraham, Malaysian counterpart on social development joined the project on a full time basis on 1st March. A second Social Development Specialist was appointed to the Consultants' field staff on 1st April. Work on social development is now going ahead on the intended scale.

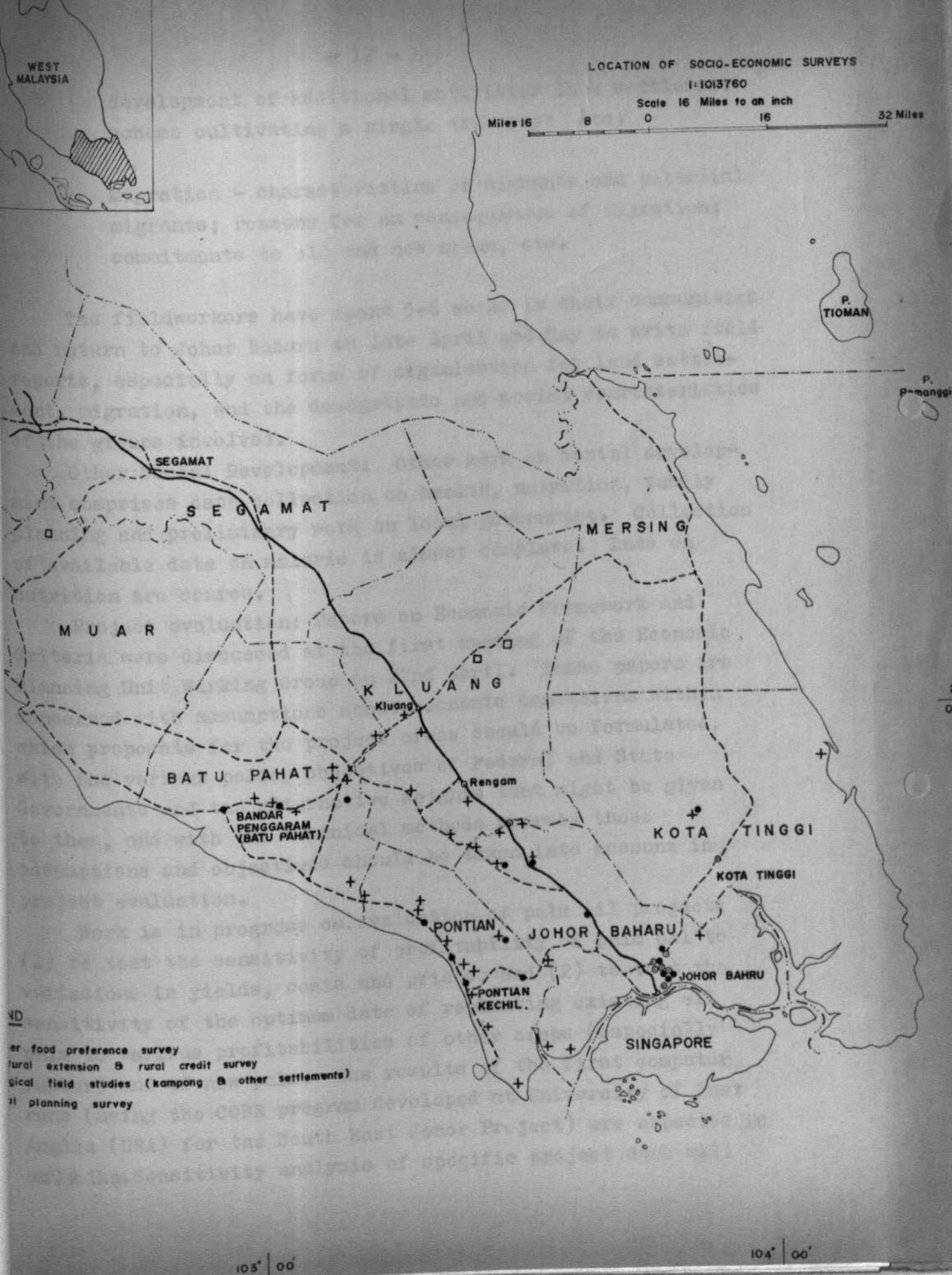
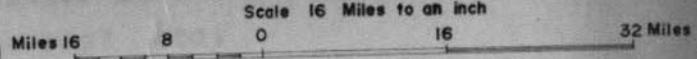
Sociological field studies: The main work on Social Development has been the conduct of sociological field studies of communities in Johor. 10 field investigators have been employed - graduates and final year undergraduates of the University of Malaya, of whom 5 are Majlis Amanah Ra'ayat Bumiputra (MARA) scholars.

These sociological field studies have been conducted in three kinds of community - FLDA schemes, other land settlement schemes and estates, and areas from which migrants might move to newly developed areas. They are concerned with three main problem areas:-

1. The scale of problems - of unemployment, population pressure, poverty, lack of skill, health and nutrition etc.
2. The advantages and disadvantages of different types of organisation, especially for land settlement; their effectiveness in meeting the objectives of people differently placed: e.g. landless unemployed, those with land or skill or access to capital, the government. Within this area are many more specific questions: e.g. the extent and meaning of "land hunger", the nature of demand for individual ownership of separate plots of land; what conditions favour or hinder the

WEST MALAYSIA

LOCATION OF SOCIO-ECONOMIC SURVEYS
1:1013760



- er food preference survey
- rural extension & rural credit survey
- gical field studies (kampong & other settlements)
- ll planning survey

development of additional activities in a settlement scheme cultivating a single treecrop? etc.

3. Migration - characteristics of migrants and potential migrants; reasons for and consequences of migration; commitments to old and new areas, etc.

The fieldworkers have spent 5-6 weeks in their communities and return to Johor Baharu in late April and May to write field reports, especially on forms of organisation for land settlement, migration, and the demographic and social characteristics of the groups involved.

Other Social Development: Other work on social development comprises data collection on health, nutrition, family planning and preliminary work on local government. Collection of available data on malaria is almost complete. Data on nutrition are scarce.

Project evaluation: Papers on Economic Framework and Criteria were discussed at the first meeting of the Economic Planning Unit Working Group on 22nd April. These papers are concerned with assumptions about economic conditions within which proposals for the project areas should be formulated, with the various policy objectives of Federal and State Governments and the alternative weights that might be given to them, and with the technical methods whereby these assumptions and objectives should be taken into account in project evaluation.

Work is in progress on evaluation of palm oil projects (1) to test the sensitivity of profitability of palm oil to variations in yields, costs and prices, and (2) to test the sensitivity of the optimum date of replanting existing oil palm to various profitabilities of other crops (especially rubber) and of new palm. The results of the first computer runs (using the COBE program developed at University of East Anglia (UEA) for the South East Johor Project) are expected in early May. Sensitivity analysis of specific project data will

continue. It will indicate, inter alia, the relative importance of precision in assumptions about values of various factors or weights to be given to various policy objectives.

Industry: Work continues on the assessment of requirements for the processing of agricultural outputs - rubber, palm oil, dairy farming and some other possible crops - and of manufacturing inputs into the agricultural sector - mainly fertilisers and feedstuffs.

Agricultural markets and marketing: Inche Uzir bin Abdul Malik (counterpart officer from FAMA, who joined on 4 March) has carried out a survey of meat wholesalers and retailers in Johor (with particular reference to beef and mutton) to determine the structure and organisation of meat marketing in the State. This will enable estimates to be made of meat marketing needs if production is expanded in the project area, and also indicate the effects of re-organisation of meat slaughter facilities in the State.

A Consumer Preference survey has also been carried out to ascertain consumer preference and consumption levels for meat, fish and dairy products. Some 2,000 housewives in south Johor were interviewed and the results of these interviews are now being analysed.

Agricultural production: livestock and short term crops:

- (a) Livestock: In conjunction with the Agricultural Division meetings have been held with the FAO/IBRD Mission on Livestock and the paper on "Cattle" produced by the consortium is under review.
- (b) Short-term crops: Work is beginning on devising mixed cropping systems based on short-term crops, again in co-operation with the Agricultural Division.

Institutional Studies: Work is in progress on various aspects of the operations, organisation and constraints of the FLDA, on the capacity of other public and private agencies which

provide services to FLDA and other land development schemes, co-ordination, and on Federal-State finances.

Fieldwork on surveys of use of extension services and credit facilities have been completed. A survey of smallholders has been carried out in the southern half of Johor to investigate the characteristics of smallholders in the area, their contact with extension and credit usage. A total of 932 individuals have been interviewed and their responses are at present being analysed. Information on the current organisation of extension services has been obtained in a series of interviews with extension personnel. This study is continuing.

Other work in progress includes collection of information on transport requirements and facilities in Johor and on the benefits of flood protection measures at Kota Tinggi.

SOUTH EAST JOHOR PROJECT
ALIENATED AND OR PRESENT LAND USE

INTENTION

To appreciate the present position in respect of committed and uncommitted land in the project area.

INFORMATION

By letter dated 30th March 1970 the Economic Planning Unit deposited a map to scale three miles to one inch which purports to show the position as at that date. Two sketch maps to a reduced scale are attached this paper.

It will be noted that these maps differ somewhat from the maps attached the summary terms of reference. We are now engaged on a correlation exercise with the State Commissioner of Land and Mines and an evaluation of the development planning constraints on certain alienated/gazetted lands, e.g. Sungei Semberong water catchment within the forest reserve, land alienated but not yet fully developed or committed to crops on certain FLDA, GSA and "reserve for oil palm" schemes, land noted as of "mineral potential" in the Linggui valley and "logging agreement areas" where extraction rights are guaranteed over, say, a 20 year period, the annual coupe being at the discretion of the District Forest Officer, These are to specific lumber firms who, presumably, have amortized their capital investment and calculated their operating costs over that period.

ASSUMPTIONS

That any State or gazetted land not alienated to agriculture or mining can be either made available or de-gazetted for development with the possible exception of steep lands.

term not to be used in future - better term: Peat Swamp

That the inland swamp association and fringe forest along the east coast in the Tanjong Penggerang area be regarded as not capable of exploitation for the present. Also, that the land south of a line Sungei Santi to Tanjong Punggai be excluded due Inland Swamp Association etc. soils, existing mines, old working and other alienations. If any sizeable area of good agricultural land is revealed during the current soil survey then it will be included provided it can be proven to be economically feasible.

That lands recently gazetted or reserved for settlement (e.g. FLDA, GSA, State schemes) but not yet committed entirely to crop can be re-assessed for purposes of economic master planning over a 20 year period from 1971.

The same to apply to land marked as having mineral potential e.g. tin in Johor Tengah. The economic weighting must here take into account the relative claims of water, agriculture and mining especially in the Linggau catchment. On present showing water takes precedence in the latter.

The lands show as "steep" whether gazetted or not must be kept in their natural state and be fully protected.

That the Sungei Semberong catchment can be planned by the agriculturists so as to prevent pollution or change in the regime of the rivers.

UNCOMMITTED LAND

Maps are attached showing the land:

- (a) not yet committed;
- (b) alienated but not yet committed to crop or mining;
- (c) alienated and developed.

Provisional acreages are as follows:

Tanjong Penggerang Region

	<u>Acres</u>
Project area (Proposal).....	330,000
Less alienated (mines, estates, FLDA schemes etc.), highland, swamps and fringe forest along east coast between sea and swamps (peats).....	<u>211,600</u>
Balance uncommitted (Gross area).....	<u>118,400</u>

Equivalent to 36% of project area.

Note: The alienated land includes new FLDA estates totalling some 45,224 acres and the silica sand area of 13,200 acres.

Johor Tengah Region

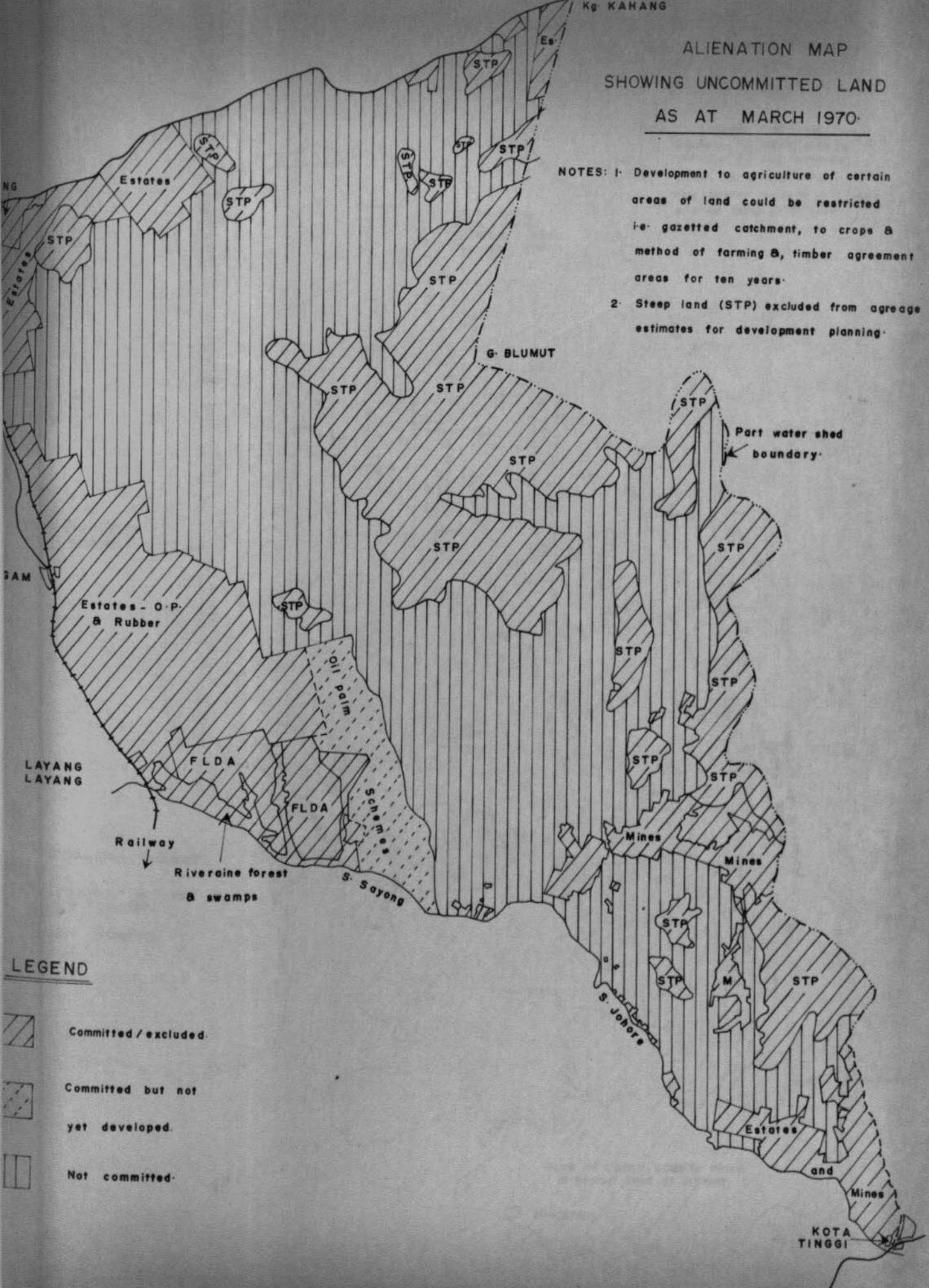
Project Area (Proposal).....	370,000
Less alienated land (tin mines, estates GSA etc. schemes) but <u>not</u> forest reserves and excluding steep lands:.....	<u>223,440</u>
Balance uncommitted (Gross area).....	<u>146,560</u>

Equivalent to 40% project area.

Note: (1) Gross uncommitted area split as between Semberong/Kahang basins - 71,680 acres and Johor basin - 74,880 acres.
(2) Sungei Semberong catchment - 45,600 acres - included in above.
(3) Logging "Agreement" areas - temporary exclusion of 15,000/20,000 acres till 1980 but included in uncommitted balance.

ALIENATION MAP SHOWING UNCOMMITTED LAND AS AT MARCH 1970

- NOTES: 1- Development to agriculture of certain areas of land could be restricted i.e. gazetted catchment, to crops & method of farming & timber agreement areas for ten years.
- 2- Steep land (STP) excluded from acreage estimates for development planning.



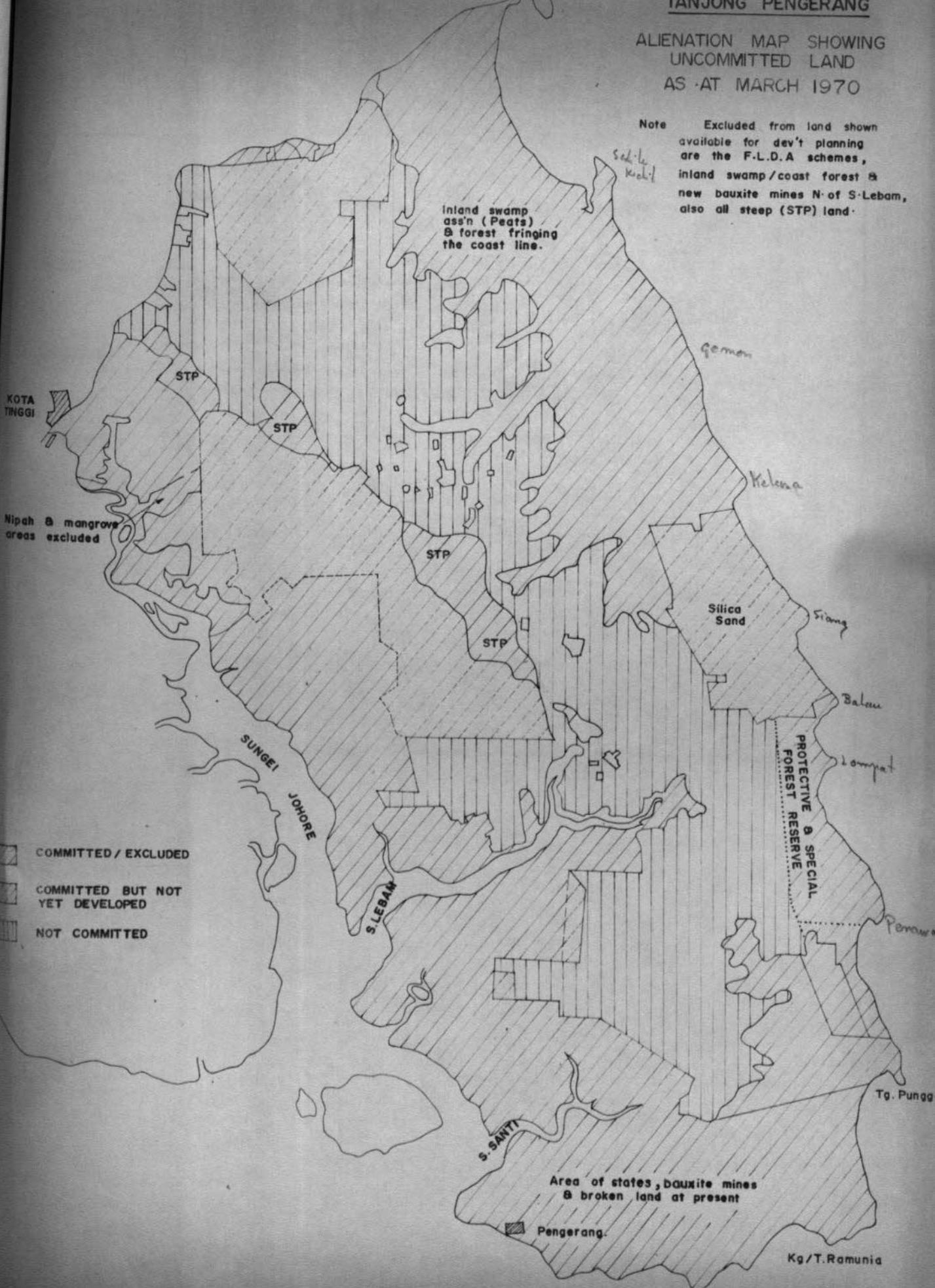
LEGEND

-  Committed / excluded
-  Committed but not yet developed.
-  Not committed.

TANJONG PENGERANG

**ALIENATION MAP SHOWING
UNCOMMITTED LAND
AS AT MARCH 1970**

Note Excluded from land shown available for dev't planning are the F.L.D.A schemes, inland swamp/coast forest & new bauxite mines N of S-Lebam, also all steep (STP) land.



KOTA TINGGI

Nipah & mangrove areas excluded

STP

STP

STP

STP

SUNGEI JOHORE

S-LEBAM

S-SANTI

Sekeloa Kalit

Gemen

Silica Sand

Siang

Balau

Lompat

PROTECTIVE & SPECIAL FOREST RESERVE

Pemayan

Tg. Punggai

Area of states, bauxite mines & broken land at present

Pengerang

Kg/T. Ramunia

- COMMITTED / EXCLUDED
- COMMITTED BUT NOT YET DEVELOPED
- NOT COMMITTED

PLAN OF OPERATION & MONTHLY PROGRESS CHART

SOUTH EAST JOHOR PROJECT

