

GOVERNMENT OF MALAYSIA
AND
THE STATE OF JOHOR

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JOHOR TENGAH AND TANJONG PENGGERANG
REGIONAL MASTER PLAN

DRAFT PROJECT REPORT

JANUARY 1971

HUNTING TECHNICAL SERVICES LTD

BINNIES & PARTNERS . OVERSEAS DEVELOPMENT GROUP . SHANKLAND COX OVERSEAS

UNIVERSITY OF EAST ANGLIA

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Hunting Technical Services Ltd.

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University of East Anglia

**SOUTH EAST JOHOR PROJECT TANJONG PENGGERANG AND
JOHOR TENGAH REGIONAL MASTER PLAN STUDY**

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January, 1971

Chief Secretary to the Government,
Prime Minister's Department,
(Economics),
KUALA LUMPUR.

Dear Sir,

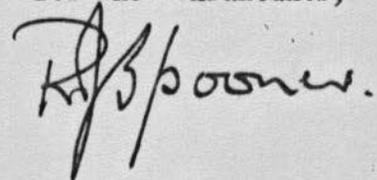
Tanjong Penggerang & Johor Tengah
Regional Master Plan Project.

As required under the Agreement entered into on September 1st, 1969, we are now presenting the Draft Project Report, for detailed comments and decisions by Government prior to preparation of the Master Plan. This was called for not later than 18 months from the date of notice to proceed with the overall study, and is therefore due not later than the end of February 1971.

The Draft Project Report is accompanied by more detailed supporting material, an atlas of maps and drawings, and a graphic presentation of an outline regional plan for S.E. Johor.

As is made clear in the Terms of Reference, the Draft Report is required at this stage in order to present Government with alternative strategies and other matters of choice on which decisions must be made before the final Master Plan can be prepared. The most important of these decisions are listed in the final chapter of the Draft Report.

Yours faithfully,
for the Consultants,



R.J. SPOONER,
RESIDENT PRINCIPAL.

● HUNTING TECHNICAL SERVICES — LAND USE AND AGRICULTURAL CONSULTANTS ●

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CORRECTIONS

- Index: Table 2.2 to read "Employment & Tourism".
- p. 4 1.3 fourth lines substitute "New Economic Policy" for "National Economic Plan".
- p. 12 third line: substitute "flat" for "flatter".
- p. 15 second line after Table 2.1: substitute "2.4" for "2.2".
- p. 16 Table 2.1: substitute "2.2" for "2.1" and insert "Employment & Tourism" as heading to table.
Table 2.2: substitute "19,800" for "20,000" in last column.
- p. 22 ~~first para:~~ last sentence: insert "detailed" between "No" and "figures".
- p. 35 third para: substitute "need" for "neet".
- p. 44 second para: fourth line: insert "and" between "public private".
- p. 65 Note 6. seventh line: insert ":" after "flows".
- p. 73 8.4.7 - first line under Detail: insert "strategy 1 is" between "than selected".
- p.29 **line 6 from bottom of page, SEJDC should read SEDC i.e. State Economic Development Corporation and not SEJDC, South East Johor Development Corporation.**

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S U M M A R Y

The planned development of agriculture, forestry and tourism in the project areas of Johor Tengah and Tanjong Penggerang could create directly and indirectly, 80-90,000 new jobs by 1990. Of these, about 60,000 would be in the project areas, and many of them could be taken, after suitable training, by poor Malays and other poor people from those parts of West Malaysia where there is widespread underemployment. The population of South East Johor, including Kluang and Kota Tinggi, would increase from 135,000 to about 450,000 - 500,000.

Because of strong physical and economic constraints on development potential, few variations in the pattern of land use are possible. The recommended extent and locating of activities emerged from studies of land capability (climate, soil, slope, drainage, present forest cover) and market potential.

A total of 287,500 acres of land are suitable for agriculture. Oil palms and rubber are the only crops sufficiently well-tried for immediate large scale development and could cover 244,000 acres. Of many other possible activities which could be developed on the remaining acreage, dairy cattle is particularly recommended for early implementation. Technical and market research should continue on other new activities which could be introduced later in the programme - after 10 years there would still be 85,000 acres of potentially cultivable land undeveloped.

Full exploitation of the forest resources should be combined with large-scale land clearance. A new complex of timber industries could be associated with the logging of 92,000 acres of untouched forest in Johor Tengah. Substantial revenue might also be obtained from chipping residual timber - estimated at 2¼ million tons in Tanjong Penggerang alone.

An initial tourist project, taking visitors by 1975, should be established on one of the attractive beaches of the Central Penggerang Coast. Because of its proximity to the expanding Singapore market, the resort might grow rapidly and create some 10,000 jobs by 1990.

These developments must go hand in hand with the careful conservation of some 200,000 acres - to prevent erosion, protect water resources, preserve valuable wild life and plant communities, and provide an attractive environment for residents and visitors.

There are few opportunities for mineral exploitation and no natural advantages for major manufacturing industry, though small local industries should be encouraged.

The areas would be served by a comprehensive network of roads and other infrastructure, as shown on the Draft Regional Development Plan; with two new towns, five master villages and some forty villages, each large enough to support a range of basic services.

The implementation of the Master Plan would be coordinated by a South East Johor Development Corporation, with joint Federal and State Chairmen and a full time general manager, who should be appointed as soon as possible.

All existing and several possible new types of land development agency have been studied and their potential performance considered in relation to socio-economic objectives arising from the New Economic Policy and project studies. The report describes and evaluates four alternative strategies, each with a different combination of agencies.

The combination most likely to achieve the objectives appears to be that with 75 percent of agricultural output initially coming from public enterprises of different kinds, including a new type of public sector agency as well as settlement schemes, and with a gradually changing but important role for FLDA, and 25 percent from smallholders and private estates. The contribution of the private sector might be increased later in the programme when the success of development is assured. In both sectors, there should be opportunities for individual initiative and independence combined with security and a wide distribution of income.

Government decisions on the preferred strategy and on other important matters set out in the report are needed by the end of February so that the Consultants can proceed to prepare a Master Plan.

CHAPTER 1

INTRODUCTION

1.1 The Purpose of the Report

The purpose of this report is to describe and evaluate briefly the more promising development opportunities of the project areas and to synthesise alternative strategies from which a reasoned choice may be made. A Master Plan can then be prepared, based upon the selected strategy. Several specific decisions are invited to enable master planning to begin.

The brief descriptions and evaluations in this report are backed up by more detailed information and arguments in Supporting Reports. A range of supplementary papers is also available.

1.2 The Project Areas

The two areas cover approximately 742,500 acres (16 percent of the State of Johor), of which 368,500 acres lie in Johor Tengah and 374,000 acres in Tanjung Penggerang. Nearly 265,000 acres of land have been alienated or are reserved for specific purposes, including 54,000 acres for FLDA settlement schemes (Table 1.1). The alienated area is outside the scope of this report. Approximately 64 percent of the land is under forest of some kind.

Although there are no towns in either region, Kota Tinggi (1970 pop. 8,000) is situated centrally at the junction of the two areas and Kluang (1970 pop. 61,000) on the northwest boundary of Johor Tengah. The project areas lie between thirty and sixty-five miles from the State capital of Johor Baharu and between forty-five and eighty miles from Singapore city. No plan for South East Johor can ignore the significance of these two towns and especially the relatively high and rising standard of living in Singapore. The proposed two-berth port at Johor Baharu, now the subject of a special feasibility study, would be an important factor in regional development.

TABLE 1.1 Distribution of Land Use in the Project Regions

	JOHOR TENGAH	TANJONG PENGERANG
TOTAL ACREAGE	368,500	373,700
FOREST ABOVE 20° SLOPE	64,900	9,200
Balance	303,600	364,500
PROPOSED CATCHMENTS	33,900	10,000
Balance	269,700	354,500
EXCLUDED LAND		
Peat Swamps		36,000
Incised valleys		33,500
Beach ridges		3,500
Balance	269,700	73,000
Balance	269,700	281,500
RESERVATIONS		
Mangrove Forest		18,000
Mining Towns		21,900
Malay & Aboriginal		5,600
Balance	269,700	45,500
Balance	269,700	236,000
ALIENATED LAND (incl. FLDA)	88,200	130,000
BALANCE - LAND FOR DEVELOPMENT	181,500	106,000

Footnote: The above acreages are subject to minor alteration for the Master Plan.

In Johor State the greater part of the population is concentrated in the towns and on the west coast. The project areas, which lie to the east, are relatively lightly populated. There are very few people on the land for development.

The climate, soil, terrain and water resources of the area together provide a satisfactory environment for large scale land development. A feature of agricultural significance is well distributed rainfall, higher than the national average. This offers prospects of diversification in certain directions.

After deductions have been made for land already alienated, reserved or excluded, the acreage available for agricultural development is 287,500, of which 181,500 acres lie in Johor Tengah and 106,000 acres in Tanjong Penggerang.

Of the total of 1.7 million acres of forest in the State of Johor 34 percent is in the project areas. A considerable quantity of marketable timber is available in Johor Tengah, conveniently distributed for a programme of extraction and utilisation in the course of large scale clearance for agriculture. There are also substantial areas of residual timber of possible value.

In addition to forest exploitation there are important opportunities of using the virgin forest on steeper ground at higher elevations in Johor Tengah not only for conserving soil and water, but as a sanctuary for wild life and for biological communities of scientific interest. Parts of the Penggerang peninsula offer similar opportunities.

Both project areas have important natural advantages for the development of various forms of recreation and tourism. The potential for visitors from Singapore is substantial, particularly for tourism in the coastal belt of Tanjong Penggerang.

There are few opportunities for mineral exploitation and no obvious advantages to favour the growth of major industrial development, other than the processing of primary products of forestry and agriculture.

A Draft Regional Development Plan showing the principal physical components of the proposals is enclosed with this report.

1.3 Objectives and Planning Approach

The study of the potential development of the project areas has been undertaken with close regard to the three basic objectives of the National Economic Plan (NEP):

- (i) reduction of economic disparity;
- (ii) creation of additional employment;
- (iii) economic growth.

Fundamentally all these objectives concern the welfare of people, and the planning approach adopted has been to evaluate all the physical and human resources of the regions and to consider their development in the best interests of those who will participate in it and of the State and National economies.

The study offers answers to the following questions:

- (i) What work is to be done?
- (ii) Who will do the work?
- (iii) Who will benefit and when?
- (iv) How will the people live?
- (v) How fast a build up?

There is a close interaction between the questions and there are different combinations of answers, which require further appraisal and decision. This is an important reason for presenting alternative strategies at this stage.

The chapters that follow give a brief description of the physical resources of the areas and their development potential, and of the employment opportunities for the people arising from the development of those resources.

Ensuing chapters deal with the framework and services required for development and examine the different organisations and agencies that can be used to direct and implement it. In particular the respective roles of the public and private sectors and their relative contributions are discussed.

The development opportunities and different socio-economic choices are assembled in the form of alternative strategies, and these are compared and evaluated in Chapter 7. A strategy in this context connotes a synthesis of one or more of the various components, forms, methods and rates of development that can be employed to fulfil the national objectives in the regional environment. The interaction between these factors is often complex, and the value judgements on which choice must be based involve economic, human and political considerations. The strategies are essentially long term in outlook, covering the period up to 1990, but they include existing shorter term proposals in the Second Malaysia Plan (SMP).

Decisions which are both important and urgent for the preparation of the Master Plan have been identified and listed in Chapter 8.

CHAPTER 2

DEVELOPMENT OPPORTUNITIES

Introduction

The main opportunities in the project areas are in the fields of forestry, agriculture and tourism. Though erosion and other conservation constraints limit the extent of developable land, and soil, climate, slope, market and labour constraints limit the range of activities, there is considerable potential for development.

The assessment of development opportunities is based upon data derived from soil, terrain and hydrological surveys; from forest inventories and studies of mineral and recreational resources carried out either by the Consultants or the Government. These investigations have been supplemented by information obtained from numerous studies of market prospects and socio-economic factors and in constant consultation with Government departments.

The results of the terrain and soil surveys were considered in conjunction with meteorological data and a land use potential classification has been compiled. The form of land use is dictated chiefly by topography and climate. To guard against erosion from heavy rain on steep slopes land with an average gradient of over 20 degrees must remain under forest, and this established criterion has been used to delineate the boundary between land to be cleared for agriculture and land to be left under forest cover.

There is a considerable quantity of marketable timber, particularly in Johor Tengah, with valuable prospects for full utilisation.

With the exception of extensive areas of peat swamp in Tanjong Penggerang, most of the undeveloped inland soils under 20 degrees slope are suitable for agricultural development. Parts of the central Penggerang coast are attractive for tourism.

There are suitable opportunities and locations for combining the conservation of upland soils, water sources, wild life and biological communities of special interest, and there is the prospect that conservation areas can be carefully developed at a later stage for scientific and recreational purposes.

2.1 Conservation and Forestry

2.1.1 Conservation

Most of the land with an average slope of more than 20 degrees lies in Johor Tengah in a large block and will remain under forest. There are silvicultural problems to be overcome if timber from this steep, inaccessible forest is to be economically exploited on a sustained yield basis without impairing conservation; but for the time being it should remain untouched.

With the clearance of the lowland forest for agriculture, much interesting wild life will be imperilled, and the obvious refuge for it would be in forest reserves. It is therefore recommended that a national park should be created in the steep upland area centred on Gunung Blumut, Sumalayang and Panti. This park would cover an area of some 200 square miles. It is also suggested that the new park should embrace the existing Endau Kota Tinggi (E) wild life reserve, which lies farther to the east and includes a part of the coastline.

The catchment of the headwaters of the S. Lebam should be conserved to safeguard water for a tourist resort and to preserve the natural scenery.

Other areas where conservation is recommended for water supply purposes are the Kahang and Linggiu catchments which are now, or may in future become, important sources of supply. Unwise development of these areas could increase the costs of providing adequate water storage.

In Tanjong Penggerang the land occupied by swamp forest, which is unsuitable for agriculture, should remain as a conservation area; and another locality with a biological community of special scientific interest between Kelesa and Siang should be gazetted as a Strict Nature Reserve. There is at present some conflict with silica sand mining interests, which should be resolved as soon as possible. Certain mangrove areas should also be conserved.

2.1.2 Forest content and logging

The forest falls into two categories - highland and lowland, the 500 foot contour being the dividing line. The forest inventory in Johor Tengah has indicated that there is a substantial potential for timber extraction and utilisation throughout the lowland forest. There are some 92,000 acres of undisturbed forest (outside Agreement areas) below the approximate line of the 500 foot contour. Before agricultural development takes place in this area the substantial benefits from the forest resource should be reaped.

It is estimated that the total volume of timber of four feet girth and over amounts to approximately 34 tons true volume (tv) per acre; of this 23 tons tv are utilisable timber acceptable to the trade and 11 tons are not presently acceptable. Of the 34 tons tv per acre approximately 13 percent is heavy hard woods, 35 percent medium hardwoods and 52 percent light hardwoods. It is estimated that there are a further 16 tons tv per acre of stems between two feet and four feet in girth not used in current practice. (these volumes exclude defective timber, for which an allowance of 29 percent has been made).

In Tanjong Penggerang virtually no conventional marketable timber remains; but there is a potential of about $2\frac{1}{4}$ million tons of residual timber which might be exploited if utilisation can be organised in time to be coordinated with the start of land clearance.

A fifteen year logging programme is proposed for the 92,000 acres in Johor Tengah with an annual coupe of 6,100 acres, yielding an estimated 123,000 Forest Department (FD) tons of logs. Such a programme is practicable and compatible with the requirements and phasing of agricultural development.

Extraction of logs in Johor Tengah is seen as a government enterprise, perhaps in partnership with existing local interests and possibly with an overseas organisation experienced in dealing with large annual coupes.

It is suggested that changes be made in the present system of royalty and premium payments to encourage the utilisation of a higher proportion of available timber, particularly of the less popular species. The proposal is that concessions for logging should simply be awarded to the highest bidder and the results published. The Forestry Department would place a reserve price on the concession, based on an inventory estimate of the forest content. This system would combine the present royalty and premium elements and, in addition to increasing the incentive to fuller exploitation, would be simpler to administer. With an average reserve price of about \$25 per FD ton, the effect would be to double the revenue obtained by the State, at the same time allowing the efficient operator an internal rate of return of about 20 percent per annum on his logging enterprise. It is also recommended that in future the export of logs should not be subject to quota, and that the existing ten percent ad valorem duty should be replaced by a specific export tax of about \$10 per FD ton. This change would be more effective in encouraging more intensive exploitation of forests if linked with a revised royalty/premium system in all States in West Malaysia.

2.2 Timber Industries

Market studies indicate that maximum value added by the forest resource is to be obtained from producing high price commodities such as plywood, mouldings, kiln dried and air dried timber for export and local sale. Existing capacity for plywood and veneer production in the project area is considered to be adequate. However, there is need and scope for developing the more specialised industries mentioned above. They would provide a stimulus to diversification and increase the opportunities of participation by Malays in modern processes.

The establishment of a sawmill with a through-put of about 50,000 FD tons per annum is therefore recommended. A mill of this capacity could expect to produce specialised products over a 15 year period, which is long enough for economic viability. This period would also provide time to find markets for species not now used, to attract external participants and to train Malays. But the new enterprise should compete

for logs on the open market on the same terms as existing sawmills and should be separate from the logging activities. Existing efficient interests would not therefore be jeopardised by the new sawmill proposed.

Another new activity which has great promise is the conversion of hitherto unwanted timber into chips. Technical and market information on the suitability of natural forest species for this purpose is lacking and it should be sought urgently. But it is estimated that there are potentially about 5½ million tons of dry chip equivalent in the two areas worth some \$300 million at the current fob price of chips produced from rubber trees. The realisation of this potential depends upon the rapid solution of technical marketing and organisational difficulties.

All the above activities can provide substantial returns to investment, increased public revenue, additional employment and wider Malay participation in industry. An estimate of total sales, costs and employment created will be found in the summary Table 2.2 at the end of this chapter.

The recommendations made for the forest industry in this section are covered in more detail in Supporting Report IV.

2.3 Agriculture

2.3.1 Possible Activities

The choice of possible activities for immediate large scale commercial exploitation is constrained by market considerations and by technical factors, particularly the shortage of management expertise. Only rubber and oil palms can be recommended for large scale planting in the first years of any plan. Comparative evaluations of these two crops suggest that, on grounds of employment creation and profitability, oil palms should predominate in the first five years and rubber later on. Ultimately the ratio of oil palms to rubber would probably lie between 60:40 and 50:50.

An important requirement of the terms of reference was to make recommendations for the diversification of agriculture. A great many possible activities suited to the environment have been considered in relation to their market prospects and the availability of technical information and management expertise. The best opportunity is considered to be milk production from grassland, with cross-bred dairy/beef animals going to estate and smallholder beef producers. These cattle enterprises could be integrated with coconut production. The climate of the project area is very suitable for grass growth and intensive stocking, and the disease status is understood. The potential market, both in Malaysia and Singapore, is large and growing, and the project area is well situated to take advantage of the latter. Milk production could be highly profitable, both for small and large producers; it would be as labour intensive as oil palm cultivation, and offers an opportunity to introduce Malays to a new and productive sector of agriculture. The development of the industry would initially require the import of expatriate expertise for investigational purposes and to train Malays in cattle and grassland management. The build up of a dairy industry may be constrained by shortage of suitable female breeding stock and ~~later the feasibility~~ of importation should if necessary be critically examined. These technical constraints should be resolved to enable the rate of development to be phased with the growth of the liquid milk market.

Other activities that appear promising for immediate introduction on a modest scale are cassava and pineapple cultivation, small livestock production (e.g. goats and poultry) and freshwater fish culture in ponds. All of these could provide useful diversification in oil palm and rubber areas and could improve income and labour patterns during the immature periods of the tree crops.

The cultivation of cocoa and of new types of hybrid coconut on the principal inland soils could be profitable; but their introduction on a commercial scale must be preceded by a period of trial. The same can be said of short term crops such as sweet potatoes, Chinese yams, sorghum and pulses; but unpredictable weather conditions would increase the risks with grain crops, although in a good year they could be very

profitable. Root crops are likely to be more satisfactory than grains. Short term crops should be confined to land with an average slope of not more than 4 degrees. The more extensive flatter land outside the project areas may be more suitable for short term crops.

The Scope of Work asked specifically for:

(i) recommendations on the proposal to develop a banana estate in Tanjong Penggerang.

(ii) the identification of areas requiring irrigation and drainage for large scale cultivation of padi and other crops.

Bananas would have to be sold on the export market, probably to Japan. The varieties currently grown on a commercial scale for local and Singapore consumption are unsuitable for export. Before large scale production for export was undertaken it would be necessary to obtain suitable cultivars by import and/or by a search among local material, and to subject them to a period of testing to prove their agronomic and marketing qualities. This is considered to be a subject for investigation by the Malaysian Agricultural Research and Development Institute (MARDI), and it is recommended that the present proposals for commercial development in Tanjong Penggerang be deferred.

By agreement with the Client large scale irrigation was taken to mean areas upwards of 10,000 acres. Units of this size with topography suitable for irrigation occur only in the flat peat swamps of Tanjong Penggerang. The soils are unsuitable for any crops principally on grounds of high acidity and low humification. No irrigation projects therefore can be recommended.

A research station is urgently required to test and sponsor development of possible new activities for the equatorial part of West Malaysia, and provision has been made in the project area for 3,000 acres of land to be allocated to MARDI. The rate of introduction of new activities and the ultimate scale of any diversification programme will depend very much on the results of research and commercial trial. The problems to be overcome are formidable and the impact of diversification is not likely to be felt until after the first 6-10 years of development.

For purposes of evaluating the contributions of the agricultural sector, it has been assumed that 15 percent of the cropping pattern will be in new diversification enterprises, and 85 percent in oil palms and rubber. However, in ten years time there would still be some 85,000 acres of land undeveloped in the project areas, most of which could be used for new activities if enough information becomes available for their successful exploitation.

Further information on the agricultural potential of the area and on the criteria for activity selection and development planning are given in Supporting Report V and in supplementary papers.

2.3.2 Rate of Land Development

If maximum use is to be made of the forest now covering land to be cleared for agricultural development, land clearance must be coordinated with logging. The fastest realistic logging programme is considered to be one spread over 15 years between 1974 and 1988. If the future agricultural land is logged first at the above rate, 90 percent of it would have been made available for final clearance and development by 1983. A 12-year programme from 1972-1983, developing some 260,000 acres, was therefore first examined.

The SMP target for Johor State calls for the development of 150,000 acres between 1971 and 1975. It has been assumed that this target is desirable, realistic and the maximum feasible; and that its best chance of achievement lies in concentrating development in the project area, where the resources have been examined and where a large land development agency is already at work. Some 80,000 acres of land are therefore included in the first four years of the 12-year programme.

To test the sensitivity of this programme two other periods of development were considered, 10 years and 15 years. In both these programmes the same assumptions were made as in the 12-year programme with regard to the desirability and realism of the SMP target, and differences in rate of development between the three programmes occur only after 1975.

On the above assumptions differences between the 10 and 15 years programmes were small, and the outcome of the 12-year programme, lying between the two, was only marginally different.

If a 10-year programme were attempted there would be a danger of substantial loss of revenue from forest exploitation because logging and utilisation organisations could not be set up in time to reap the benefit. This programme cannot therefore be recommended.

The choice between the 12 and 15 year programmes is of no great significance. Both can be done within a 15-year logging period. In view of the unemployment situation it is recommended that the target should be set at 12 years; but, should the programme fall three years behind schedule after 1980, the effect would be unimportant. Any rate between 12 and 15 years could be regarded as of similar merit, and the rate of development within this range should result from more important objectives and not be an objective in itself.

2.3.3 Development Pattern

Projects for the development of the agricultural activities outlined in section 2.3.1 in 12-15 years will have to be mounted to fit in with the proposals for logging, timber utilisation and tourism. For example, the assumption that in the first four years 80,000 acres would be cleared in the project area makes it necessary to give priority to Tanjong Penggerang, where there is no conventional marketable timber to be logged, where the decision has already been taken to build the Penggerang highway, where considerable development is already taking place, and where the first stage of the tourist project is scheduled for completion by 1975.

Recommendations for the establishment of an overall development authority to coordinate all activities are made in Chapter 6, in which suggestions are also made regarding the types of agricultural production agencies that should be introduced to implement development. Figures V.5 and V.6 in the Atlas illustrate the two project areas divided into a number of development units, with the cropping pattern, phasing and rate

of development and the type of implementing agency also shown. These figures should be regarded as models. They are not firm recommendations as to the type of agency that should operate in any specific area, neither are the cropping patterns absolute because much of the land shown under rubber and oil palms in the later years could, if desired, be developed under a new activity.

On this basis the phased development of the main activities is shown in Table 2.1.

Table 2.1 Phased Development of Main Activities

	<u>Oil Palms</u>	<u>Rubber</u>	<u>Other</u>	<u>Total</u>
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
1975	44,850	17,750	17,800	80,400
1980	115,100	55,800	32,100	203,000
1985	136,700	97,700	42,400	276,800
1990 onwards	136,700	107,100	43,700	287,500
Percent	47	37	16	

The total sales, costs and employment in such an agricultural programme are shown in Table 2.4.

2.4 Tourism

The studies described in Supporting Report No. VI and the supplementary paper - "The development of Tourism in Johor", concluded that the most suitable area for major investment in tourism in the next thirty years is between Tg. Siang and Tg. Pungai on the Penggerang Coast. Its development could support a population of up to 100,000. There is already a substantial and growing demand for recreational facilities in southern Johor, mainly from residents of Singapore, but also from Malaysian citizens and visitors from abroad. Even with a rapid resort development on the Penggerang coast, it would be many years before the rate of growth was limited by the size of the market. Agricultural

settlement in Penggerang will require main road access up to or close to the coast, and would thus open up the peninsula for possible tourist development.

No other areas or projects being considered (for example, inland mountain, waterside and forest resorts, or the islands off Mersing) have nearly as much physical capacity for development or can so economically provide the range of services needed to support a large scale resort catering for Johor's main potential market - the car owning residents of Singapore and Johor Baharu.

Preliminary studies suggest that the central Penggerang beaches have room for some 90,000 people; that development on adjoining land could provide 40-50,000 tourist beds, at least three 18-hole golf courses, and a whole range of associated facilities. There is also suitable land in the area for urban development to accommodate the population required to run the resort. A first sketch of a possible physical strategy for the area has been prepared.

In view of the undeveloped state of the market, forecasts of the growth of employment in tourism can only be tentative. Table 2.2 shows three possible rates of growth of employment compatible with the estimated potential demand:-

TABLE 2.1

Years	Estimated employment			Cumulative Total Medium Basis
	High	Medium	Low	
0 - 5	600	600	600	600
6 - 10	2,800	2,000	1,200	2,600
11 - 20	10,400	7,400	4,200	10,000
21 - 30	14,000	9,800	5,600	20,000
TOTAL	27,800	19,800	11,600	

The successful achievement of any of these possible growth rates depends on the development of the right scale and variety of attractive facilities with strong government backing. To stimulate tourist development, an initial hotel and recreation complex near Tg. Balau is

suggested, costing 13-15 million dollars. This should be a joint venture between an experienced private hotel company and the government, so as to ensure the success of the scheme by securing the involvement of committed professional expertise. A detailed study is now required to establish an investment and development plan for the initial project.

An initial project would add to the diversity of employment in the region, establish a new growth point of economic activity and urbanisation, offer another opportunity for training young Malays and bringing them into a new and expanding commercial sector of the economy, and help to create a new social and commercial service centre in Southern Penggerang.

TABLE 2.5 Estimated costs and returns for the initial project

	\$ millions
a) CAPITAL INVESTMENT (Public)	5.3 - 8.0
- do - (Private)	9.5 - 6.8
TOTAL	14.8
b) ANNUAL INCOME	10.5
ANNUAL EXPENDITURE	8.0
ANNUAL SURPLUS	2.5
c) JOBS	600
Investment per job	24,600 \$
Annual receipts per employee	17,500 \$
d) RATES OF RETURN (Financial)	17 - 18 percent
(Social)	21 - 30 percent

2.5 Manufacturing and Mining

Apart from the local processing of timber, oil palms, rubber, cassava and certain other agricultural crops, to which reference has already been made, there are no major opportunities for industrial development. Nor do there seem to be any particular advantages to

favour the growth of industry in the project area rather than elsewhere in the State of Johor.

Nevertheless, minor industries will grow as general development takes place. It is desirable that this process should be encouraged and that suitable sites be made available for industrial development in long term plans. There is a large number of activities ancillary to primary production that could be encouraged; for example wood packaging for crumb rubber etc., canning, livestock foodstuffs, starch manufacture, hides and leather goods and cooking oils. In aggregate these activities could benefit the economy and increase the scope and variety of employment.

The prospects for mining development are not encouraging. There are limited areas in both regions where further prospecting for tin is advisable, and recommendations have been made to the Geological Survey Department as to priorities and limits to the prospecting period. Protracted prospecting should not be allowed to hold up other forms of development.

2.6 Water Development

2.6.1 Introduction

The water resources of the project area and the probable demands and proposals for development are described in Supporting Report II. Project developments make no demands for water from outside the area, but considerable potential exists for meeting external water demands from project area resources.

2.6.2 Water Supply Schemes

Alternative schemes have been studied for meeting future demands up to year 2000 of:-

- (a) the supply areas of Kluang, Kota Tinggi, Pontian and Johor Baharu, and the Pasir Gudang industrial estate;

(b) the Public Utilities Board (PUB) Singapore intake on the S. Johor up to the limit of entitlement of the 1962 Agreement;

(c) proposed settlements and enterprises in the project area (described in chapter 5).

To meet all these demands, phased introduction of regulation storage will be required.

2.6.3 Storage reservoirs

Three storage reservoirs are likely to be needed. For the Kluang water supply it is proposed that a dam should be constructed on the S. Kahang. The reservoir should have a capacity of about 1,000 million gallons and would be needed about 1981.

For the regulation of the S. Johor, in order to maintain satisfactory low flow discharges and prevent saline water intrusion at the lower intakes, a dam is proposed on the S. Linggiu. Based on the full anticipated demand outlined in the Supporting Report, the reservoir should have a capacity of about 21,000 million gallons and would be required at the earliest about 1978.

The third dam is on the S. Lebam in Tanjong Penggerang and is required for water supplies to local areas including the anticipated demands of the tourist industry. The reservoir should have a capacity of some 450 million gallons and would be required about 1978, depending on the rate of project development.

Each of these reservoirs is conveniently sited as a recreational amenity. Although only the Lebam reservoir is for direct supply, it is recommended that all the catchments draining to these dams are excluded from agricultural development, which would impair river flow characteristics. Mineral exploitation in reservoir areas should cease about one year before the reservoirs are needed for water supply purposes.

2.6.4 Groundwater

Certain areas have been identified with limited groundwater potential. Groundwater investigations should be a part of any future water scheme studies in the vicinity of these areas.

2.6.5 Water Treatment

The most common contamination of water sources is likely to be sediment from mining development and chemicals from agricultural activities. Provided that reasonable control is exercised over the use of toxic chemicals in agriculture, no undue water treatment difficulties are envisaged.

2.6.6 Flood Mitigation

Methods of flood mitigation at Kota Tinggi have been studied and found uneconomic, as previously reported. It was recommended that consideration be given to the relocation of low lying dwellings.

2.6.7 Land Drainage

Due to the unsuitability of the deep peats of Tanjong Penggerang for agricultural use, no demand exists for major drainage schemes. Certain small areas, which can only be defined by detailed topographic survey, may require artificial drainage.

2.7 Summary

A broad estimate of the scales, costs and employment resulting from the proposed leading sector activities is given in Table 2.4.

TABLE 2.4 Broad Estimate of Total Sales, Costs and Employment in Leading Sectors

Sector	Item	Unit	1975	1980	1990	2000
Agriculture	Total Sales	\$ million	6.6	56.1	191.7	227.5
	Inputs (1)	\$ million	14.5	33.6	45.7	47.1
	Wages and salaries (2)	\$ million	13.4	30.6	47.5	49.6
	General workers (3)	Numbers	8500	18500	28000	29500
	Management (4)	Numbers	50	120	170	170
	Supervisory (5)	Numbers	80	200	280	290
Forestry*	Total sales	\$ million	11.8	11.8	-	-
	Inputs (1)	\$ million	5.2	5.2	-	-
	Wages & salaries	\$ million	2.6	2.6	-	-
	General workers	Numbers	500	500	-	-
Tourism	Total sales	\$ million	11.0	48.0	188.0	376.0
	Inputs (1)	\$ million	7.4	32.9	126.0	252.0
	Wages and salaries	\$ million	0.9	3.9	15.0	30.0
	General Workers	Numbers	600	2600	10000	20000
Total	Total sales	\$ million	29.4	115.9	379.7	503.5
	Inputs (1)	\$ million	27.1	71.7	171.7	299.1
	Wages and salaries (2)	\$ million	16.9	37.1	62.5	79.6
	General workers (3)	Numbers	9600	21600	38000	49500

*High processing alternative, but excludes sales of wood chips.

Notes:

- (1) Includes purchased materials and services,
- (2) Includes wages of manual labour required for land clearance,
- (3) Includes number of manual workers required for land clearance,
- (4) These posts call for persons at least the equivalent of graduates of the Serdang College of Agriculture,
- (5) These posts call for persons at least the equivalent of diplomates of the Serdang School of Agriculture.

CHAPTER 3

PEOPLE

3.1 Population growth and distribution

At present about 135,000 people live within and on the fringes of the two project areas; they are distributed as follows:

Towns	Kluang	61,000	
	Kota Tinggi	8,000	69,000
Large Villages	Rengam	3,000	
	Layang?	3,000	
	S. Penggerang	15,000	21,000
Rural Areas	Johor Tengah	30,000	
	Tanjong Penggerang	15,000	45,000

About 50 percent are Chinese, 32 percent Malay, 13 percent Indians, and 5 percent other groups. No figures are available for the areas to be developed; in the whole of Johor, more than two thirds of the rural population are Malays, about a third of the urban population and about half the total.

The background to the development of the project areas will be population increase and movement in the whole of Johor. Table 3.1 gives pre-census estimates for 1970 and two projections for 1990 of the numbers living in different parts of the State; the projections take account of the proposals made in Chapter 5. The total population is likely to increase from 1.4 million to between 2.4 and 2.8 million; the higher figure assumes migration into the State of Johor. The proportion living in towns with more than 10,000 people may grow from 35 percent to about 60 percent.

A rapid rate of urbanisation carries the danger of excessive concentration in a few main centres. The development of the project areas can contribute to a more balanced distribution of population than would otherwise occur, both by opening up new cultivated land and by creating new centres to bring some urban advantages closer to rural areas, thus checking the drift to the towns.

TABLE 3.1 Assumed population distribution in Johor

Settlement type	Place	1970	1990	
			Low	High
Regional centre	Johor Baharu	175,000	500,000	625,000
	City Region			
Major towns	Kluang	60,000	175,000)	
	Batu Pahat	70,000	150,000)	625,000
	Muar	70,000	150,000)	
	Segamat	30,000	75,000)	
		230,000	550,000	625,000
New and expanded towns	Johor Tengah	-)		
	Penggerang	-)	150,000	175,000
	Kota Tinggi	8,000)		
	Jemaluang (say)	-)		
		8,000	150,000	175,000
Other towns over 10,000 population		71,000	200,000	225,000
New rural areas		-	350,000	400,000
Existing rural areas		941,000	700,000	800,000
TOTAL		1,425,000	2,450,000	2,850,000
Total urban		484,000	1,400,000	1,650,000
Total rural		941,000	1,050,000	1,200,000

3.2 Employment and unemployment

Projections up to 1980 have been made in Supporting Report X in order to indicate how far the development of the project areas may contribute to the State's need for new jobs.

In 1970 about 10 percent of Johor's labour force of 500,000 were unemployed; the rate was similar to that for the whole of West Malaysia. About half the unemployed were between 15 and 20 and another 20 percent between 20 and 25.

In addition to the 50,000 unemployed, more than 20,000 school leavers are expected to be seeking work each year. Thus to achieve full employment by 1980, Johor would need another 250,000 jobs.

With the development of the project and other areas, employment in agriculture and tourism is expected to increase by about 36,000. Employment in the other leading sectors (manufacturing and mining) may increase by 35-45,000 (including a small allowance for increased commuting to Singapore).

A total increase of about 76,000 jobs in the leading sectors may be expected to generate some 100-120,000 jobs in the dependent sectors - construction, transport, administration, trade and other services.

Thus on present trends, the total increase in employment is unlikely to exceed 200,000. It will therefore be difficult to reduce the unemployment rate below 10 percent by 1980.

The development of the project areas will be responsible, directly and indirectly, for some 30-40,000 jobs by 1980 - about 25-35 percent of additional employment. By attracting people from the poorer parts of the State, the project areas will also help to reduce the incidence of rural underemployment, at present rather high.

Their development is thus essential to ensure that unemployment does not become worse, but further substantial investment in agriculture in the rest of Johor and in manufacturing industry will be needed to achieve a significant reduction in the unemployment rate.

3.3 Social studies

Sociological field studies were carried out in a variety of existing settlements, including FLDA schemes and traditional kampongs. Together with published material, they have helped the consultants to understand current problems and to establish objectives for the Master Plan.

These studies are among the most extensive of their kind yet done in Malaysia. It is strongly recommended that there should be continuing research of a similar kind in the project areas and in Malaysia as a whole.

The conclusions and recommendations summarised in this Chapter are fully described in Supporting Report VIII.

3.3.1 Economic situation and needs of potential migrants

The orang asli population of the area is very small and the areas where they live are proposed as forest and water reserves. It is best for the Government to continue its present policy towards these people.

It is clear that there are areas of acute poverty and deprivation in rural Johor, affecting Chinese and Indians as well as Malays.

A typical Malay family in South Johor seems to earn more cash income outside its own farm than on it; the very low incomes of the poorest households are usually due to the lack of opportunities for earning such "subsidiary" incomes.

Rural people, especially the very poor, tend to see private land ownership as the one condition for security, income and independence. This assessment is rational, given the alternatives known to them, though it is not necessarily the only way of achieving these objectives. The quest for security and independence goes a long way to explaining the general aversion from estate work, and to a lesser extent the relative popularity of government jobs and the low esteem in which agriculture is held by young people. The only young men predisposed to agriculture are those whose parents have experienced considerable security, some independence and at least the prospect of high incomes from agriculture - mainly those on FLDA schemes.

If people are to settle down in new rural areas, some of the attractions of urban life should be provided. This does not necessarily mean the "bright lights" (cinemas, restaurants, etc.), but primarily electricity, piped water, education, sports facilities and a choice of employment (see Chapter 5).

3.3.2 Problems of migration

Lack of information makes it difficult for potential migrants to form a rational assessment of the advantages and disadvantages of moving to a new settlement scheme. Recommendations to overcome this are made in the Supporting Report.

One of the chief difficulties of migration is the loss of educational opportunities for children. As well as ensuring good accessibility to schools, serious consideration should be given to subsidising school transport, books, etc.

Health and nutrition do not seem to be disincentives to migration though malaria is serious in newly-cleared areas, especially in Kota Tinggi District.

3.3.3 Social and economic problems of new settlements

It is a mistake to regard the problem of moving rural people (especially Malays) into high-income activities as one of transfer from a 'traditional' to a 'modern' environment, with a 'clean' break and a set of disincentives to stop them falling back into their 'old habits'. The main problem is not lack of motivation to improve their economic position; it is that of creating a situation in which existing motives can become effective.

It is vital in new schemes to emphasise contractual relationships in which the rights and obligations of individuals are clearly understood (see the important distinction between relations of "contract" and "status" in Supporting Report VIII).

The organisation of the villages should as far as possible be separate from the principal economic activity. Among other things, this implies that housing and employment should in general be the responsibility of different agencies and that homes should not be tied to jobs.

Settlers should be within easy access of a number of different employers or forms of self-employment. Advice and encouragement should be given on the development of ancillary activities (shops, taxis, etc.). Two kinds of involvement should be encouraged: representation at work (union, etc.) and participation in village administration (local councils, etc.). Education in agriculture in Johor should be improved from lower secondary level upwards.

3.3.4 Relationship of settlers to land development organisations

Some suggestions are made in the Supporting Report for the review of current practices on FLDA schemes, in particular -

- (i) Review some of the charges levied on settlers (especially on oil palm schemes), give them the option of taking a higher subsistence loan in the early years and remove the compulsion to pay into a replanting reserve fund.
- (ii) Make clear to settlers what compensation (if any) they are entitled to should they leave a scheme, and exactly how much they owe the authority at any point in time.
- (iii) Give settlers more opportunities for promotion on schemes.
- (iv) Make clear to settlers how oil palm schemes will be operated towards and after the end of the repayment period; and in discussion with the settlers on each scheme, prepare them for transition to individual or cooperative ownership.
- (v) Consider defined (and perhaps limited) arrangements for settlers to sell their rights in the land. This would encourage a flexible response to the growth of employment opportunities outside agriculture.
- (vi) Review selection criteria in the light of 1970 Census data.

The conclusions and recommendations in this Chapter have influenced proposals for village size and structure (Chapter 5) and for organisations (Chapter 6). They are important criteria for evaluating the alternative strategies (Chapter 7).

CHAPTER 4

OBJECTIVES

4.1 Objectives of national policy

The three objectives of the new economic policy are:-

- (i) reduction of economic disparities;
- (ii) creation of employment opportunities;
- (iii) promotion of overall economic growth.

These objectives apply specifically to the second Malaysia Plan (SMP). It is assumed here that they will also apply - though perhaps with changing emphasis - over the next 20 years during which the South East Johor Master Plan will be implemented.

The first NEP objective is taken to mean, in general, reduction of disparity in incomes between rich and poor and, within this, specifically, the reduction of economic imbalances between Malays and other ethnic groups.

The general interpretation of this objective implies that strategies should aim to improve the economic position of the poorest groups (with some but not exclusive emphasis on Malays). Strategies should therefore be concerned with increasing the share of these groups in total income, and with the creation of additional income-earning employment for the unemployed and underemployed.

The specific interpretation requires, in addition, measures to increase Malay participation in 'modern' sectors of activity - particularly in manufacturing, construction and commerce, all primarily urban activities. The proportion of Malays in these activities is much lower than their proportion in the whole population.

Within the limited range of activities that can be considered as profitable enterprises (in social resource terms) to introduce into the project areas in the 1970's, there seems to be little conflict between the three NEP objectives. All proposed developments contribute to growth and employment. Unemployment and underemployment are likely to continue in West Malaysia and Johor during this decade even if expansionary fiscal and

monetary policies are adopted. In these conditions, the creation of additional income-earning employment for the poorest groups helps towards the first objective.

The development of the project areas will be primarily agricultural in the 1970's and early 1980's. The creation of additional incomes and employment in agriculture will attract mainly the rural poor, the majority of whom are Malays, without necessarily restricting opportunities for rural poor Chinese and Indians. This will contribute to the reduction of income disparity between rural and urban populations and, provided that new agricultural production organisations are attractive to Malays, also to the reduction of disparity between Malays and non-Malays in a situation of continued unemployment.

4.2 Economic disparities between ethnic groups

Even if Malays receive the greater part of such an initial increase in incomes, development will lead to further increases in incomes in the industrial and commercial sectors in which Malays are not yet strongly represented. The longer term outcome could therefore be little or no decrease in relative economic disparity between ethnic groups.

In order to achieve a more lasting reduction in such economic disparity, therefore, additional measures will be needed:

(i) increase in participation of Malays in activities (mainly urban) which can offer relatively high incomes to workers and potentially rapid growth,

(ii) increases in the range and quality of saleable skills and experience (technical, managerial, entrepreneurial) of Malays at all levels,

(iii) financial arrangements which permit those initially with little or no access to capital gradually to acquire assets and to receive returns to capital,

(iv) measures to give residents in rural areas, the majority of whom are Malays, more of the advantages of living in towns, including greater diversity of occupation and better and cheaper access to education, and other urban facilities.

(i) and (iv) may require greater public sector participation in the development of urban activities and greater transfer of income to present settled rural areas.

In considering the application of these measures in the project areas, activities can be divided into three groups:-

(i) activities which are relatively new to all Malaysians and which require the development of new and varied skills as well as the employment of unskilled labour. These include the tourist industry, high quality cattle farming, some other new agricultural activities;

(ii) activities in which non-Malays now predominate as entrepreneurs and at managerial and technical levels. These include construction, some specialised farming, retail distribution, timber utilisation. Not much other industry is planned initially;

(iii) activities in which Malays and non-Malays are now both engaged - mainly agriculture, rubber and oil palm; and transport.

Group (iii) activities are discussed in the next section. For reduction of disparities between ethnic groups in the long term it is encouragement of Malay participation in the first and second groups of activities that will be most important.

In the first group the main step to securing substantial Malay participation at all levels of employment is to ensure that there is an adequate supply of Malays who have shown the required aptitudes and have had the necessary training and experience. This may need to be supported by conditions to require the employment of certain proportions of Malays in all grades; but ensuring the supply is the essential condition. This requires arrangements between the Government and those responsible for developing the new activities for the provision of training and opportunities to gain experience.

The second group of activities requires, in addition, institutional support by established private organisations or by public sector agencies in order to help new entrants into activities in which other groups are already strongly established.

The first group and some of the second group of activities can offer relatively high incomes to workers and opportunities for the development of skills. They also show potential for growth in the long run. In the project areas, the new agricultural activities can be introduced fairly quickly, but only on a small scale initially. Tourism, once started may develop rapidly; but this also seems unlikely to reach a substantial scale before the 1980's.

Only the third group - oil palm and rubber production - can be introduced with the certainty of providing large scale employment in the first 10 years of development. Oil palm and rubber production will contribute to the second and third NEP objectives of employment and growth and directly to the first objective of reduction of general economic disparities by providing additional incomes from paid employment on good terms.

4.3 Oil palms and rubber : implications for long term objectives

Investment in oil palms and rubber yields high social profit - i.e. it adds substantially more to real output and income than it costs in real resources. Rates of return at resource values and on fairly cautious assumptions are 18-25 percent p.a. Investment in oil palms and/or rubber should therefore go ahead in the project areas as quickly as possible.

On our main assumptions about prices, yields and wages that will have to be paid to attract labour, however, the private financial profitability of both is less than would normally be required by a large private investor. The difference between social and private profit arises largely from the high content of unskilled labour in both these industries and, to a smaller extent, from the export duties and other cesses on these crops. In a situation of serious and growing unemployment, the real cost to society of using this unskilled labour is small compared with the market wage which a private investor will normally pay.

Only if private investors adopt more favourable assumptions about yields and prices than those used in this Report or if measures of

encouragement are introduced, does it seem likely that substantial private investment by large investors will be attracted into development of new land in the project areas. One group of investors who will not require higher rates of return, however, are those who intend to develop the land with their own or their family's labour for little or no cash payment. Their outlay of capital in the form of cash will be much less than that of a private estate company paying labour to do the same work, and the rates of return on the smaller financial capital input will almost certainly suffice to repay with interest any loan which they may raise to develop the new land.

Development of production of these two crops can add to employment and growth of income at least as well as investment in other sectors. Their production is not only socially profitable: it also appears financially profitable enough for Government to invest very substantially - up to the limits of capacity to implement - even on unfavourable assumptions about prices and yields, in order to create employment. There is almost no risk of financial loss and there are possibilities of financial gain. This employment could provide incomes which compare favourably with those of industrial work with similar skill. Employment even at \$120 per month (the lowest basic wage assumed in estimates of private financial profitability) replacing unemployment or underemployment, would make a significant contribution to reduction of the disparity in per capita incomes between the rural poor, including Malays, and others.

But, with respect to the long term reduction of economic disparities between Malays and non-Malays, present estimates used in this Report imply that it is doubtful if oil palm and rubber production should be regarded as future "high income" activities in which Malays should now be especially encouraged to participate on a permanent and eventually independent basis.

The doubt arises partly from estimates that production of these crops is not highly profitable to private investors, and partly from the uncertainty and variability of future export prices. It applies especially to forms of organisation which, as they stand now, appear

inflexible - in particular, public sector settlement schemes. In these a settler receives a holding of a certain size which is expected to yield a relatively good household income over the life of the crop. This holding is intended to be permanent. It is possible that, in 15-20 years time, a settler's holding of 10 acres will yield a smaller income than could then be earned in employment for wages alone on a private estate or in urban activities. In that event, unless holdings are consolidated or the workers in a settler's household can find additional employment nearby, the aim of providing relatively good incomes will not have been achieved.

It must be noted, however, that the estimates used are based on fairly cautious assumptions about future prices and yields, and assume maintenance of present taxes and duties. It is quite possible that actual prices, yields and incomes will be higher - in that event, the settler will benefit, since he receives the whole income from his holding and not only wages. The unfavourable position described above is thus only one possibility; but it is a possibility which should be recognised and guarded against with this long term objective in mind.

These crops imply long term commitment for the owners of land. Flexibility of organisation is needed to avoid present decisions which effectively commit Malays, whose relative incomes it is one aim of policy to raise, to occupations and assets from which the incomes may turn out in the end to be lower than others.

4.4 Distribution of additional income

The Terms of Reference for the SE Johor study require special emphasis to be given "to the urgent need to improve the economic position of the rural population and minimise rural underemployment, commensurate with resettlement of the greatest number of people on holdings sufficient to provide reasonable incomes and to induce incentives for higher productivity and progress".

The emphasis here is on additional incomes or on raising incomes to 'reasonable' levels, rather than on providing additional full time work. The emphasis of the first NEP objective is also on incomes, as has

been that of public settlement schemes in the past decade. The size of FLDA holdings has been determined primarily by the acreage required to yield some 'target' income over time, on estimates of future prices and yields at the time of decision. Size of holding has been related only loosely to the acreage that could be worked by a settler and his household on a full time basis. The intention has been to give as many families as possible the "target" income, instead of distributing the whole of the income among the smaller labour force (and even smaller number of households) required to work the area in full time work.

Partial employment or underemployment of the working population brought into a public settlement scheme has been deliberately accepted as one of the consequences of sharing the expected income from the scheme as widely as possible. So have the additional immediate costs to public finance of putting new infrastructure etc. into the scheme area (instead of elsewhere) to meet the needs of the larger population.

It must be emphasised that the principle of spreading a given income from production as widely as possible, whether or not it means full time work for all recipients, can be applied in forms of organisation other than settlement schemes and it need not be confined to agricultural production. Any profit-making business (not only those run by cooperatives) can give shares in the profit to workers (and others) thus raising the incomes of full time or part-time workers above conventional full time or part-time wages.

It is necessary to consider how far this principle should be applied in the development of the project areas.

A given income from a productive scheme may be divided into 'target' incomes defined in several ways:-

The 'target income' may be:-

- an income per household or per worker,
- an income derived only partly from the scheme itself - i.e. it may be planned deliberately to include some additional amount assumed to be earned outside the scheme.

- a minimum annual income, below which the income in any one year should not be allowed to fall or an average income guaranteed over some longer period.
- a short term target income, which may be low as long as serious unemployment lasts, or a higher target income that appears likely to remain 'reasonable' in the long term.

Target income is, for the purposes of limiting this discussion, assumed to be derived wholly from the scheme, excluding any contribution from outside sources; and is also assumed to be high enough to attract workers into full or part time work.

There are three points to be taken into account in considering the application of the general principle to the project areas:

- 1) Four ways in which a given income from a scheme, after deduction of costs of inputs, capital charges etc., can be distributed are shown in Table 4.1. The minimum number of workers required for the scheme in full time work is shown as N; the larger number among whom the income might be distributed so that each receives the 'target' income is shown as $N + N^1$.

TABLE 4.1 Distribution of income from scheme

	Number of recipients on scheme	Number of recipients outside scheme	Income per recipient	Balance undistributed
A	N	-	above target income	none
B	$N + N^1$	-	target income	none
C	N	N^1	target income	none
D	N	-	target income	retained by agency

A distributes the income only among full time workers, not more widely. B and C distribute 'target' incomes to a larger number of people, but in different ways. In B all of the larger number spend part of their time in work on the scheme and all are in the scheme area. In C part of the larger number spend all of their time in work on the scheme; the remainder do not work on the scheme and need not be in or near the scheme

area. Payments to these others can take various forms - for example, payment for productive work on additional land clearance, town site preparation etc., payments for maintenance of youths under training, even (but this requires appropriate institutional channels) direct transfer payments of a social welfare kind.

C is more flexible and can allow for changes in the 'target' income over time. One possible serious disadvantage is that, if all recipients are not firmly attached to the scheme, the agency may not in fact distribute income to those outside either directly or through other channels. The effect is then as in D in which only part of the income is distributed; it is the worst of the four alternatives for the specific economic objective in mind - spreading 'target' incomes as widely as possible.

2) In the project areas investment in oil palms and rubber will not begin to yield income until towards the end of the 1970's. During the immature period, settlers on public settlement schemes receive loans for subsistence, repayable from later income. Loans to a larger number of settlers on a scheme could be matched by loans to the same number of

people of whom only part are on the scheme (as in C above). The total amount lent would be the same in both cases. But adoption of the smaller number on the scheme may lead to a reduction in the total amount lent during the period: the effect is then similar to D above.

3) Distributing income more widely by bringing into a scheme larger numbers than are required for full time work has the effect of deliberate creation of under employment initially. The alternative is to offer full time work on public schemes. This does not of course prevent underemployment from arising eventually in the area - the labour force in the area will rise over time through natural increase and voluntary movement, until the chances of getting a job and the degree of underemployment are about the same as in similar areas elsewhere.

Unemployment is likely to remain a problem in Johor for some time. The jobs which can be created in South East Johor, at least in the earlier stages of project development, will be largely in rubber and oil palm production. Comparatively few other employment opportunities will be available.

Given the widest possible spread of income as a desirable aim there are basically two choices;

- (a) Creation of deliberate underemployment on public oil palm or rubber farms or settlement schemes thereby employing more people (at 'target' incomes) than would be needed to work the schemes in full time employment, and
- (b) Provision of 'target' incomes on public schemes in full time work, distributing the balance of income outside.

The former is simpler to administer but can build up problems in the future because of the rigidity of the system, though some flexibility can be built in by making arrangements, for transfer or sale of settlers' rights.

The latter is a much more flexible approach, though the selection of recipients of surplus income for distribution outside the scheme presents difficulties. It would seem preferable that the agency directly responsible for the scheme should not control such distribution, unless the surplus is used to promote activities connected with the scheme as in FLDA youth or training programmes. If wider distribution than this is the aim, then either the proposed Development Corporation or the State Government should be the agency.

Adoption of either of these alternatives requires decision on the 'target', 'reasonable' income. In present conditions of unemployment an income of \$120-130 per month per full time worker may be considered appropriate.

4.5 Conclusions

The first NEP objective of reduction of economic disparities requires attention to be given to the shares of the poorest groups in income from production and to provision for Malay participation in activities offering potentially high incomes to workers.

Development of the project areas in the first 5-10 years will be based mainly on oil palms and rubber. The rapid development of both will contribute to the second and third NEP objectives of employment and economic growth and to the first NEP objective directly by providing additional employment on good terms. It is doubtful whether these are activities to which Malays should be specially encouraged to commit themselves now on a permanent basis. More flexible organisations are required in any case.

Greater emphasis should be placed on assisting and encouraging participation of Malays in the new activities in the project areas - new agriculture, tourism, timber utilisation. Towards the long term achievement of reduction of disparities between Malays and others, strong emphasis should also be given to training Malays for the industrial employment which is likely to be created in Johor (mainly outside the project areas) and to assisting their participation in industry and commerce at all levels.

The deliberate creation of underemployment in order to spread additional incomes as widely as possible has been discussed. It is suggested that similar wide distribution of income can be achieved without deliberate creation of underemployment in the project areas, if a more flexible approach - more difficult to administer - is used.

CHAPTER 5

DEVELOPMENT FRAMEWORK

This chapter summarises the physical planning proposals shown on the Draft Regional Development Plan. With minor variations, they are common to all the alternative strategies. They take account of strong physical constraints and of the social objectives set out in Chapter 3. Background studies are described in Supporting Report VII and the Supplementary Paper "Internal Planning Report".

The proposed framework is designed to promote the phased development of the project areas, to accommodate changes in behavioural and travel patterns as incomes increase and employment becomes diversified, to provide high standards of access to work, urban centres, and export and marketing outlets, and to stimulate the growth of urban activities and facilities.

5.1 Settlement system

The hierarchy of places serving the project areas comprises the regional centre (Johor Baharu), a subregional centre (Kluang), one existing (Kota Tinggi) and two new major service centres, five local centres and some forty to fifty large villages.

5.1.1 Villages

Villages of 2-3,000 people will give most families easy access to work and to basic facilities, especially schools, and will foster the growth of commercial services. It should be possible to locate each village within reasonable travelling time of several agricultural or other enterprises. Preliminary sites of 200-300 acres have been identified. An average residential density of four dwellings per acre is proposed to provide adequate gardens and minimise sewerage costs, together with compact layouts to promote social interaction and minimise road costs.

5.1.2 Local centres

Three master villages (population 4-6,000) are proposed in Tanjong Penggerang and two in Johor Tengah, each serving a group of 5 to 7 villages.

Besides housing agricultural workers, they would be local centres for transport, processing, distribution, marketing, social services, commerce, entertainment and recreation for the existing and new population within 5-8 miles.

5.1.3 Subregional and major service centres

The Draft Development Plan assumes the phased growth of Kluang to a population of 200,000 by 1990, and of Kota Tinggi to a population of 30-50,000, with the relocation on higher ground of people and activities now in areas liable to flooding.

Considerable parts of the project areas are more than 12 miles from either of these towns and their development will eventually require two new major centres, each serving a population of 60,000 or more. They could start as master villages and later become fully-fledged towns; land for long term urban expansion could be used initially for agriculture. These centres would be the main bases for construction and transportation in the project areas and land would be reserved for manufacturing industry.

The new town in Johor Tengah would contain the timber industries complex; the plan allows for growth to a population of 30-50,000. The new town in Tanjong Penggerang would be closely associated with the development of tourism; the plan allows for growth to a population of 60-100,000 in a group of linked communities.

5.2 Communications

5.2.1 Road transport

The road network for the project areas comprises regional roads and main distributors (both shown on the Draft Development Plan); harvest collector roads and local harvesting roads; links from the villages to the regional roads and main distributors; and local distributors and access roads within towns and villages. The preliminary standards and costs of each type of road are shown in the supporting report.

The final design standards and the phased construction of the road system will be decided in accordance with the estimated growth of traffic resulting from the selected strategy. In Johor Tengah, projects have been planned so that logging routes can form the basis of the future road system.

Improvements to some external main roads and town roads will be needed to handle traffic generated in the project areas, and estimates of the additional loads will be provided in the Master Plan.

Passenger and goods movements within the project areas and into and out of them will require considerable fleets of buses, taxis, lorries and tankers, and depots for their maintenance. They could be operated by private contractors sponsored by MARA.

5.2.2 Other transport

Exports and imports will be handled mainly at Singapore and the proposed new port at Johor Baharu. Water transport between the project areas and the ports would be uneconomical because of double handling.

Terminal points for a vehicle ferry across the mouth of the S. Johor have been identified; it should be established as soon as the level of traffic between Johor Baharu and Southern Penggerang provides an adequate social return.

Existing and planned airports and air services will meet the needs of the project area.

No major use of rail transport is proposed, but adequate access to existing services is provided.

5.3 Services

5.3.1 Electricity and telecommunications

The statutory authorities are advising on the provision of the high standard of service required to develop the project areas.

5.3.2 Sewerage

Houses in the villages, and initially in the new towns, would use the standard pit latrine, with septic tanks for grouped higher density uses. Town plans must allow for the later provision of sewerage pipes and treatment works.

There may be a need for legislation to control the discharge of trade effluents so that development in the project areas does not pollute the water supplies.

5.3.3 Village water supplies

The recommended supply system is to group the villages and supply each group from a separate run-of-river intake. In Penggerang a small direct supply reservoir on the S. Lebam would also be required at a later stage. Tentative layouts are shown in Supporting Report II.

For the reticulation system, it is proposed to adopt the practice in FLDA schemes with one standpipe to six families. It may prove possible in designing village layouts to reduce the number of standpipes and still provide the same level of accessibility. In the long term, people wishing for, and able to afford, individual connections should pay for them.

5.3.4 Housing

The Malay takes a great pride and interest in his home and garden. The variety of design, colour and decoration and the flowers and trees have created a rural environment of considerable character and charm.

The Malay tradition of rural housing, with the skilled use of timber and 'gotong royong' construction, is exceptional in the tropical world. It is important that the project areas should have the quality of housing and environment which the people have shown they can create quickly and at low cost. The success of MARA's rural housing has shown the possibility of integrating these traditions with industrialised methods of construction.

To provide for different family sizes, incomes and tastes, and to keep pace with rapid land development, settlers should be free to select from a variety of house types and to choose between entirely building their own homes, building them from pre-cut timber and/or prefabricated panels, or having them built by construction teams. These teams could be recruited in the west coast areas, particularly Malacca, where considerable reserves of skilled construction labour are available.

An organisation to coordinate housing in the project areas will be necessary. It will have to act as a channel for investment funds which could be obtained from both private and public sources, and which could be distributed, for public or private construction, as grants, loans, or mortgages to individuals and co-operatives.

5.3.5 Social services

Guidelines have been established for the provision of education, health, welfare, employment and rural development services in the new towns and villages. While based on present policies, they note deficiencies in existing standards that could affect the development of the project areas and incorporate suggested improvements.

5.3.6 Local commerce

There should be a programme to attract people of potential entrepreneurial ability to the project areas to staff local shops, markets, handicrafts and other commercial activities. Premises will have to be provided in advance and controlled initially by experienced people capable of training settlers for a full management and ownership role.

5.3.7 Implementation

The organisational, manpower, and plant requirements for project development have been examined in relation to existing capacity. Three conclusions should be emphasised:-

- 1) Priority projects already underway in Johor will absorb all available capacity until after 1975 for any new developments in the project areas.

ii) It is highly improbable that existing development agencies will have the number and quality of trained professionals to undertake the survey, design, and supervision of all the infrastructure works necessary.

iii) Bearing in mind other state construction projects, the equipment capacity of JKR is totally inadequate for the demands of project development.

To overcome this major constraint, a development organisation for the project areas is required. It will need to be free to obtain its manpower and plant requirements from any available source, including overseas. Programmes of technical assistance could be arranged to help in this major task.

CHAPTER 6

ORGANISATION: DEVELOPMENT AGENCIES

6.1 SE Johor Development Corporation

It is proposed that there should be an overall organisation for planning and control of implementation by the various agencies. This should be a public Development Corporation for the two project areas taken together. This Corporation should have full power to carry through the Master Plan and to execute it directly through its own organisation (e.g. engineering services) or through subsidiaries (e.g. new town corporations, public farms, financial institutions) or jointly with or through separate operating agencies (e.g. FLDA, the State Economic Development Corporation, private industry).

It is proposed that the Board of the Corporation should be a mixed Federal/State policy board, with Co-Chairmen: Menteri Besar of the State of Johor and Assistant Minister to the Prime Minister. The Corporation would have a full-time General Manager as chief executive.

Details of the proposed powers and organisation of the Corporation are given in Supporting Report IX, which includes discussion of the alternatives considered,

It is recommended that decisions be taken quickly on these proposals and that, if they are approved in principle, the General Manager be appointed at the earliest date to take part in the Master Planning phase, to begin work on the establishment of the Corporation and to initiate the most urgent development tasks.

6.1.1 Regional Planning

It should be emphasised here that the implementation of the Master Plan for the South East Johor Project, with which the proposed Development Corporation would be charged, will take place in the context of developments and changing conditions elsewhere in the State of Johor and in neighbouring States. Arrangements will need to be made for considering the implications for this wider region of the rapid rate of development in South East Johor, and for planning and controlling developments in the wider region as a

whole to ensure balanced and integrated development. This will require a regional planning effort, undertaken in greater detail and on the basis of more specific regional and local information than it has been up to now - except in the South East Johor Project itself.

It is therefore proposed that,

(i) When the SE Johor Steering Committee ceases to exist with the completion of the Master Plan, or earlier, the Federal and State Governments establish a small group of senior officers from Ministries and agencies concerned with the formulation of development proposals and their execution, to consider and make policy recommendations for the wider region.

(ii) The national planning units, in cooperation with the State of Johor and neighbouring States, continue and in time expand the collection and analysis of regional and local information required for such policy recommendations.

6.2 Agricultural production agencies

A range of public and private sector agricultural production agencies has been considered: five broad classes of agencies are discussed here. They are examined in more detail in Supporting Report VIII and in supplementary papers on sociological studies and on estates under public sector auspices. The combination of agencies used for implementation of development in the project areas can be adjusted to give various weights to short and long term policy objectives and constraints.

The five classes are:-

(1) Public settlement schemes: public sector estates set up with a definite commitment to transfer ownership of land to smallholders or cooperatives, normally in a fixed number of uniform lots or shares equivalent to 10 acres or less. In principle, settlers receive all income, after deduction of input costs, capital charges and taxes.

Agencies in this category are at present developing the largest acreage of new land; the main example is FLDA.

(2) Public farms: public sector estates which begin without any commitment to eventual transfer of land or to a fixed number of initial 'settlers', either in individual lots or to collective ownership. Their labour force is variable. It may be envisaged that in most cases the farms will eventually be transferred to private ownership. Such public farms can be the base for various different experiments in management, workers' participation and in transfer of control and ownership to employees and others. They can also incorporate established private expertise (and, possibly, capital) in various ways.

A public farm may adopt various policies on the distribution of income to its employees, ranging from the payment of a 'target income' to each, with the balance used for wider public investment purposes, to the full distribution of all income. For the purposes of summary comparison it is assumed that employees receive a 'target' income above an average estate wage, including some share of what would be 'profits' on a private estate, in cash or in additional services.

(3) Private estates over 100 acres. Workers receive wages or salaries. Profits are retained by the owners, whether individuals or companies.

(4) Private smallholdings, including 'small smallholdings' of up to 10 acres and larger smallholdings or family farms ranging in size up to 100 acres. Family workers receive all income apart from wages to casual labour.

(5) Privately financed cooperatives, in which the agricultural workers are the members of the cooperative society. Members receive all income.

The distinction between the public and private categories lies in the source of initial finance and the auspices under which they are first set up. Many, perhaps most of the public schemes will eventually become private, some quite rapidly. The purpose of public settlement schemes, for example, is to help smallholders or cooperators to establish cultivation on new land, which they will eventually own and manage independently.

The amount of public sector assistance, control over management and finance supplied can range from the full provision of services and finance as by FLDA down to provision of loans to groups of experienced farmers in cooperatives, with limited public supervision.

6.2.2 Evaluation: organisations and objectives

The table at the end of this section ranks these classes of agricultural production agency according to their contribution towards objectives. The following paragraphs briefly explain the criteria used.

It is here assumed that all classes of agency can and do maintain high standards of cultivation, obtaining similar values of output per acre for any given crop. From this it follows that entry into class 4 - private smallholdings - is assumed to be limited to those who already have the skills and capital to achieve such standards. Public settlement schemes, public farms, private estates and cooperatives are assumed to be able to invest sufficient capital and to employ competent management.

Reduction of economic disparities

To bring rural poor, the majority being Malays, with little or no capital and often with little previous knowledge or experience, into satisfying work in modern agriculture requires a 'package'. This 'package' must include capital, management and terms and conditions which satisfy realistic aspirations for higher incomes, security, some independence and asset ownership. FLDA schemes offer land ownership with a package of credit, management, training, services, house and a prospect of relatively high incomes. But schemes which offer land ownership alone with little or no supporting package provide much less prospect of satisfaction to those with little capital or previous skill. Employment on private estates also offers a package of capital and management, but often with little security or independence.

Public farms with a variable labour force do not offer prospects of land ownership, at least in their early stages. They must therefore offer 'packages', including capital and management, which are attractive in different ways - reasonably good incomes from the start, security

(through guaranteed employment, pension schemes), some degree of independence or participation in control, asset acquisition (e.g. through share issue) etc.

Items 1-5 in the table are concerned with the extent to which the different classes of agency meet the need for capital and management and the aspirations of workers. The rankings for private estates are lower than would apply to the best employers.

One point requires comment: items 2b and 2c are - "initial incomes per worker and per household". Incomes during the immature period are wages for fulltime work on private estates and equal or greater incomes on public farms. Both can employ more than one worker per household. On public settlement schemes under current practice, the initial incomes (including personal loans) are low: \$70 per month per household on FLDA schemes and even lower on the "low cost family settlement schemes" proposed for the SMP. At best these low incomes do not improve the economic position of new settler households. Most of the new developed land in the project areas will be under immature crops in the period to 1980. Areas under public settlement schemes will directly contribute nothing to the first NEP objective during the 1970's unless initial incomes are raised.

Item 6 refers to the selection of workers. This should be largely self-selection, by ensuring that production agencies will attract those whom development is intended to benefit - rural poor, Malays, youth. Further selection is possible in public agencies, which can control proportions of ethnic groups to ensure adequate participation of Malays or other groups. Public control over selection of workers on private schemes becomes difficult after approval of the first owner of the land.

Employment and growth

Items 7-10 are concerned with employment, innovation, and flexibility of land/labour proportions, which affect long run growth potential.

The amount of additional employment (measured in terms of full time jobs) in agriculture and the growth of production and income should be similar for public or private enterprises on any given planted acreage. Rate of growth overall depends on the rate of land development. Large private estate companies are capable of developing land as rapidly as public agencies, but will only do this if new land development appears to be profitable enough.

Deliberate creation of underemployment and wider distribution of income among more people than are required for full time work can be introduced under public agencies but not, effectively, under private agencies.

Management and Innovation

Private estates run on a commercial basis, especially when profits are not easy to maintain or increase, have strong incentives to employ efficient management, to adapt quickly to changes in markets and to adopt innovation in production techniques, processing and marketing. All these considerations apply now, and are likely to apply with possibly greater force in the future, to cultivation of oil palms and rubber. Independent smallholders have similar incentives but less capacity to keep up with trends: really small farmers need an effective external extension service.

Established private estate companies may also have considerable advantages, both in recruitment and effective use of management staff. Public sector agencies, particularly newly established ones, may have difficulty in attracting suitable staff even if they offer market terms, as they should.

There may also be less incentive for management on public sector schemes to maintain the highest production standards and they may be much less liable to take risks in innovation. If they do not maintain standards and constantly pursue improvements, they will be unable to expand full time employment or to fulfil their training function. The fact that public sector agencies can maintain high productive standards and pursue innovations is demonstrated by the record of FIDA, which illustrates both the problems and the potential.

For both oil palms and rubber, and probably for the new agricultural enterprises under consideration, many or most of the management advantages of private estates can be obtained by public sector agencies through the employment of managing agents on suitable terms.

Constraints of personnel and public finance

Present apparent scarcity of management and other skilled staff implies a preference for forms of organisation which economise on these inputs. Independent smallholding farmers provide their own management of cultivation (in response to market indicators) with a relatively small current input of technical advice from outside; but they must be skilled, if high standards are to be maintained.

All the other classes require similar numbers of managers and supervisory staff for similar numbers of workers.

It may be possible to effect economies of management per acre on new schemes managed by FLDA and similar agencies by narrowing the range of the managers' responsibilities to matters connected with production, by separating off administration of housing and the village, and by reducing the number of settler households to that which can supply the required labour (i.e. reducing the deliberate creation of under employment).

In the known crops of oil palms and rubber it is probable that serious shortage of managerial personnel for the accelerated national land development programme can be overcome within a few years by appointment now of additional trainees on FLDA schemes and private estates, at Government expense.

A desire to limit immediate public finance requirements may lead to a preference for privately financed agencies and for schemes initiated by the public sector with little assistance from public funds. While the immediate finance requirement is important for purposes of annual budgetary provisions, it must be stressed that it is misleading if taken as a measure of the "cost to public finance". When this is measured over time, by the net present value of public finance flows, the result in most cases is a gain to public finance - i.e. the investments are profitable

to Government revenue. Ranked in order of descending gain to public finance are: - private estates (without tax concessions), public farms which retain a proportion of income for public sector purposes, other public farms and settlement schemes. By this measure, smallholders schemes which are partly assisted by public grant are the most costly, apart from "cheap" schemes in which initial inputs are reduced so far that they require rehabilitation later. (See supplementary paper on Land Development and Public Finance).

Comparison of Agricultural Production Agencies

	<u>Public Settle- ment</u>	<u>Public Farms</u>	<u>Private Sector Farms</u>		
			<u>Estates</u>	<u>Small- holdings</u>	<u>Co- operatives</u>
<u>Reduction of economic disparities</u>					
1. Outside agency supplies initial management and capital	yes	yes	yes	no	no
2. Income levels and distribution					
a. proportion of income distributed to workers	all	high	wages only	all	all
b. initial income per worker	..	..	..	none from land	..
c. initial income per household	..	..	..	none from land	..
later income per household -					
d. when crop price high	....	....	..	....	....
e. when crop price low	.	..	..	.	.
3. Security	..	..	..	..	..
4. Independence/control at work - initial	.	.	.	....	....
- eventual	....	..	.	....	....
5. Asset acquisition in time	....	..	.	....	....
6. Selection of workers					
a. self-selection Malays without capital	....	..	.	n.a.	n.a.
b. further public authority selection	yes	yes	no	n.a.	n.a.
<u>Employment and growth</u>					
7. Under-employment possible	yes	yes	no	yes	yes
8. Ease of introduction of innovation/diversification	..	..	..	.	.
9. Flexibility of land/labour proportions	..	..	..	..	..
<u>Inputs</u>					
10. Public - finance					
a. gain to public finance over time	.	..	....	..	..
b. initial cost to public finance	....	..	..	.	.
11. Management input required	..	..	..	..	..
KEY: ranked highest					
. ranked lowest					

6.2.3 Conclusion

Public agencies have advantages for reducing disparities: they provide capital and management, they can ensure that income is widely spread, and they permit control over participation and the long-term ownership of land. Public agencies, and the public farms in particular, can also allow for trying out in practice different methods of organisation and transfer of control and ownership.

It is important however to recognise the merits of private agencies in land development. The strategies outlined in the following chapter allow for various degrees of public and private participation; but all include substantial development by private agencies in order to provide scope for all interests and initiatives, to obtain a fast rate of development, and to provide variety of employers and forms of self-employment.

6.3 Other Sectors

6.3.1 Forestry

A number of recommendations are made in Chapter 2 for new enterprises in logging and forest industry. In view of the great importance of expeditious and thorough logging, an organisation is proposed in which Government participates with local interests and possibly an experienced overseas firm. The new modern sawmill suggested for producing high value items should also be established and owned by the Government, (and possibly the State Economic Development Corporation if it has access to capital), but operated by specialist managing agents. Several very important technical and marketing studies should be undertaken either by Kepong or the commercially oriented experimental unit proposed for the project area. These include chipping residual timber, the manufacture of block board from smaller trees and chipboard.

6.3.2 Tourism...

A special organisation will be needed if rapid growth of tourism is to be achieved, if high returns to State and Federal Governments are to be secured, and to attain the desired high level of Malay participation

in management, professional and entrepreneurial functions. It should also be responsible for promotion, monitoring, research, training and for attracting and settling terms with developers. It is considered that these functions can be best covered by establishing a special (tourism) section in the proposed Development Corporation, employing managing agents for at least the first five years.

6.3.3 Financial institutions

The additional financial institutions or channels which will be required, and the extent to which private sources of finance can be used - for housing, for example - will depend on decisions arising out of this Report. Financial institutions which may be appropriate and necessary must be dependent on the main types of development agency selected and, in particular, on the establishment of the proposed Development Corporation. It will be necessary for master planning guidelines to be agreed before specific proposals in this context can be worked up.

CHAPTER 7

ALTERNATIVE STRATEGIES

Strong constraints on the patterns of economic and physical development reduce the number of variables that have to be considered in preparing alternative strategies for the project areas. The main outstanding variable is the mix of the various types of land development organisations discussed in the previous chapter. Different mixes may produce differences in rate of growth, employment, income distribution, participation, and other dependent variables.

7.1 Common characteristics

All the strategies described below share the following features -

- (i) A pattern of activities broadly similar to that described in Chapter 2, including the introduction of the new activities at an early stage.
- (ii) A pattern of settlements, communications and infrastructure broadly similar to that described in Chapter 5.

Some variations are possible in these components; they do not affect the choice of strategy but do provide necessary flexibility in the implementation of any strategy.

Coordination of all agencies and activities by the proposed South East Johor Development Corporation is assumed in all strategies.

A number of common assumptions on output, costs and labour participation have been made in evaluating the results of the alternatives; they are described in Supporting Report No. XII.

7.2 Alternative strategies

The principal factor affecting the degree of achievement of the various objectives discussed in Chapter 3 and 4 will be levels of public and private participation in the development of land in the project areas. There are therefore two basically contrasted strategies - one with a relatively high level of public participation (75 percent), and one with

a relatively low level (40 percent). The results of adopting other ratios can be broadly gauged by interpolation from the data presented below. The level of participation is defined as the share of agricultural production by public or private agencies.

Two other important variables are -

- (i) The mix of organisations within the public sector.
- (ii) The employment/income distribution policy of the public sector.

Variations in these components have significant effects only with a high level of public participation. Hence there are four alternative strategies:-

- 1 75 percent public, existing organisations, mainly FLDA
- 2A 75 percent public, high proportion of public farms, fulltime work
- 2B 75 percent public, high proportion of public farms, deliberate partial employment.
- 3 40 percent public, 60 percent private.

The principal differences between the strategies are:-

- (i) Strategy 1 assumes continued use of existing organisations and methods of land settlement. This provides a starting point for comparison.
- (ii) Strategies 2A and 2B assume that FLDA moves gradually towards concentration on clearing and planting new land, after which it transfers the greater part to other agencies. In these strategies half the total production is assumed to be under the public farms proposed in Chapter 6.
- (iii) In strategy 2A public farms (and as far as possible, settlement schemes) are assumed to employ only the numbers required for fulltime work; in strategy 2B both are assumed to share income among larger numbers on the schemes, deliberately creating underemployment (see Chapter 4.4).

(iv) In strategies 2A, 2B and 3, the private share is assumed to be divided equally between smallholdings and estates. In strategy 3 the high private share is assumed to require some incentives not necessary in the other strategies.

7.3 Implementation

Assumptions about implementation are explained in this section and in Supporting Report No. XII.

Strategy 1 assumes no change in organisation or methods. Seventy-five percent of the area would be developed by FLDA (with small areas under FICRA), the remainder under GSA schemes, with areas for the new activities under joint ventures and private estates. FLDA would develop 15,000 acres per annum to a total of 208,000 acres, in addition to the 54,000 acres already cleared or planted by FLDA in the project areas.

Strategies 2A, 2B and 3 all combine public farms, public settlement schemes, private estates and private smallholdings (up to 100 acres) in various proportions, as shown in Table 7.1. Cooperatives may develop on the public schemes, or with private finance as estates.

TABLE 7.1 Proportions of final production (percent)

	<u>2A and 2B</u>	<u>3</u>
Public farms	50	20
Public settlement schemes	25	20
Private estates	12½	30
Private smallholdings	12½	30
Total (assumed 285,000 acres)	<u>100</u>	<u>100</u>

Public farms may be established under the auspices of the South East Johor Development Corporation itself, State Economic Development Corporation and/or a new Federal public farm agency, using managing agents initially. Some might be established by FLDA: but the advantages are doubtful. Even if established under one agency, they should be designed to develop various forms of internal organisation.

Public settlement schemes are seen as mainly FLDA with modifications to current practice as suggested elsewhere in this Report. Such schemes are assumed where possible to be located near outside employment opportunities in estates or towns.

It is assumed, in strategies 2A and 2B, that in the development period up to 1975 a greater proportion of the land is developed under settlement schemes than in later periods. From 1974 or 1975 onwards it is further assumed that FLDA will continue to organise the clearing and planting of a large part of the areas, but will transfer perhaps two-thirds of the developed land to other agencies.

Private estates and smallholders are assumed to develop 70,000 acres (in 2A and 2B) or 170,000 acres (in 3). The assumed approach to this private development is as follows. With the agreement of the State Government the South East Johor Development Corporation will allocate areas for private development without restriction on size of holding and a wider choice of crops. The total area offered at any time should be relatively large. If land is taken and developed quickly, this may suggest alterations in the planned public/private sector proportions. If land is taken slowly, it will be necessary for public agencies to take over development of some of the allocated areas and for incentive policies to be reconsidered.

In strategy 3 (60 percent private) it is assumed that private development is stimulated initially by the availability of land itself and by public expenditure on land development, regional roads and other infrastructure, and that additional injections of public expenditure are given when further stimulus seems necessary. Most of the additional incentives which might be considered are matters of national policy and cannot be applied only in the project areas. But it is assumed in strategy 3 that the public sector undertakes some land clearance and provision of harvest roads and village sites, particularly for smallholders.

7.4 Evaluation

It will be clear from earlier sections of the report, and especially from chapters 4 and 6, that the choice of a strategy involves many

uncertainties and conflicting considerations. The precise outcome of any strategy will depend upon many decisions made in the course of implementing it. In Table 7.2 the strategies are ranked against a number of criteria in accordance with what is considered to be their most likely outcome. The ability to respond adequately to changing needs and conditions is itself one of the criteria for selecting the best strategy.

A high public share in development seems essential, in the first stages at least of the development of the areas, for the achievement of the national objectives and, in particular, to retain public control over the distribution of income, employment and eventual land ownership. Rates of growth of production and employment are assumed to be similar in all strategies; but they are more uncertain in Strategy 3. This strategy ranks lowest in terms of reduction of economic disparities. Provided that the assumed rate of development is considered privately profitable, the initial input of private finance is larger than in other strategies. The gross input of public finance is therefore smaller - though by less than in proportion to the decline in the public share of production and returns from investment. This difference between sources of finance sums up an essential difference between strategy 3 and the others - strategy 3 emphasises development by and for those who now have capital whereas the others emphasise development by and for those who now do not have capital.

National capacity for land development must be increased to meet the targets of the accelerated land development programme. The choice of the form that increase should take will influence the choice between strategies 1 and 2A and 2B. Strategy 1 effectively assumes that capacity is increased with no new form or method of agricultural development being introduced. Strategies 2A and 2B introduce a new and adaptable form of public agricultural production agency and innovations in methods of settlement; they assume that FLDA gradually moves towards concentration on planning and implementation of development of new land, transferring the greater part of the land once developed to other agencies.

Strategies 2A and 2B point directions of approach: they are flexible enough to allow changes of emphasis as implementation proceeds. They have

enough variety of forms of organisation (all have diversity of crop) to allow and encourage entry by all groups, including those who want land and those who seek employment. Greater emphasis in SMP in settlement scheme (e.g. FLIDA continuing as throughout SMP period) avoids disturbance of already decided programmes, continues present recognised and attractive forms of development, allows time for new organisations to be established to manage public farms and for correct information about the advantages and disadvantages of different forms to be disseminated. Allocation in the early stages of substantial amounts of land in designated areas for private agencies gives ample scope for rapid private development. Allocations of land in later periods can be revised in the light of the effective interest shown in the early stages.

The main form of agency proposed for strategies 2A and 2B - the public farm - is as yet largely untried. It is essential that public farms be well managed and that their objectives be clearly specified and realistic. If these and other conditions are met, they can provide bases for a variety of forms of internal organisation. The strategies and the form of agency are flexible enough for the emphasis to be revised as development proceeds.

The difference between strategies 2A and 2B lies in the deliberate creation or acceptance of underemployment on public schemes in 2B but not in 2A. 2B aims at wider distribution of income from a scheme among recipients on the scheme. The same general objective of wider distribution can be achieved, as explained in Chapter 4.4, by using the balance remaining after paying target incomes to fulltime workers for additional wider public investment or other purposes. Provided that the balance is so used, so that the income is distributed equally widely though in different ways, 2A (fulltime work) is preferable.

A comparison of the figures for labour force available and labour requirements in agriculture in year 20 illustrates one reason for this preference. Jobs in other sectors, in the same rural areas, will be available only for a small fraction of the spare labour. In 2B either rural underemployment becomes severe or emigration from new villages takes place, within the first twenty years.

The provision of fulltime work on public schemes by matching recruitment to labour requirements, as in 2A, does not prevent the appearance of underemployment, through voluntary immigration and natural increase. But if most of the working population of a new area have been initially attracted by definite employment, in the first stages there will be little or no local unemployment. There are clear advantages in establishing new settlements in which a high proportion of the working population are employed from the start, and receiving incomes at least as high as in similar work elsewhere. Not least is the gain from creation of an atmosphere of high activity in the area. This point may be particularly important in the early stages of development of the project areas, before activities outside the main crops of rubber and oil palms have had time or opportunity to develop to give diversity.

Finally, the additional number of job opportunities (in part-time work) resulting from deliberate creation of underemployment is relatively small, unless the principle is extended to other sectors besides agriculture.

Strategy 2A (High public, full-time work) is recommended.

TABLE 7.2 Comparison of Alternative Strategies : Agricultural Production

		Existing Organisations		High Public		High Private			
		1		2A		2B		3	
Public proportion		75%		75%		75%		40%	
ITEM	Year	10	20	10	20	10	20	10	20
1. ACREAGE CLEARED (CUMULATIVE)	Thousand acres	198	285	215	285	215	285	215	285
2. GROSS SALES	Million dollars	67	190	73	190	73	190	73	190
3. LABOUR REQUIREMENTS IN FULL TIME WORK	Thousand jobs	13.2	25.3	16.5	27.1	16.5	27.1	16.5	27.1
4. LABOUR FORCE AVAILABLE	Thousand	19.4	48.2	16.5	34.9	23.1	48.9	16.5	34.9
5. HOUSEHOLDS	Thousand	10.2	20.0	8.7	14.3	12.2	20.0	8.7	14.3
6. GROSS PUBLIC FINANCE INPUT	Million dollars								
7.1	Years 1-10	300			330		350		280
7.2	10-20+	310			260		270		180
7. Reduction of economic disparities									
a.	Development by those without capital	***			***		***		*
b.	High share of income to workers	***			***		***		*
c.	Comparative income per worker	**			****		*		***
d.	Workers' incomes during 1970's	*			***		***		**
e.	control over Malay share in employment	***			***		***		*
f.	Retention of public or Malay share in land ownership	***			***		***		*
8.	Choice of Employer	*			***		***		***
9.	Housing separate from employment	*			***		***		***
10.	Flexibility	*			***		**		***
11.	Management and Innovation	**			**		*		***

Notes on Table

Dates are expressed as Year 1 ... 10 ... 20. The present planning assumption is that implementation will begin promptly in 1972 as Year 1.

1. Acreage cleared (cumulative)- Thousand acres:

These are areas cleared by contractors; The areas settled by permanent population will be smaller at the dates shown. Very similar rates of development have been assumed under all strategies; the rate of strategy 3 is subject to greater uncertainty than that of the others.

2. Gross Sales of agricultural produce - Million dollars: common to strategies 2A, 2B, 3.

3. Labour requirements in fulltime work - Thousand fulltime jobs in agriculture only: common to strategies 2A, 2B, 3.

4. Labour force (cumulative) - Thousands: associated with agriculture. These figures assume entry of new households to newly developed areas, for fulltime or part-time work in agriculture only, and increase in numbers of potential workers per household over time. No allowance is made for other immigrants, nor for emigration.

5. Households (cumulative) - Thousands: assumptions as in 4.

6. Gross public finance input - Million dollars: Total agricultural development costs are the same in all strategies. Total costs of housing and infrastructure vary with population: in 1, 2A and 2B all infrastructure and the bulk of housing is assumed publicly financed. In 3 some village infrastructure and all housing for workers on private schemes is assumed privately financed. They are gross figures of the public finance input required. They take no account of return flows receipts of loan repayments and interest, taxes, duties, rents etc. (See note on public finance at end of Chapter 6.2). The figures show the public share of initial investment in the four strategies and are rounded. They are again purely comparative figures based on common assumptions - actual figures will depend on the number and financial structures of the various agencies.

The strategies are ranked against criteria 8-13 by the symbols

*** : highest, * : lowest.

TABLE 7.2 Comparison of Alternative Strategies : Agricultural Production

		Existing Organisations		High Public		High Private			
		1		2A		2B		3	
Public proportion		75%		75%		75%		40%	
ITEM	Year	10	20	10	20	10	20	10	20
1. ACREAGE CLEARED (CUMULATIVE)	Thousand acres	198	285	215	285	215	285	215	285
2. GROSS SALES	Million dollars	67	190	73	190	73	190	73	190
3. LABOUR REQUIREMENTS IN FULL TIME WORK	Thousand jobs	13.2	25.3	16.5	27.1	16.5	27.1	16.5	27.1
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5. HOUSEHOLDS	Thousand	10.2	20.0	8.7	14.3	12.2	20.0	8.7	14.3
6. GROSS PUBLIC FINANCE INPUT	Million dollars								
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7.2	10-20+		310		260		270		180
7. Reduction of economic disparities									
a.	Development by those without capital	***		***		***		*	
b.	High share of income to workers	***		***		***		*	
c.	Comparative income per worker	**		****		*		***	
d.	Workers' incomes during 1970's	*		***		***		**	
e.	control over Malay share in employment	***		***		***		*	
f.	Retention of public or Malay share in land ownership	***		***		***		*	
8.	Choice of Employer	*		***		***		***	
9.	Housing separate from employment	*		***		***		***	
10.	Flexibility	*		***		**		***	
11.	Management and Innovation	**		**		*		***	

Notes on Table

Dates are expressed as Year 1 ... 10 ... 20. The present planning assumption is that implementation will begin promptly in 1972 as Year 1.

1. Acreage cleared (cumulative)- Thousand acres:

These are areas cleared by contractors; The areas settled by permanent population will be smaller at the dates shown. Very similar rates of development have been assumed under all strategies; the rate of strategy 3 is subject to greater uncertainty than that of the others.

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4. Labour force (cumulative) - Thousands: associated with agriculture. These figures assume entry of new households to newly developed areas, for fulltime or part-time work in agriculture only, and increase in numbers of potential workers per household over time. No allowance is made for other immigrants, nor for emigration.

5. Households (cumulative) - Thousands: assumptions as in 4.

6. Gross public finance input - Million dollars: Total agricultural development costs are the same in all strategies. Total costs of housing and infrastructure vary with population: in 1, 2A and 2B all infrastructure and the bulk of housing is assumed publicly financed. In 3 some village infrastructure and all housing for workers on private schemes is assumed privately financed. They are gross figures of the public finance input required. They take no account of return flows receipts of loan repayments and interest, taxes, duties, rents etc. (See note on public finance at end of Chapter 6.2). The figures show the public share of initial investment in the four strategies and are rounded. They are again purely comparative figures based on common assumptions - actual figures will depend on the number and financial structures of the various agencies.

The strategies are ranked against criteria 8-13 by the symbols

*** : highest, * : lowest.

All these figures are intended only to illustrate possible orders of magnitude for comparison between strategies. They relate only to agricultural production and to the labour force and population associated with it. The other developments proposed for the project areas are common to all strategies.

7.5 Overall results

Tables 7.3 and 7.4 set out the possible effects of the proposed developments on employment and population in and adjoining the project areas.

A proportion of the service jobs created indirectly by project developments and the population they support will be located in the established towns and large villages on the fringes of the project areas.

About half of the additional employment by 1990 would be in agriculture. After 1990 continued growth of tourism and related services would provide additional employment for the increasing labour force in the areas. The majority of the new population entering the areas initially for employment in agriculture may be assumed to be Malay. Provided that steps are taken to provide training and to assist entry into tourism and services Malay participation in these mainly urban activities can be ensured.

TABLE 7.3 Projected Employment and Population in Project Development Areas: 1990

Jobs in	(i) Leading sectors (agriculture & tourism)	38,000
	(ii) Services (medium estimate)	22,800
		<hr/>
Total employment		60,800
		<hr/>
Households (medium estimate)		27,600
		<hr/>
Population		166,000
		<hr/>

NOTE: The total employment multiplier from leading sector jobs has been estimated at between 2.2 and 2.4. Thus, the total number of jobs likely to be created by 1990 in W. Malaysia by project developments is likely to be between 83,600 and 91,200

TABLE 7.4 Projected population in South East Johor : 1990

Major centres

Kluang and Kota Tinggi	225,000	
New towns in project areas	70,000	
	<u>295,000</u>	62 percent

Minor centres

Existing and proposed large villages	23,500	
New master villages in project areas	17,500	
	<u>41,000</u>	8 percent

Rural settlements

Existing villages	45,000	
Developments already proposed	17,500	
Project developments	78,500	
	<u>141,000</u>	30 percent
Total population	477,000	100 percent

- (a) allocation of land for development purposes.
- (b) the estimated amount of water and electricity for development.
- (c) arrangements with occupying agents for public works (assuming these are accepted).

CHAPTER 8

DECISIONS NECESSARY FOR MASTER PLAN PREPARATION

8.1 Introduction

In the foregoing chapters an outline of the resource base, possible development activities and alternative strategies for overall development have been presented. It is necessary, before the Master Plan can be prepared, to select a strategy or combination or modification of the strategies presented. Further financial and economic evaluations must be carried out and organisational proposals must be refined. Their nature and extent will depend upon a series of decisions in regard to various components of the strategy selected. Decisions associated with projects recommended for early implementation are particularly urgent.

8.2 The Implementing Agency

It has been assumed that the target date for starting development will be 1st January, 1972: an early start seems clearly necessary. If an orderly start is to be made, it must be emphasized that certain major decisions require to be taken much earlier than January 1972, bearing also in mind the need to lay foundations for effective long term implementation.

It is the consultants' strongly held view that foremost amongst these decisions is the establishment of a Development Corporation to provide and maintain the stimulus necessary for the implementation of the Master Plan and to coordinate the wide range of participating agencies and the complex of interdependent operations over a period of, perhaps, twenty years. Not only is a decision required to establish what has been termed the South East Johor Development Corporation, but its form and role need to be determined without delay. Its early establishment and commencement of operations are essentially linked to several features of development, including:

- (a) allocation of land for development purposes.
- (b) the coordinated removal of timber and clearance of land for development.
- (c) arrangements with managing agents for public farms (assuming these are accepted).

- (d) arrangements with managing agents for development of tourism.
- (e) the provision of housing.
- (f) the timely provision of roads, water supplies and other public facilities in accordance with agreed plans.

The selection and appointment of the Corporation's senior executive is a matter of urgency, since it is desirable that he should have the opportunity of participating with the Consultants in the preparation of the Master Plan. It is recommended that this appointment should be made as soon as possible and preferably not later than April 1971.

8.3 Priority projects for early implementation

The terms of reference require selection of priority projects for early implementation. These are diverse in nature and require coordination by a strong central authority. They comprise essentially:-

8.3.1 (a) The establishment at an early date of organisations and facilities to utilise and obtain maximum benefits from the timber resources. Proposals have been put forward for logging and processing of marketable and potentially marketable species in Johor Tengah and the use, for chipping, of residual timber from that area and Tanjong Penggerang. Decisions whether to adopt these proposals, and in particular to define the role of participants, are immediately required. Experience in West Malaysia has demonstrated the importance of timely decisions on such points if timber supplies are not to be wasted, and obstacles to planned agricultural and infrastructural development are to be avoided. Provision has been made for logging and processing to commence in three years' time (1974). A start on processing could be delayed a further six months by stacking some of the timber (Red Meranti specifically) from six months' coupe in preparation for the production of high priced mouldings.

(b) An early and detailed study, to be completed by September 1971, of the opportunities for disposing of residual timber for chipping, so that the potentially high total value of this resource can bring benefit to the area.

(c) Review of and decisions on future policy in regard to premium and royalty collection from logging in order to encourage greater extraction and utilisation and to increase public revenue for development and other purposes. Special recommendations have been made in chapter 2.

8.3.2 An early and detailed study of the viability and early development possibilities of a tourist centre in Tanjong Penggerang to benefit from the substantial potential job creation and foreign exchange earning capacity of this industry in Johor State.

8.3.3 The introduction, without delay, of cattle multiplication centres, to expand the dairy and to a lesser extent the beef industry.

8.3.4 Further investigations to confirm wider opportunities for diversified agricultural enterprises, based upon adequate performance data, with particular reference to hybrid coconuts and cocoa and some aspects of pineapples, cassava and short term crops.

8.3.5 Review of decisions on the means of obtaining adequate staff and equipment capacity for road and bridge construction and for the provision of other infrastructural facilities. Road construction is an essential feature of phased development, without which access to both regions will be inadequate.

8.3.6 Provision for the maintenance of river gauging stations (already agreed in principle), as part of an overall long term programme to study the effects of changes of land use on the physical environment and river regimes; which will also ensure that future decisions on water development can be properly based on sound hydrological data. This decision is more significant to Master Plan implementation than preparation; its urgency lies in the fact that the stations set up by the consultants are due to close at the end of February 1971.

8.4 Other Decisions

Other items of less immediate urgency are listed below as matters of principle or detail. Items under (Detail) heading and marked thus (*) affect implementation of the Master Plan rather than preparation of the Master Plan itself.

PRINCIPLE

DETAIL

8.4.1 Land

Procedures should be set down for the early and rapid alienation of land to the proposed Development Corporation for sub-allocation as required, affording greater crop choice compatible with good land use.

*In particular land must be suballocated by the Corporation to (a) FLDA, a major participating agency, for development during the SMP (b) MARDI (c) Cattle multiplication centres.

8.4.2 Water

Measures for meeting future water demands within and outside the Plan area need to be agreed by the authorities concerned. It will also be necessary to determine the relationship between the management of water development and the proposed Development Corporation.

Reservation of river catchments, in particular those of the S. Kahang, Linggiu and Lebam, may be required.

8.4.3 Forestry

Logging and processing

(a) combination or independence of logging and processing activities (b) purchase of logs in a free market by the timber processing organisation, (c) coordination of logging roads with development roads including design characteristics and cost sharing arrangements.

Coordination with infrastructure

PRINCIPLE

DETAIL

8.4.4 Agriculture

Research facilities

Establishment of MARDI research centre including (a) land allocation and clearance (b) soil survey (c) design of housing and building (d) appointment of staff; all in 1971.

Cattle multiplication centres

*Provision of staff and trainees in 1972.

Tree crop nurseries

Agreement that present FLDA nurseries at Ayer Tawar and Bukit Aping should continue operating beyond their local need by FLDA.

The desirability of establishing a countrywide organisation to aid the national expansion of the cattle industry.

Management for accelerated land development programme.

*Appointment to FLDA/private estates of additional trainee managers (paid for by Government).

8.4.5: Infrastructure

(a) Acceptance that housing is not tied to employment

(a) The desirability of South East Johor Development Corporation accepting responsibility for arranging finance (incl. private sources) for housing.

(b) The use of external agencies for rapid provision of essential access from 1972

*(b) The need for early bridging facilities over the S. Johor and S. Sayong to provide access to southern Johor Tengah.

PRINCIPLE

DETAIL

8.4.5 (Cont.)

*(c) Road construction over 16 miles from FLDA Kulai northwards into Johor Tengah.

*(d) Early construction of Penggerang Highway at rate of 8 miles a year.

8.4.6 Natural environment

Acceptance of the need to preserve biological communities in Tanjong Penggerang.

Rescinding or restricting land alienation orders for silica sand extraction in Penggerang, in view of wider development implications. Reservation of the G. Blumut and G. Panti as National Park, Forest and Game Reserves.

8.4.7 Organisations

(a) The role of FLDA

The overall role would be affected by the strategy or combination of strategies selected.

Assuming strategy other than selected, increasing concentration by FLDA, in the South East Johor Project areas, on land development, transferring the greater part of the land, once developed, to other agencies.

Decisions on other modifications indicated in this report and Supporting Reports and papers.

PRINCIPLE

DETAIL

(b) Creation of public farms

South East Johor Development Corporation as main public agency responsible for initial development of public farm subsidiaries, in cooperation with State Economic Development Corporation and possibly other agencies.

(c) Private development

Decisions on necessary incentives to be incorporated in Master Plan.

SUPPORTING REPORTS

- I THE PHYSICAL ENVIRONMENT)
- II WATER RESOURCES)
- III GEOLOGY AND MINERALISATION)

- IV CONSERVATION AND FORESTRY)
- V AGRICULTURE)

- VI TOURISM AND INDUSTRY)
- VII DEVELOPMENT PATTERN)
- VIII SOCIOLOGICAL STUDIES)

- IX THE DEVELOPMENT CORPORATION)
- X EMPLOYMENT AND UNEMPLOYMENT IN JOHOR)

- XI ECONOMIC OBJECTIVES)
- XII ALTERNATIVE STRATEGIES)

} indicates reports bound together in one volume
}

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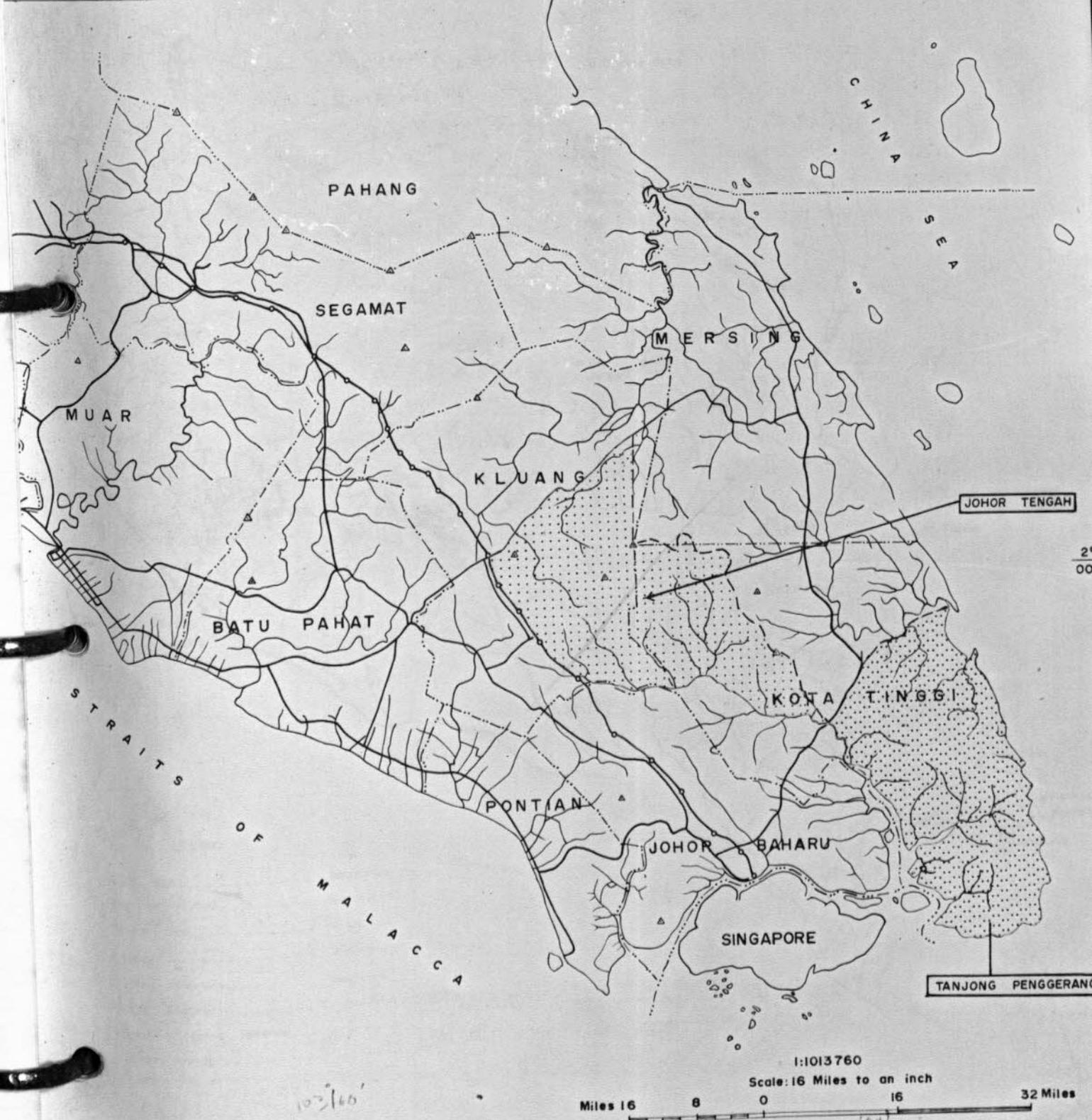
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THE PROJECT AREA



1:1013760
Scale: 16 Miles to an inch
Miles 16 8 0 16 32 Miles

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- VI.1 POSSIBLE TOURIST PROJECTS 1.1
- VI.2 TOURIST RESORT - TANJONG PENGGERANG 1.2
- VI.3 OUTLINE TOURIST DEVELOPMENT TANJONG BALAU - TANJONG LOMPAT 1.3

SUPPORTING REPORT VII

- VII.1 REGIONAL ROADS 1.1

SUPPORTING REPORT IX

- CHART 1 SOUTH EAST JOHOR DEVELOPMENT CORPORATION
- CHART 2 SENIOR OFFICERS GROUP & SUPPORT SERVICES
- CHART 3 SIMPLIFIED ORGANISATIONAL CHART.

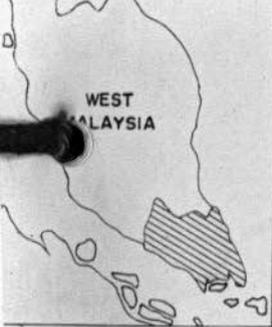
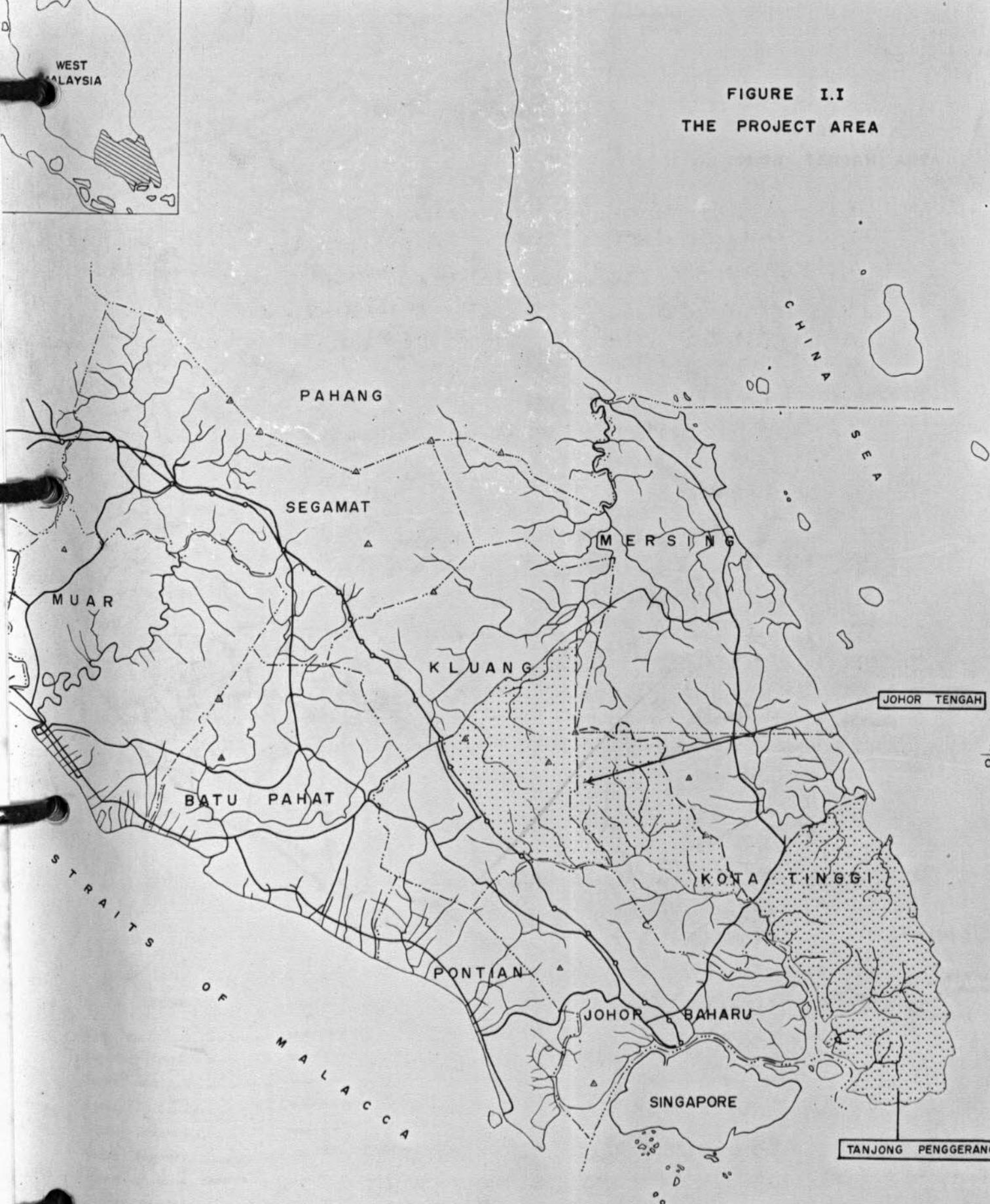


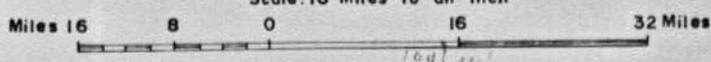
FIGURE I.I
THE PROJECT AREA



103/100

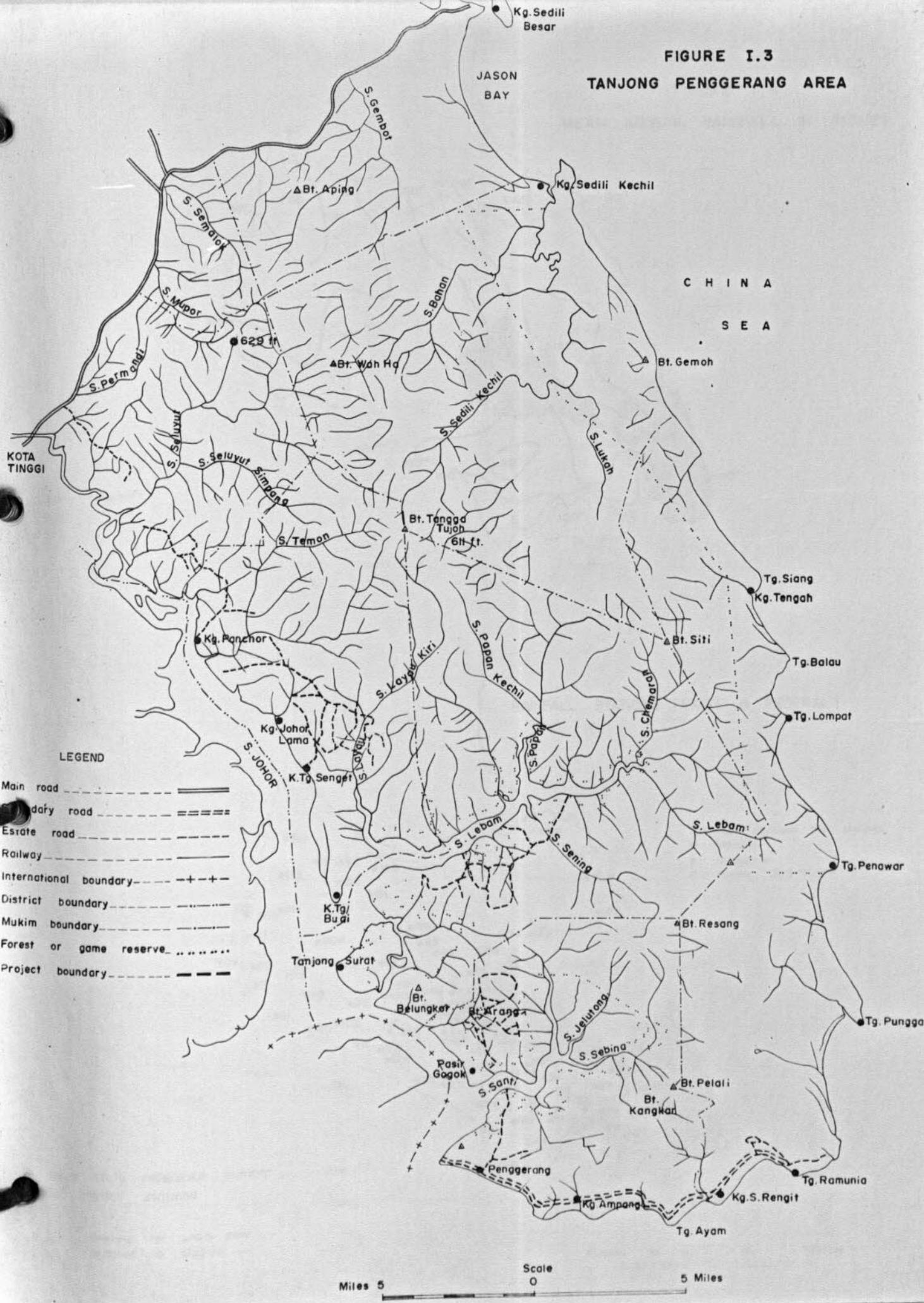
1:1013760

Scale: 16 Miles to an inch



104/00

FIGURE I.3
TANJONG PENGGERANG AREA



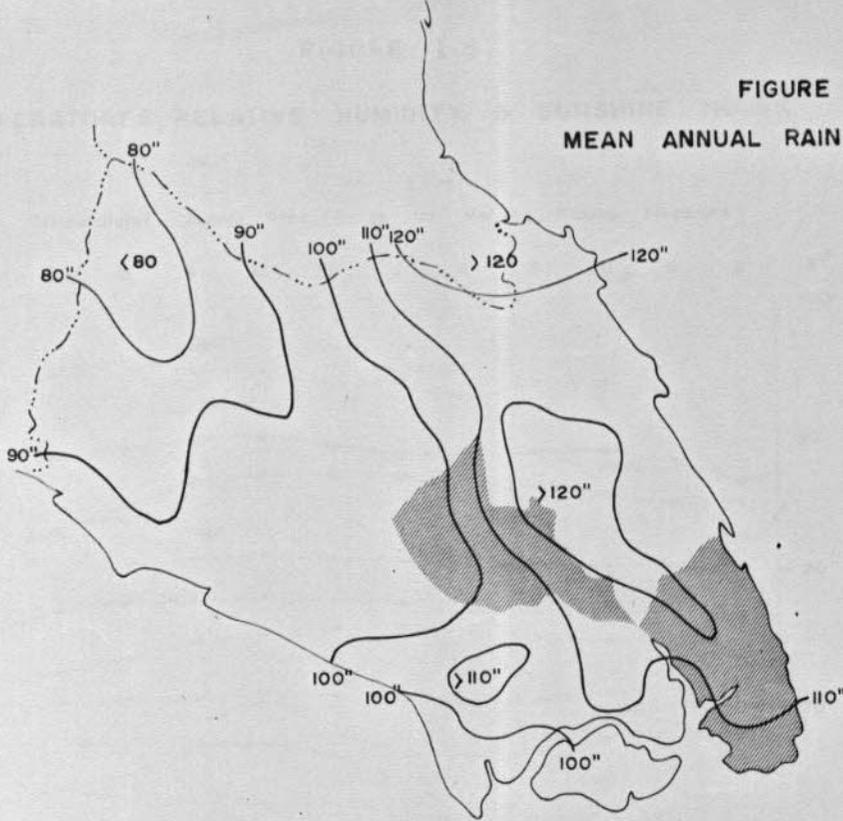
LEGEND

- Main road ————
- Secondary road - - - - -
- Estate road - - - - -
- Railway - - - - -
- International boundary - + - + -
- District boundary - - - - -
- Mukim boundary - - - - -
- Forest or game reserve
- Project boundary - - - - -

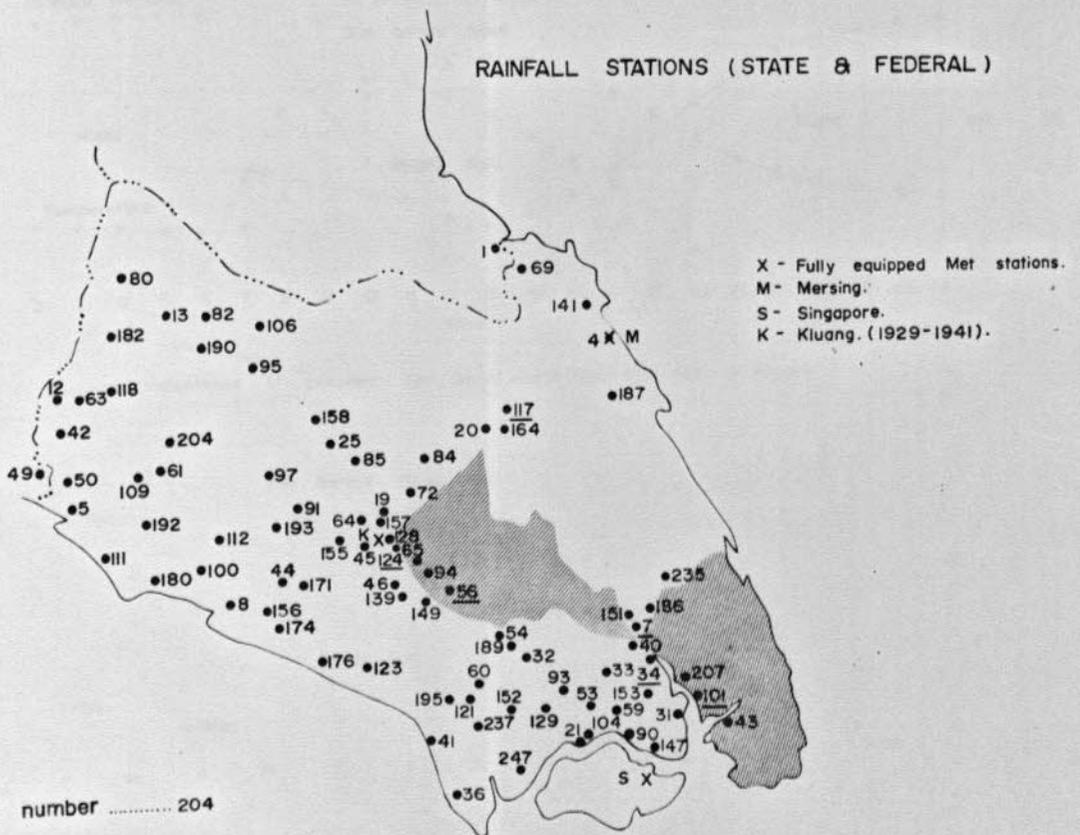
Miles 5 Scale 0 5 Miles

FIGURE I.4

MEAN ANNUAL RAINFALL IN INCHES



RAINFALL STATIONS (STATE & FEDERAL)



Johor State reference number 204
for rainfall stations

• 117 Stations for which data analysed in diagram —



FIGURE I.5

TEMPERATURES, RELATIVE HUMIDITY & SUNSHINE HOURS

Temperatures Project Area (Range for Mersing, Kluang, Singapore)

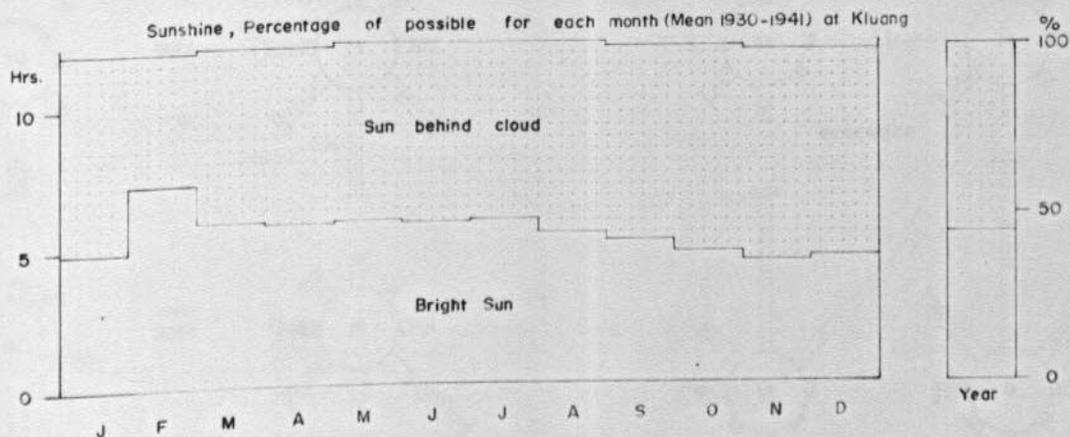
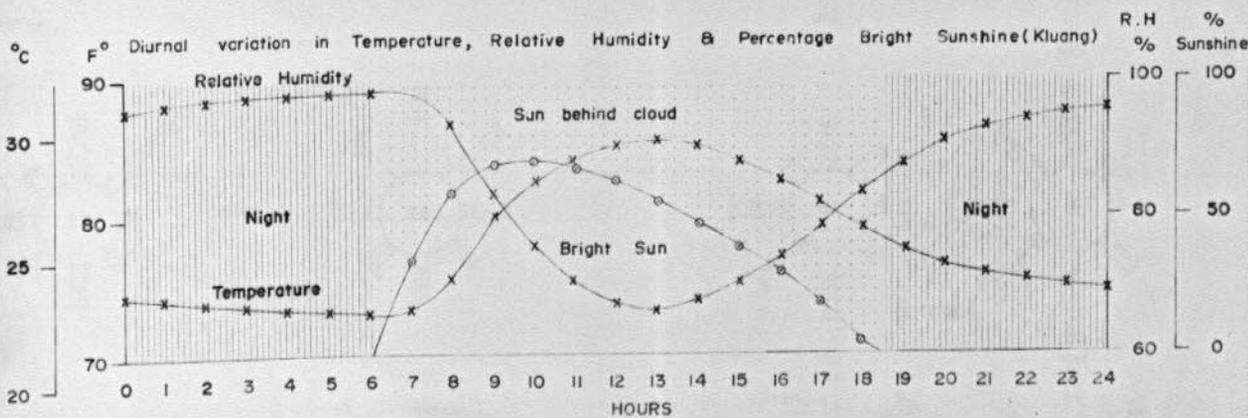
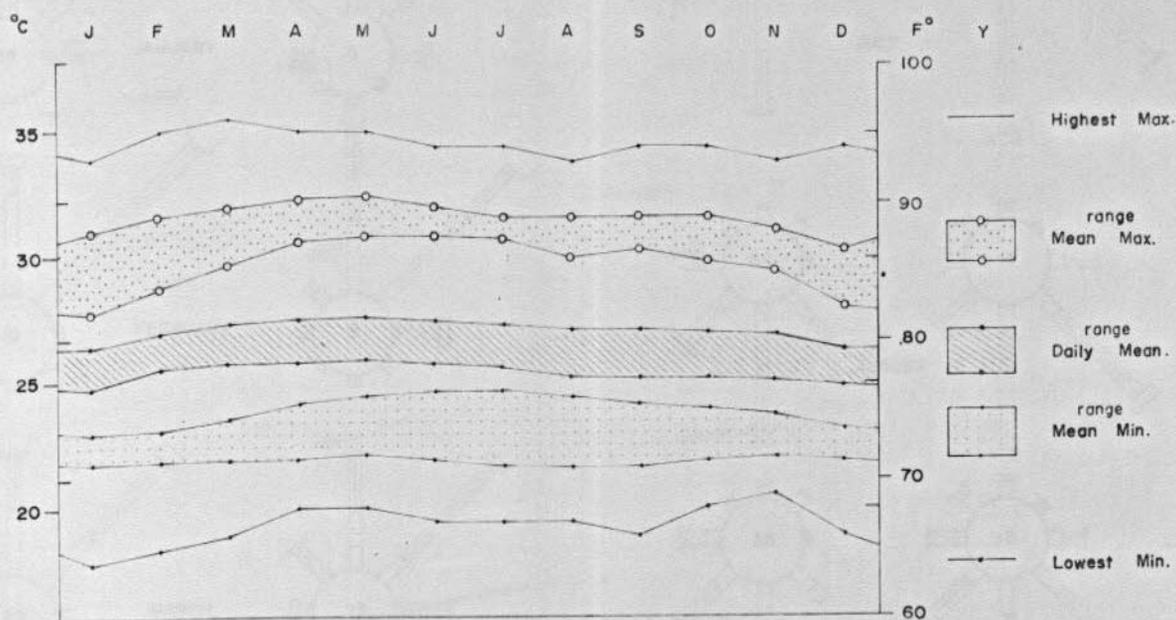


FIGURE I.6

N. E. MONSOON

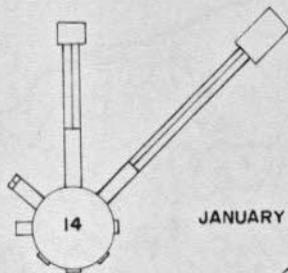
S. W. MONSOON

KLUANG

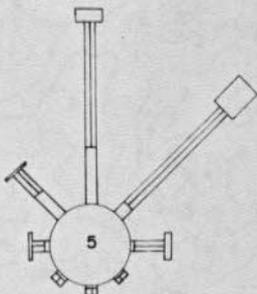
SINGAPORE

KLUANG

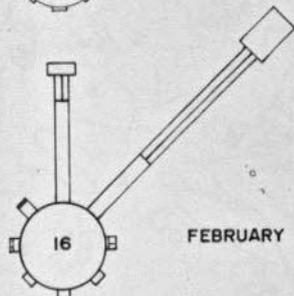
SINGAPORE



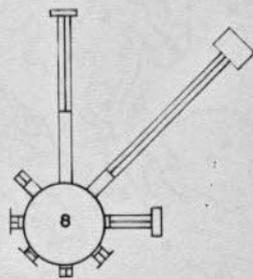
JANUARY



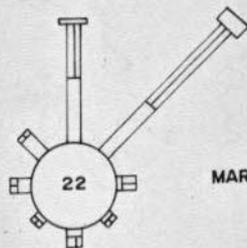
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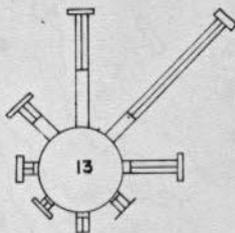
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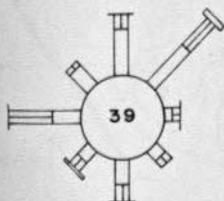
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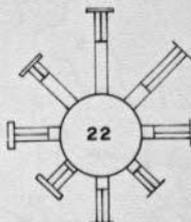
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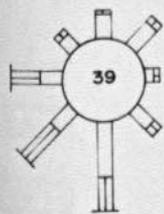
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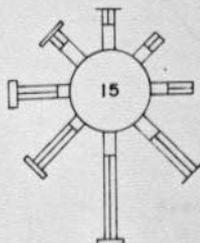
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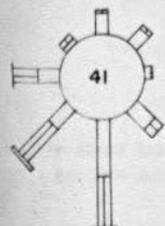
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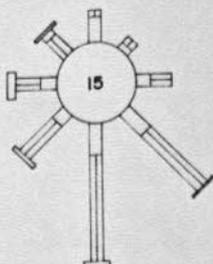
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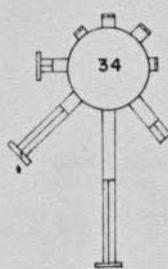
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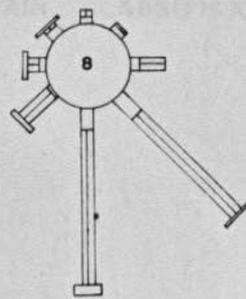
JUNE



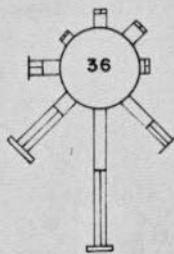
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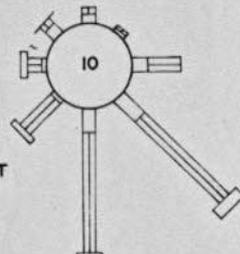
JULY



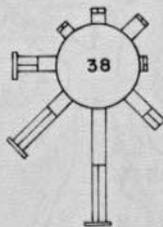
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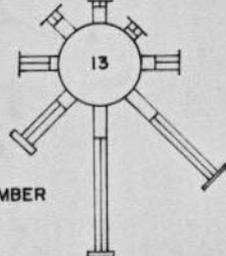
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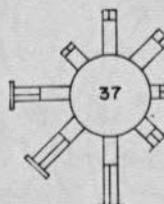
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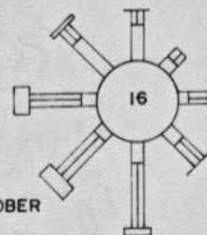
SEPTEMBER



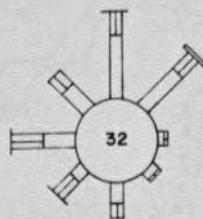
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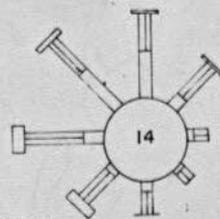
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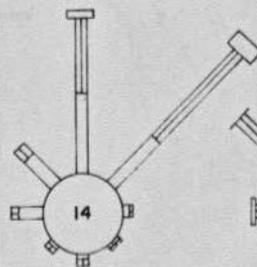
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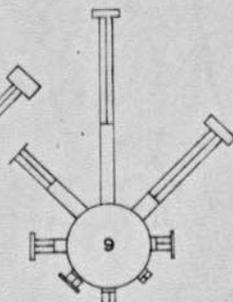
NOVEMBER



14



DECEMBER



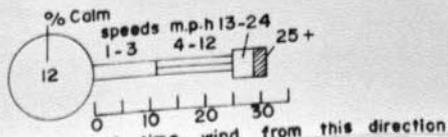
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INTER MONSOON PERIOD

INTER MONSOON PERIOD

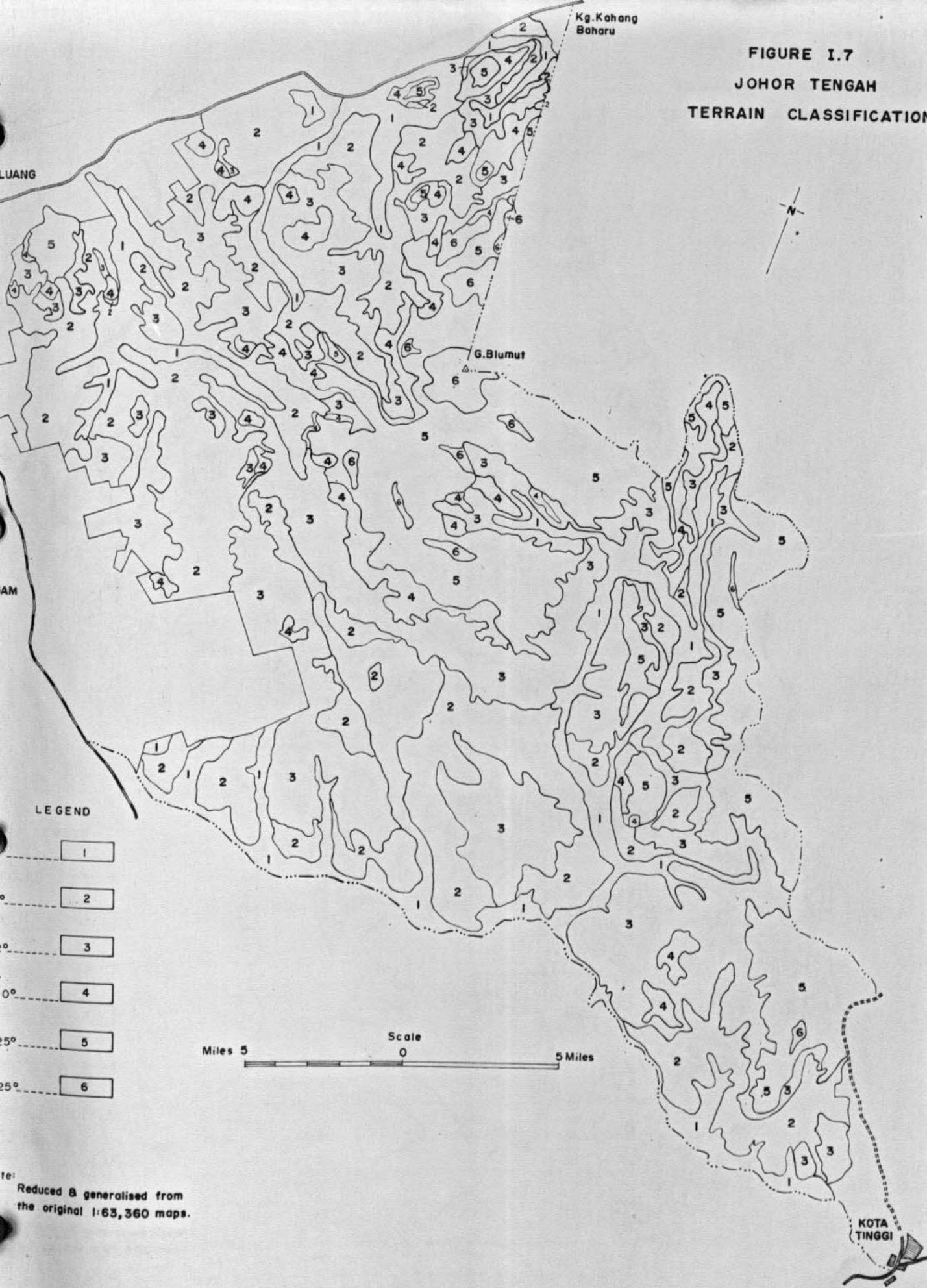
S. W. MONSOON

N. E. MONSOON



SURFACE WINDS KLUANG & SINGAPORE (SINGAPORE=MT.FRASER & KALLANG COMBINED) FOR EACH MONTH

FIGURE I.7
JOHOR TENGAH
TERRAIN CLASSIFICATION



LEGEND

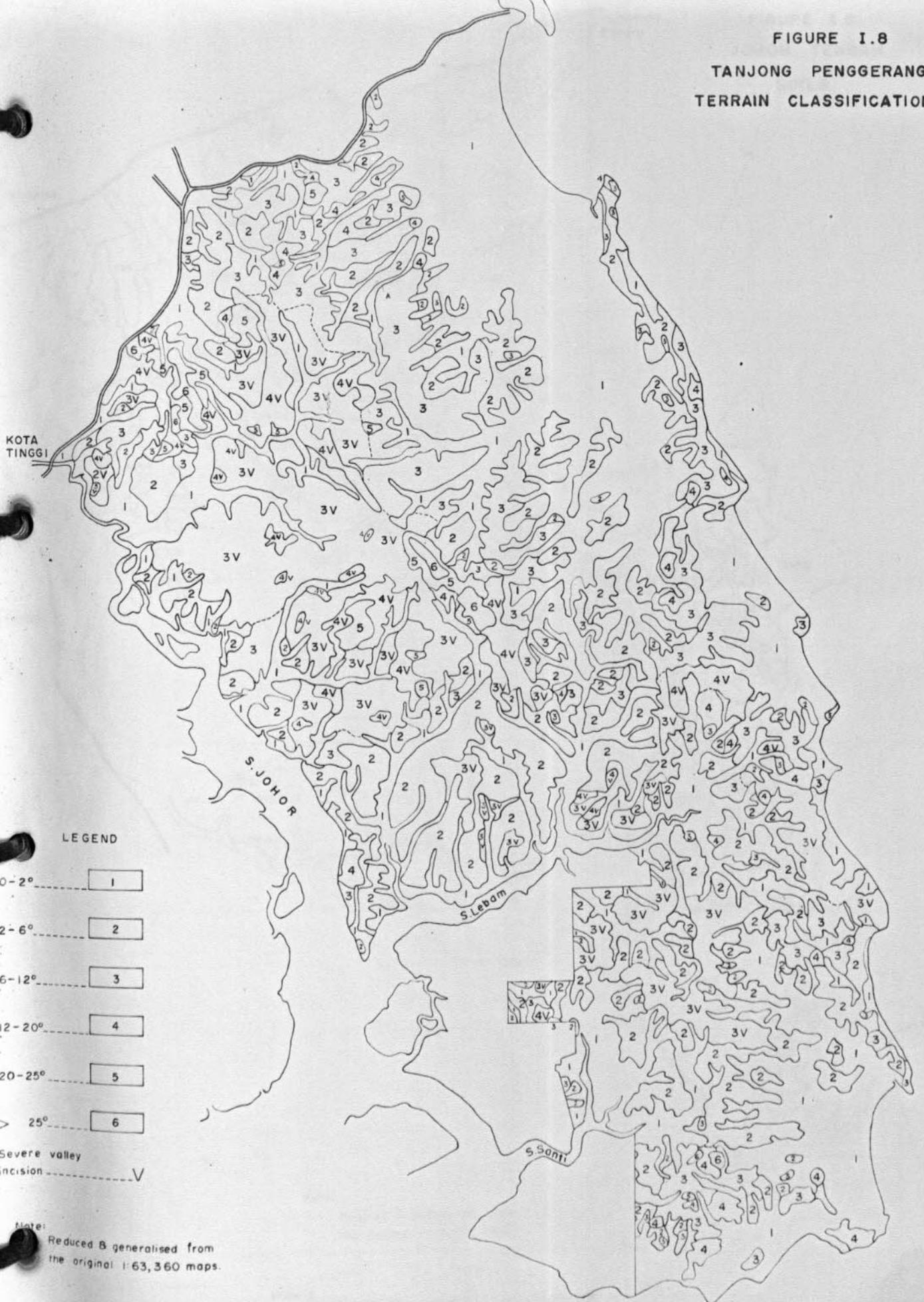
- 1
- 2
- 3
- 4
- 5
- 6

Miles 5 Scale 0 5 Miles

Reduced & generalised from
the original 1:63,360 maps.

KOTA
TINGGI

FIGURE I.8
TANJONG PENGGERANG
TERRAIN CLASSIFICATION



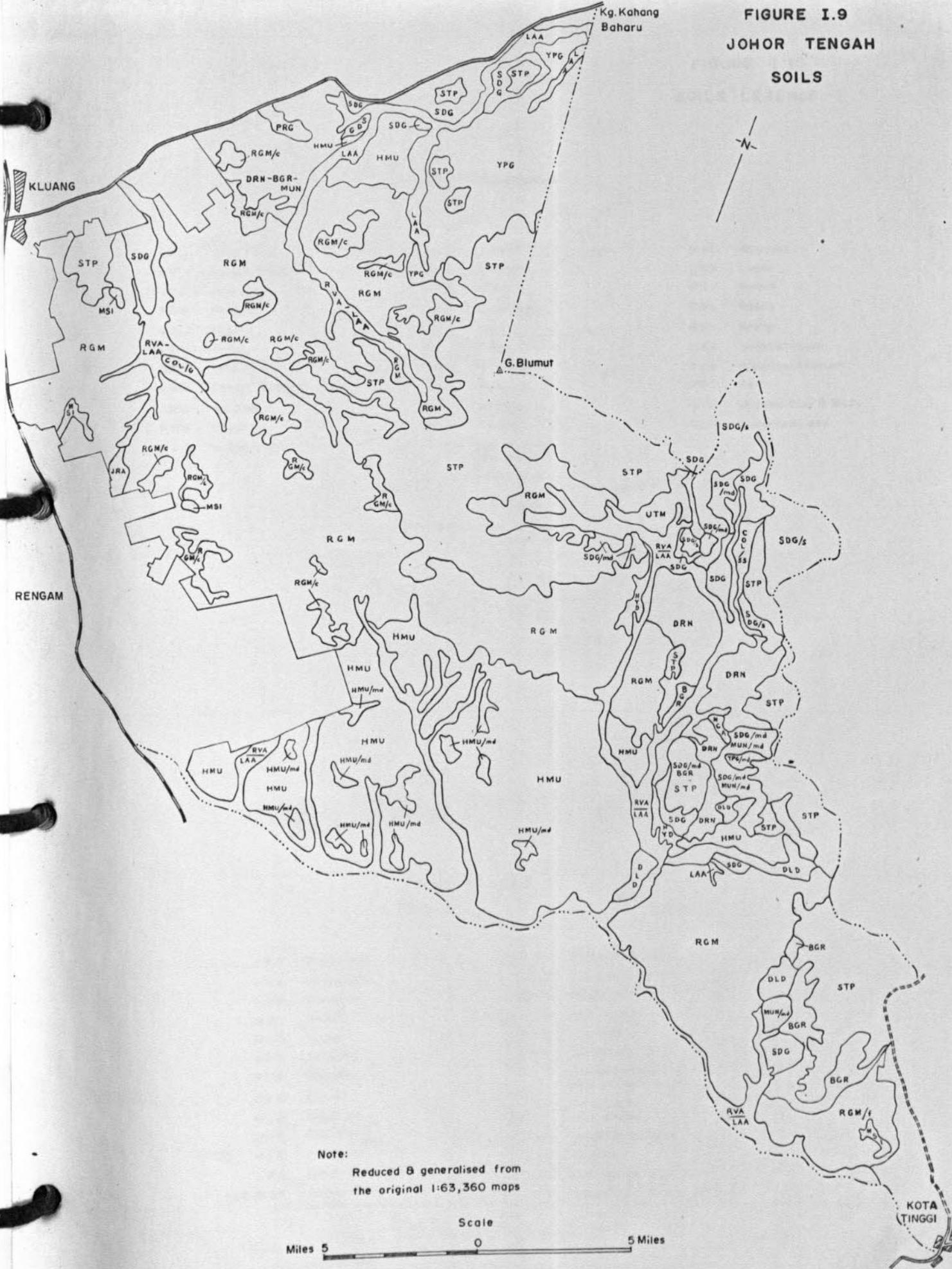
LEGEND

- 0-2° 1
- 2-6° 2
- 6-12° 3
- 12-20° 4
- 20-25° 5
- > 25° 6
- Severe valley incision V

Note:
Reduced B generalised from
the original 1:63,360 maps.

Scale
Miles 5 0 5 Miles

FIGURE I.9
JOHOR TENGAH
SOILS



Note:
 Reduced & generalised from
 the original 1:63,360 maps

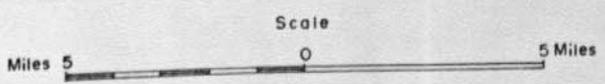


FIGURE 1.10
SOILS LEGENDS

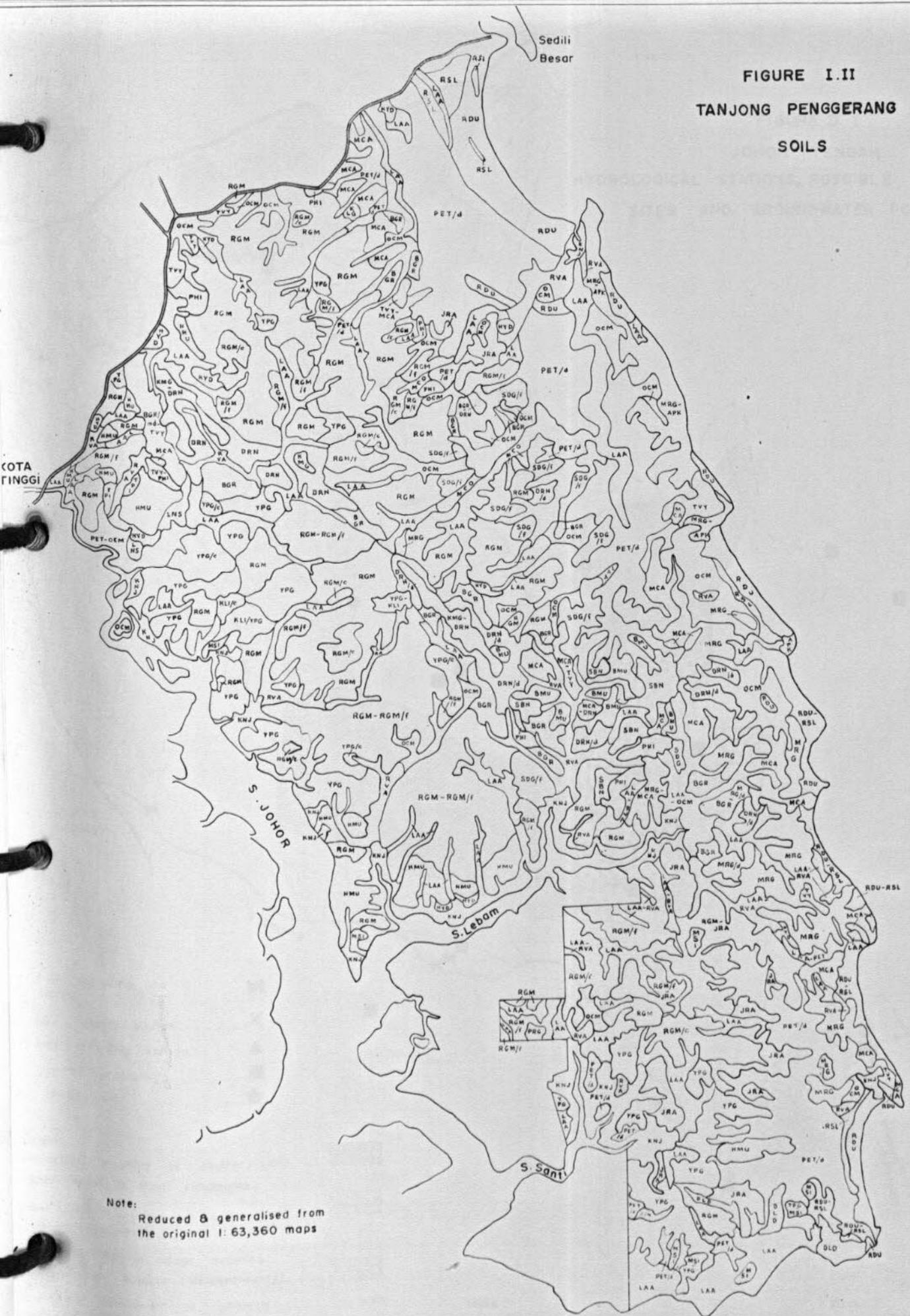
TANJONG PENGGERANG

Y P G	Yong Peng	M R G	Marang	H Y D	Holyrood
K L I	Kulai	B G R	Bungor	L N S	Lunas
J R A	Jerangau	D R N	Durian	R D U	Rudua
R G M	Rengam	K M G	Kemuning	R S L	Rusila
M S I	Masai	A P K	Apek	K N J	Kranji
P R G	Prang	P H I	Pohoi	L A A	Local Alluvium
S B N	Seremban	M C A	Malacca	R V A	Riverine Alluvium
B M U	Batang Merbau	T V Y	Tavy	P E T	Peat
S D G	Serdang	H M U	Harimau	O C M	Organic Clay & Muck
K D H	Kedah	T P I	Tampoi	D L D	Disturbed Land
K L G	Kuala Brang	/ c	Course sandy clay phase		
		/ d	deep phase		
		/ f	Fine sandy clay phase		
		R G M-J R A	Association of soil series		

JOHOR TENGAH

Y P G	Yong Peng	R V A	Riverine Alluvium
J R A	Jerangau	D L D	Disturbed Land
R G M	Rengam	M U N	Munchong
M S I	Masai	U T M	Ulu Tiram
P R G	Prang	S T P	Steepland
S D G	Serdang	C O L	Colluvium
B G R	Bungor	/ c	Course sandy clay phase
D R N	Durian	/ f	Fine sandy clay phase
M C A	Malacca	/ m d	moderately deep
H M U	Harimau	/ s	shallow
H Y D	Holyrood	/ G	Granite-derived
L A A	Local Alluvium	/ S S	Sandstone-Shale derived
S D G / B G R	Association of soil series		

FIGURE I.II
TANJONG PENGGERANG
SOILS

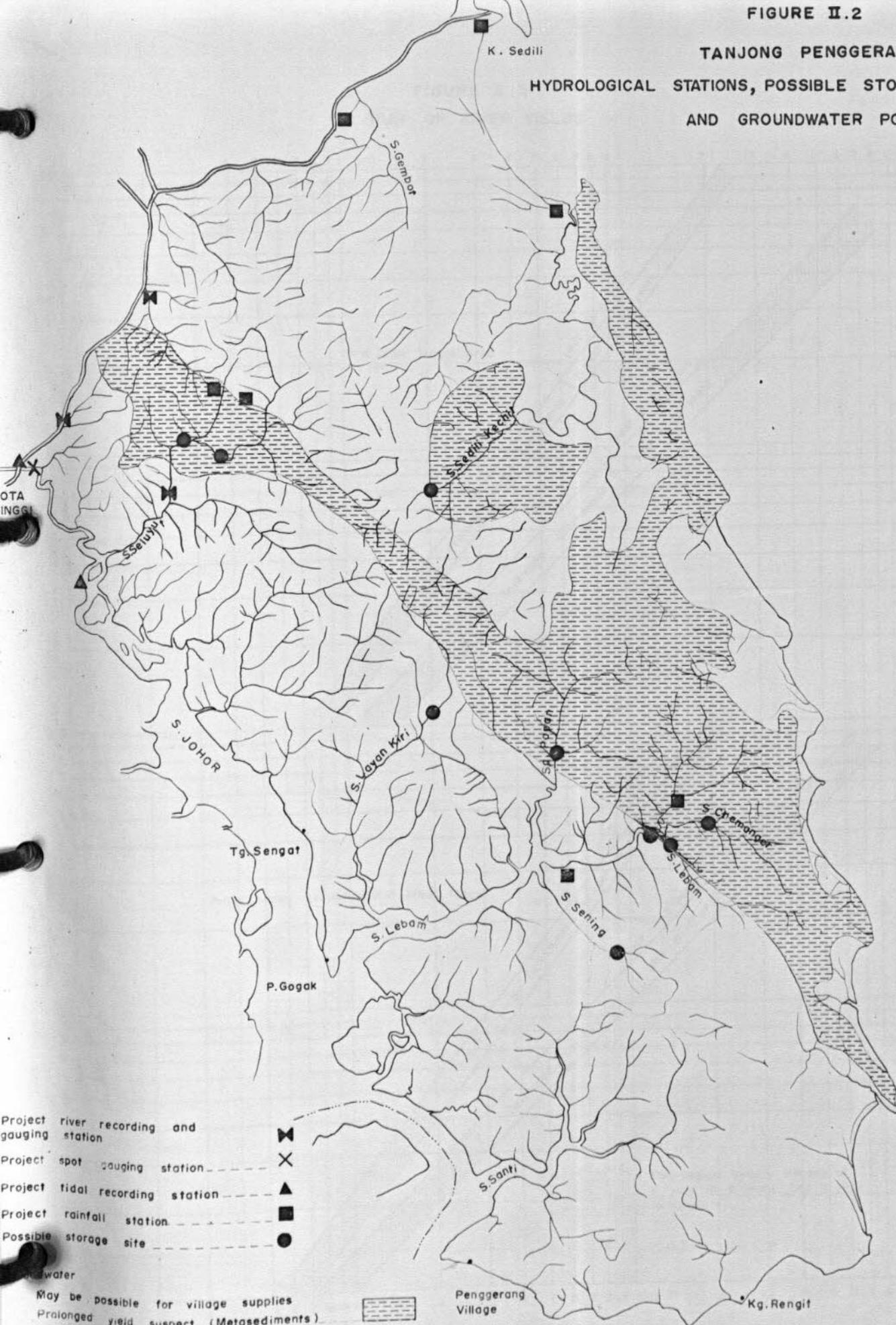


Note:
Reduced & generalised from
the original 1: 63,360 maps

Scale
Miles 5 0 5 Miles

FIGURE II.2

TANJONG PENGGERANG
 HYDROLOGICAL STATIONS, POSSIBLE STORAGE SITE
 AND GROUNDWATER POTENTIAL



- Project river recording and gauging station
- Project spot gauging station
- Project tidal recording station
- Project rainfall station
- Possible storage site

Groundwater
 May be possible for village supplies
 Prolonged yield suspect (Metasediments)
 Development in remaining areas
 will probably fail
 (Granite & Volcanic rocks)



FIGURE II.3
 RUN OF RIVER YIELDS

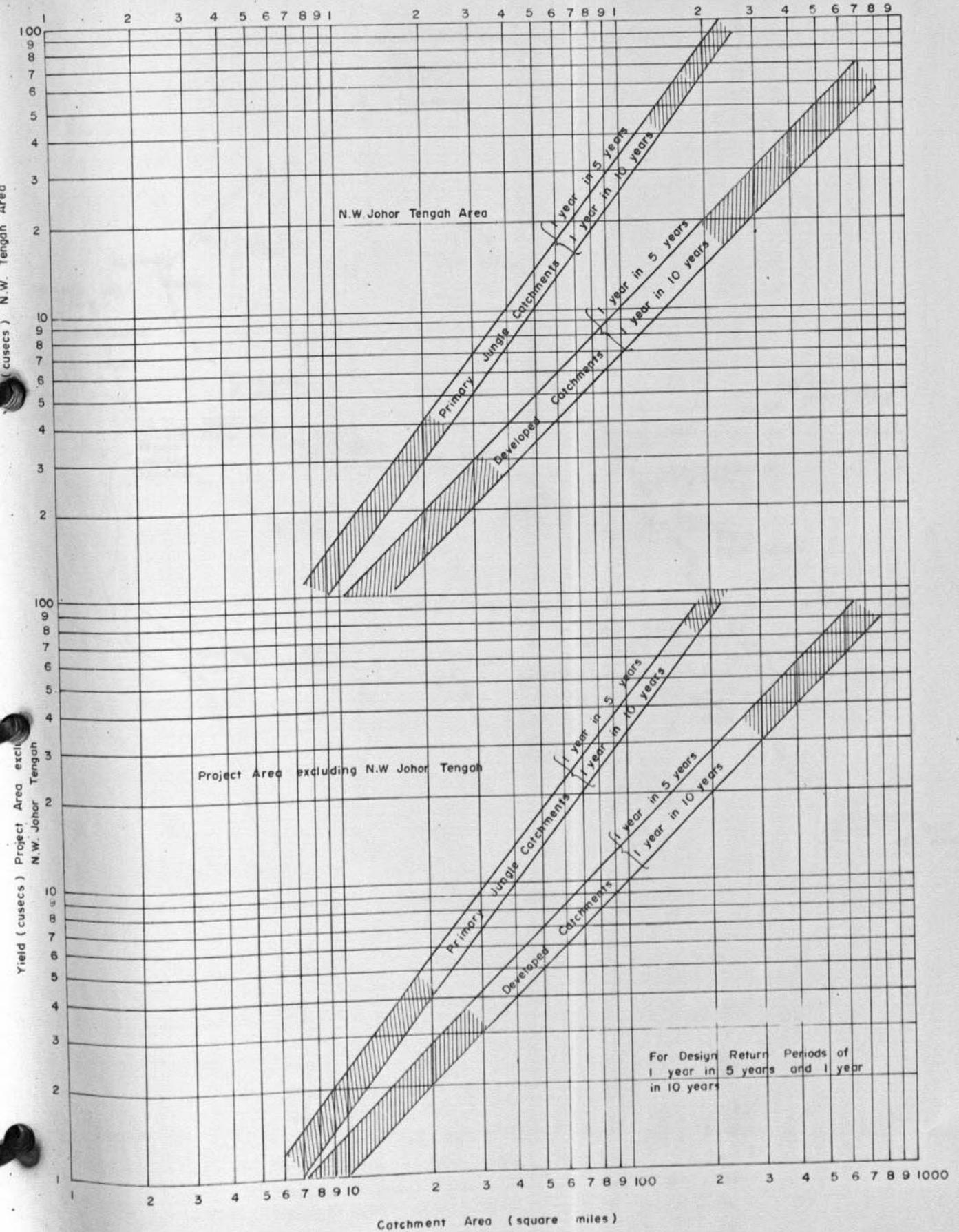
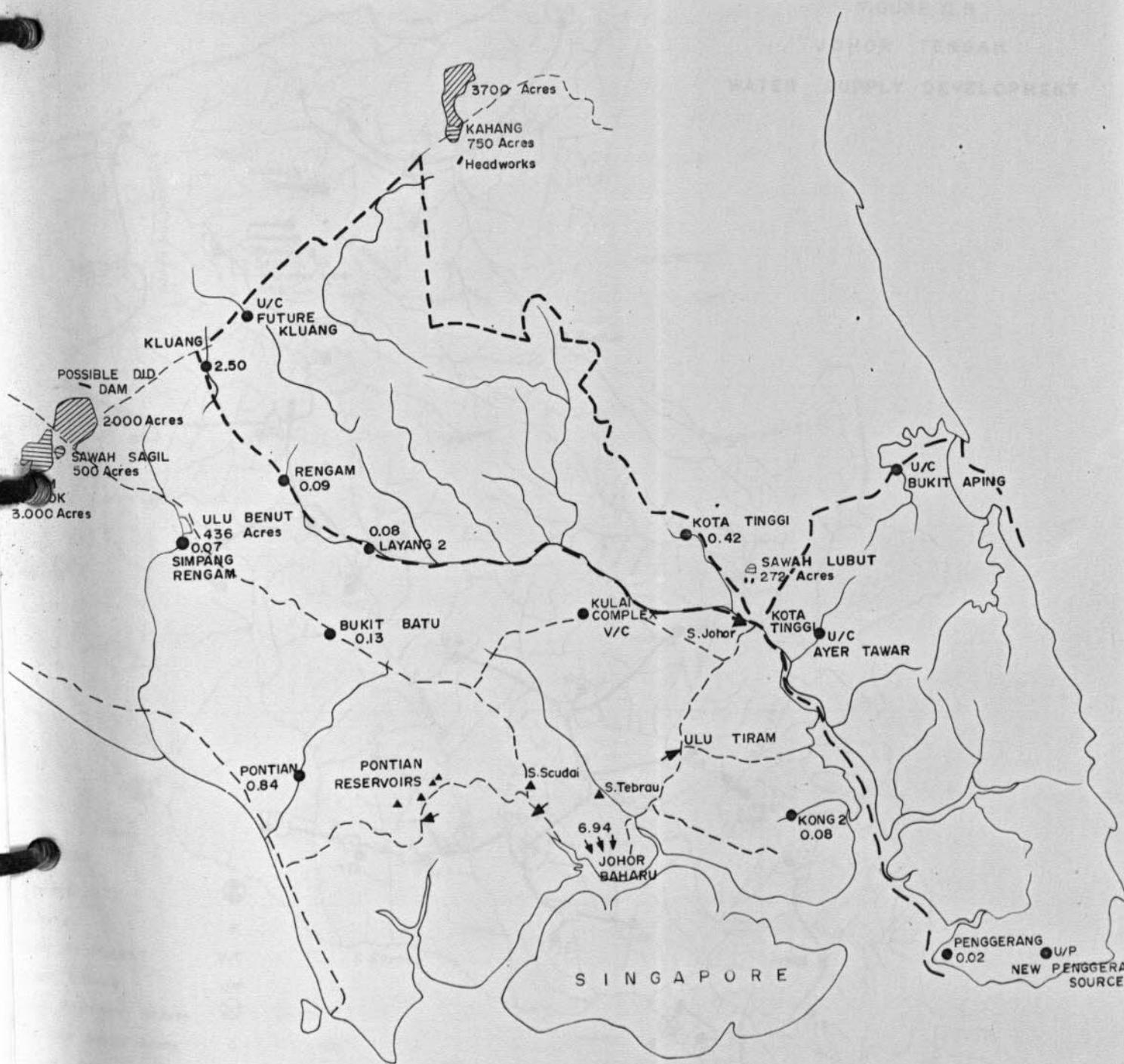


FIGURE II.4

EXISTING WATER RESOURCE DEVELOPMENTS



LEGEND

- Existing JKR intakes ———●
- Under construction ———U/C
- Source under planning ———U/P
- Average water abstracted in 1969 (in m.g.d.) ———0.42
- P.U.B. sources in Johor state ———▲
- Metered offtakes on P.U.B. mains for Johor state ———→
- Existing D.I.D. irrigated area ———◉
- Possible future D.I.D. irrigated area ———◉

FIGURE II.5
 JOHOR TENGAH
 WATER SUPPLY DEVELOPMENT

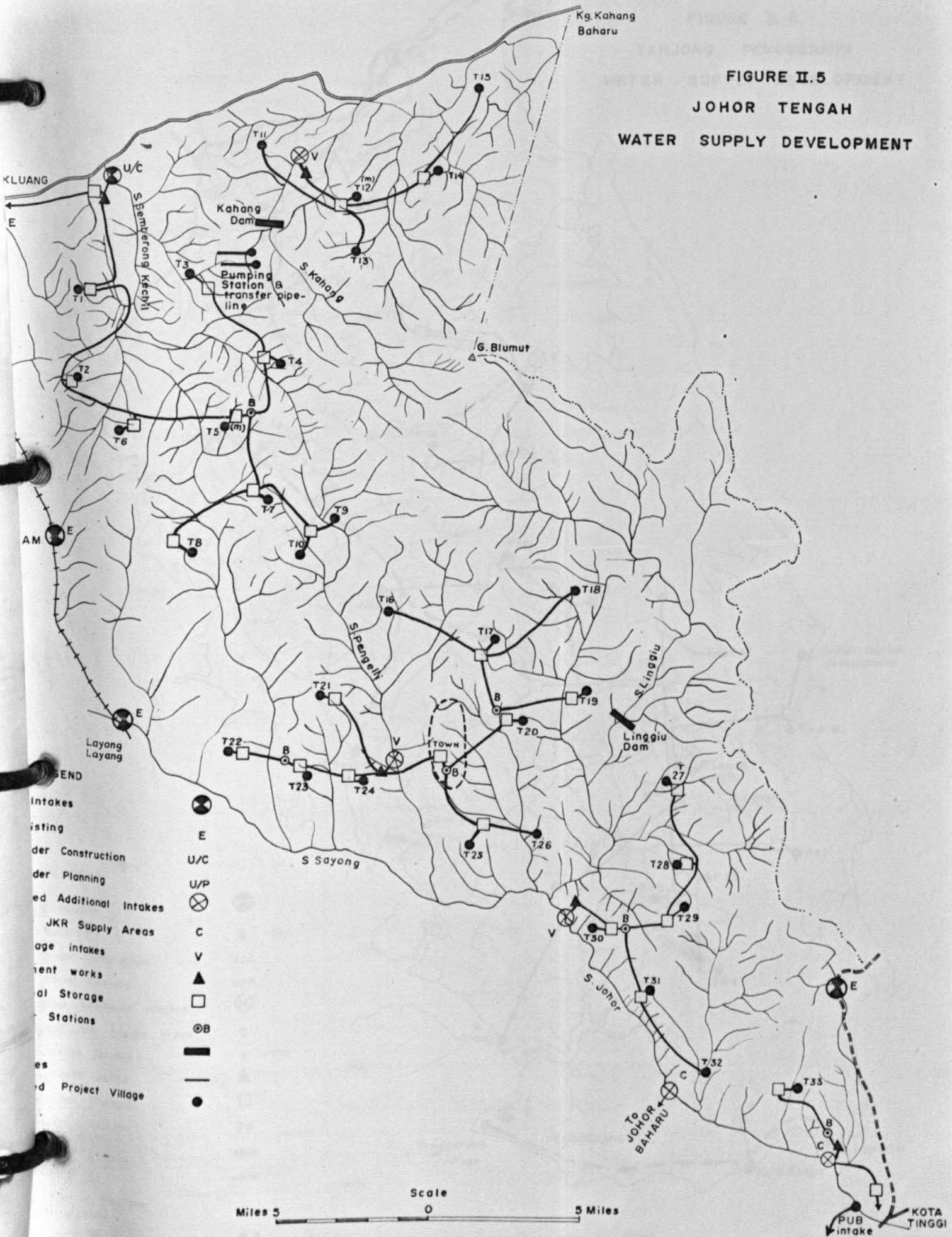
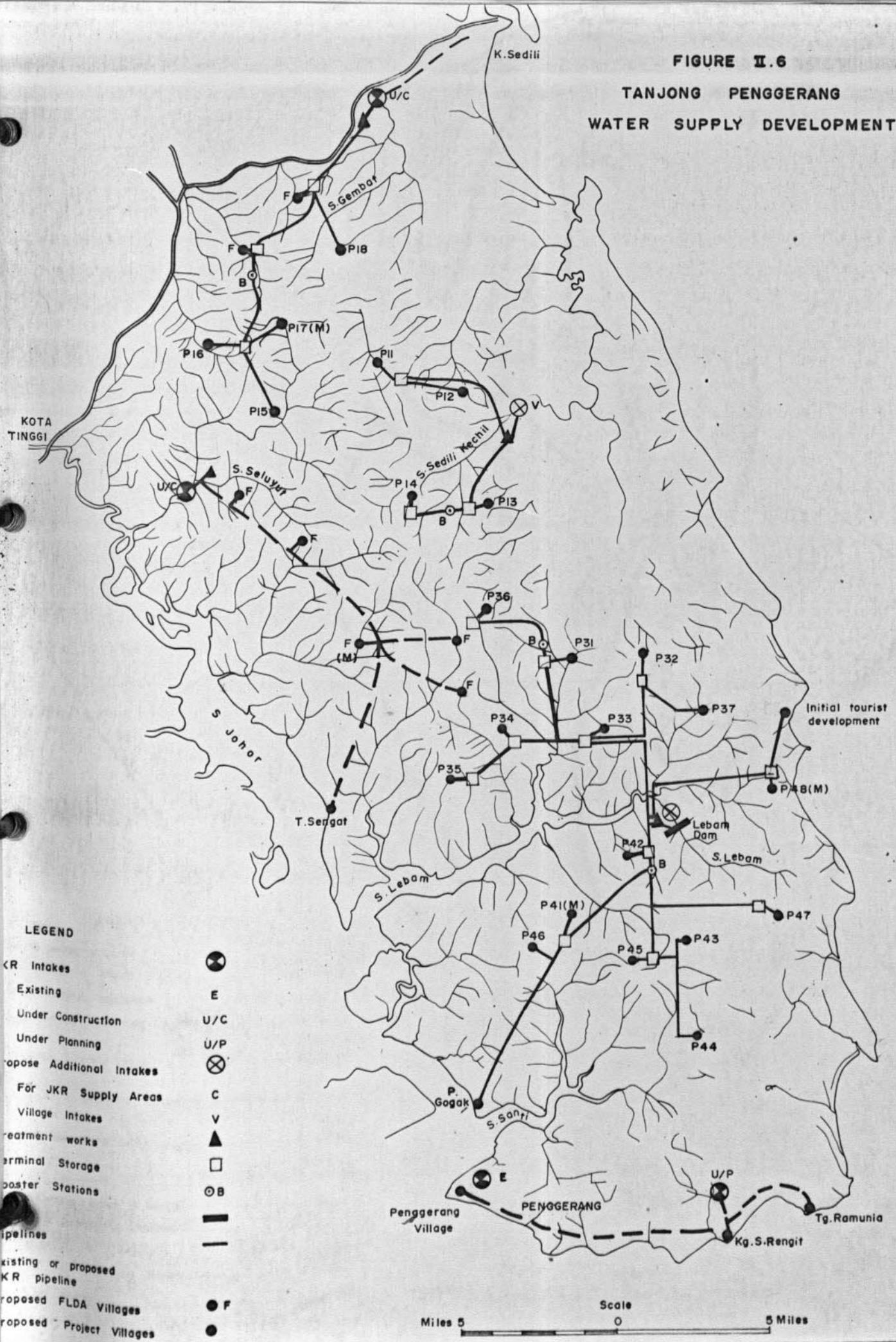


FIGURE II.6
TANJONG PENGGERANG
WATER SUPPLY DEVELOPMENT

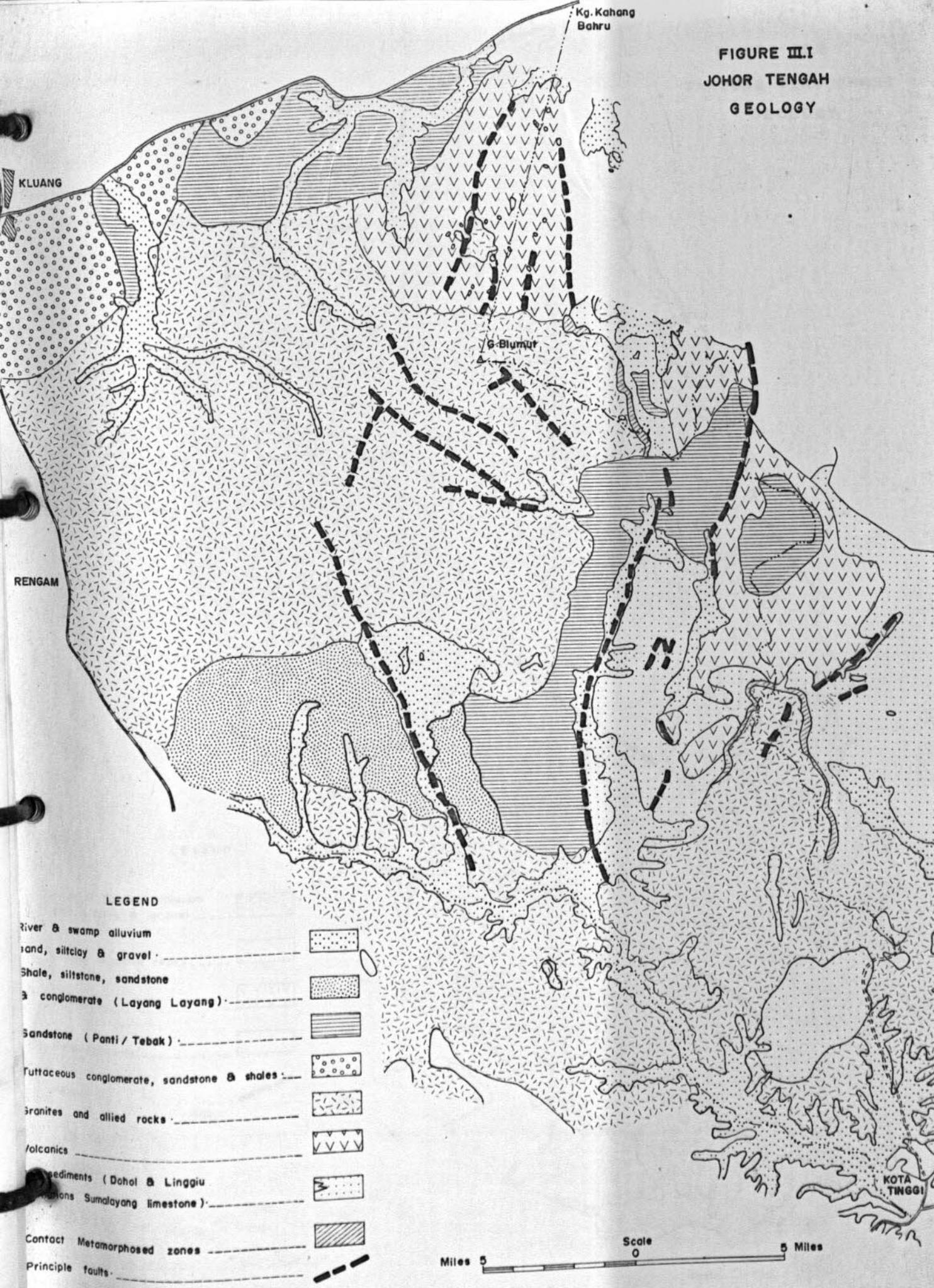


LEGEND

- ⊗ KR Intakes
- ⊙ Existing
- ⊙ U/C Under Construction
- ⊙ U/P Under Planning
- ⊗ Oppose Additional Intakes For JKR Supply Areas
- Village Intakes
- ▲ Treatment works
- Terminal Storage
- ⊙ B Booster Stations
- Pipelines
- Existing or proposed KR pipeline
- Proposed FLDA Villages
- Proposed Project Villages

Scale
 Miles 5 0 5 Miles

FIGURE III.I
JOHOR TENGAH
GEOLOGY



LEGEND

- River & swamp alluvium 
- Sand, siltclay & gravel 
- Shale, siltstone, sandstone 
- Limestone conglomerate (Layang Layang) 
- Sandstone (Panti / Tebak) 
- Tuffaceous conglomerate, sandstone & shales 
- Granites and allied rocks 
- Volcanics 
- Sediments (Dahol & Linggiu) 
- Formations (Sumalayang limestone) 
- Contact Metamorphosed zones 
- Principle faults 

Scale 0 5 Miles

FIGURE III.2
TANJONG PENGGERANG
GEOLOGY

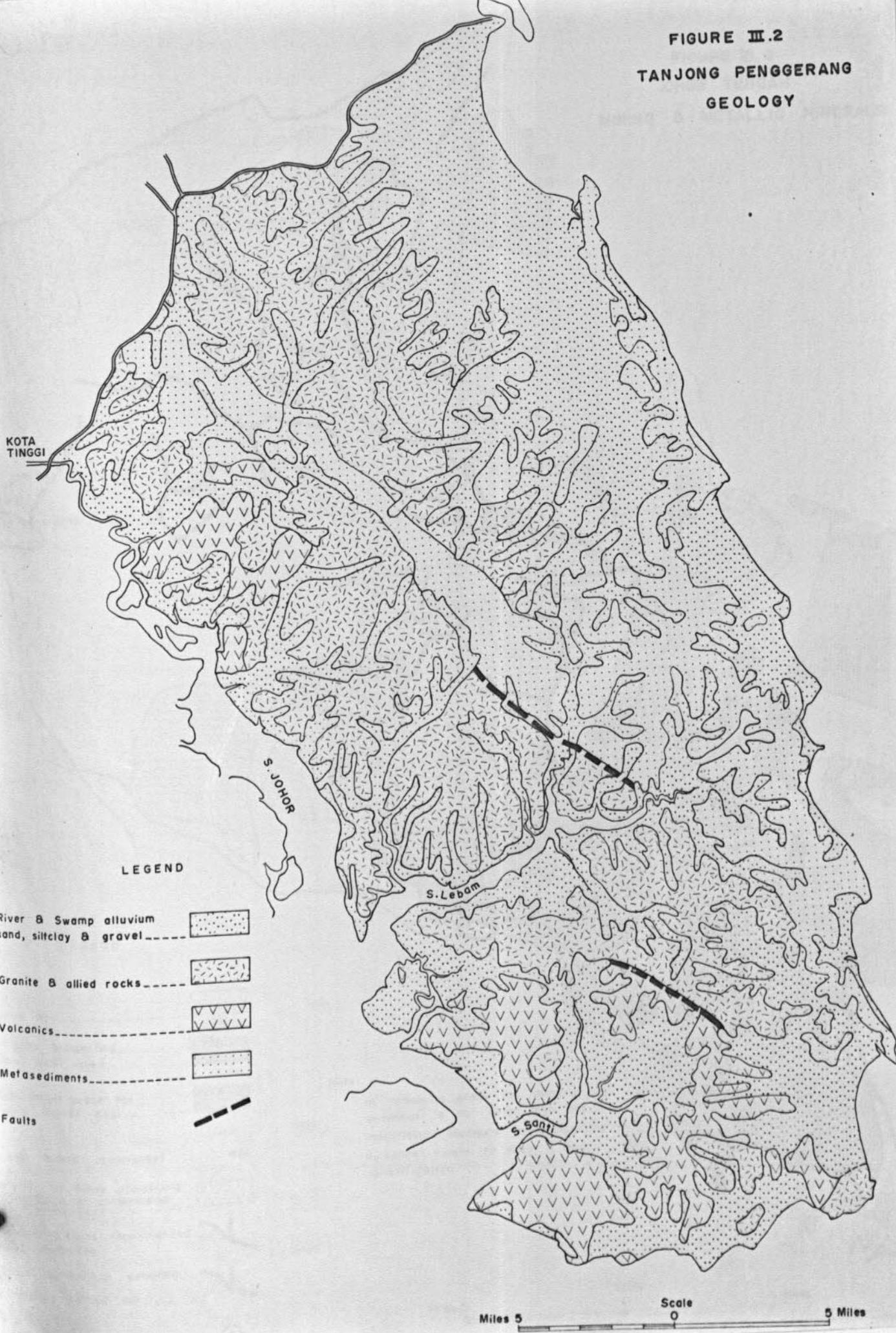
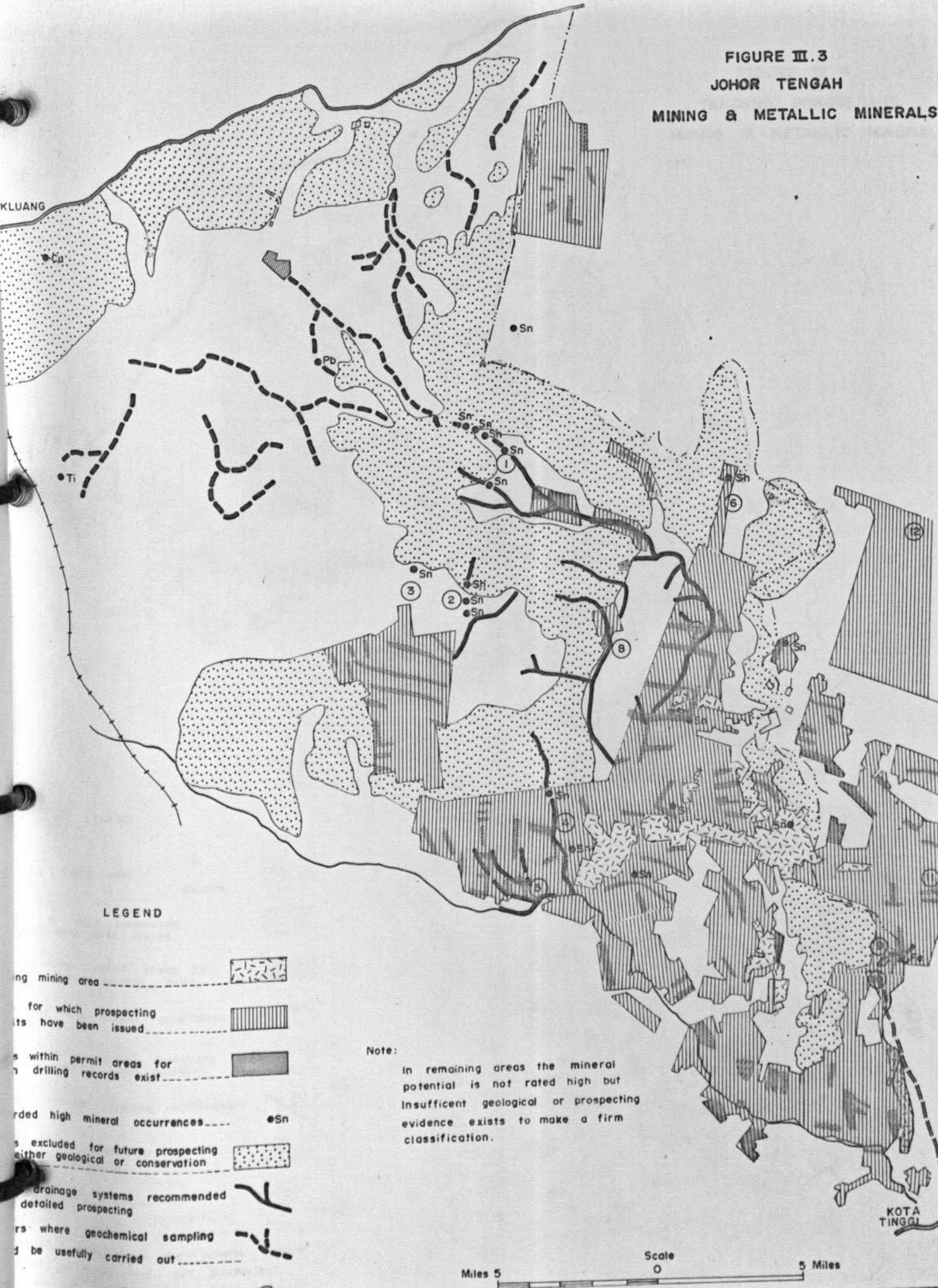


FIGURE II.3
 JOHOR TENGAH
 MINING & METALLIC MINERALS

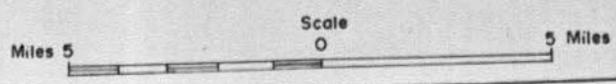


LEGEND

- ing mining area
- for which prospecting
its have been issued
- s within permit areas for
drilling records exist
- rded high mineral occurrences
- s excluded for future prospecting
either geological or conservation
- drainage systems recommended
detailed prospecting
- rs where geochemical sampling
d be usefully carried out
- ort text references

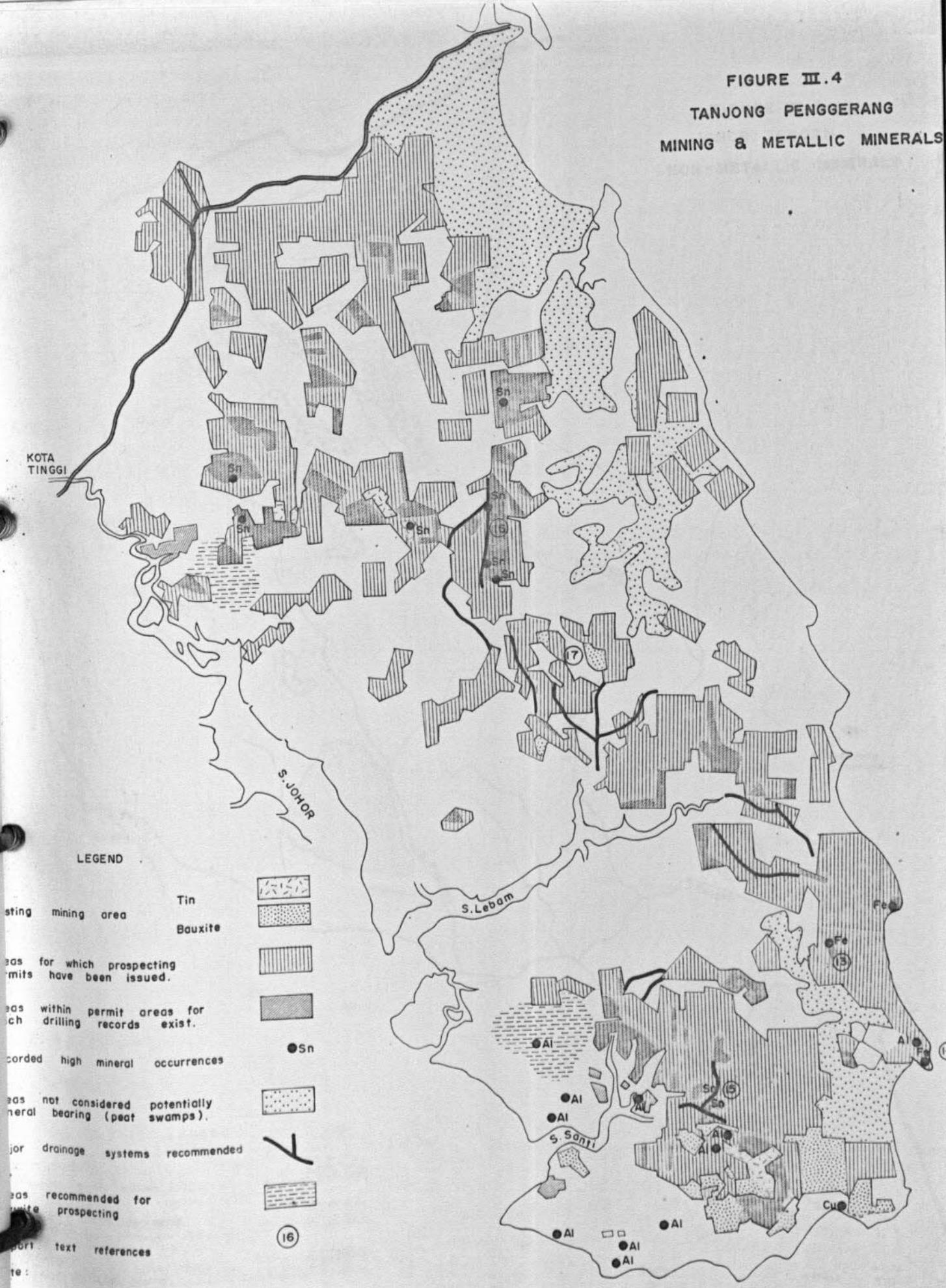
Note:

In remaining areas the mineral potential is not rated high but insufficient geological or prospecting evidence exists to make a firm classification.



③

FIGURE III.4
TANJONG PENGGERANG
MINING & METALLIC MINERALS



LEGEND

- Existing mining area
- Tin
- Bauxite
- Areas for which prospecting permits have been issued.
- Areas within permit areas for which drilling records exist.
- Recorded high mineral occurrences
- Areas not considered potentially mineral bearing (peat swamps).
- Major drainage systems recommended
- Areas recommended for white prospecting
- Refer to text references

In remaining areas the mineral potential is not rated high but insufficient geological or prospecting evidence exists to make a firm classification.

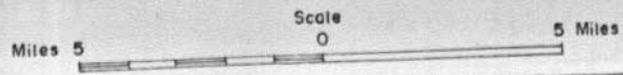
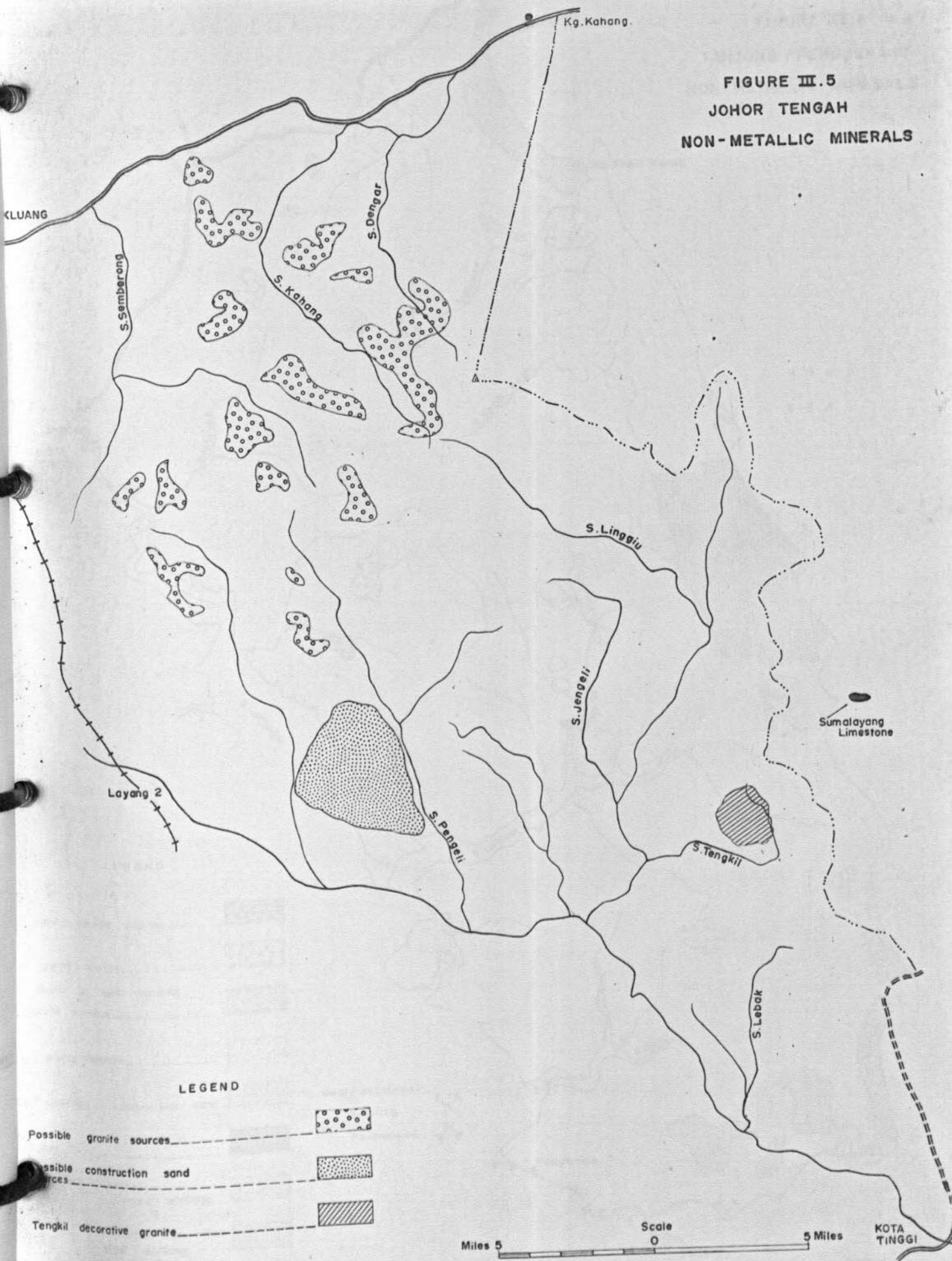


FIGURE III.5
 JOHOR TENGAH
 NON-METALLIC MINERALS



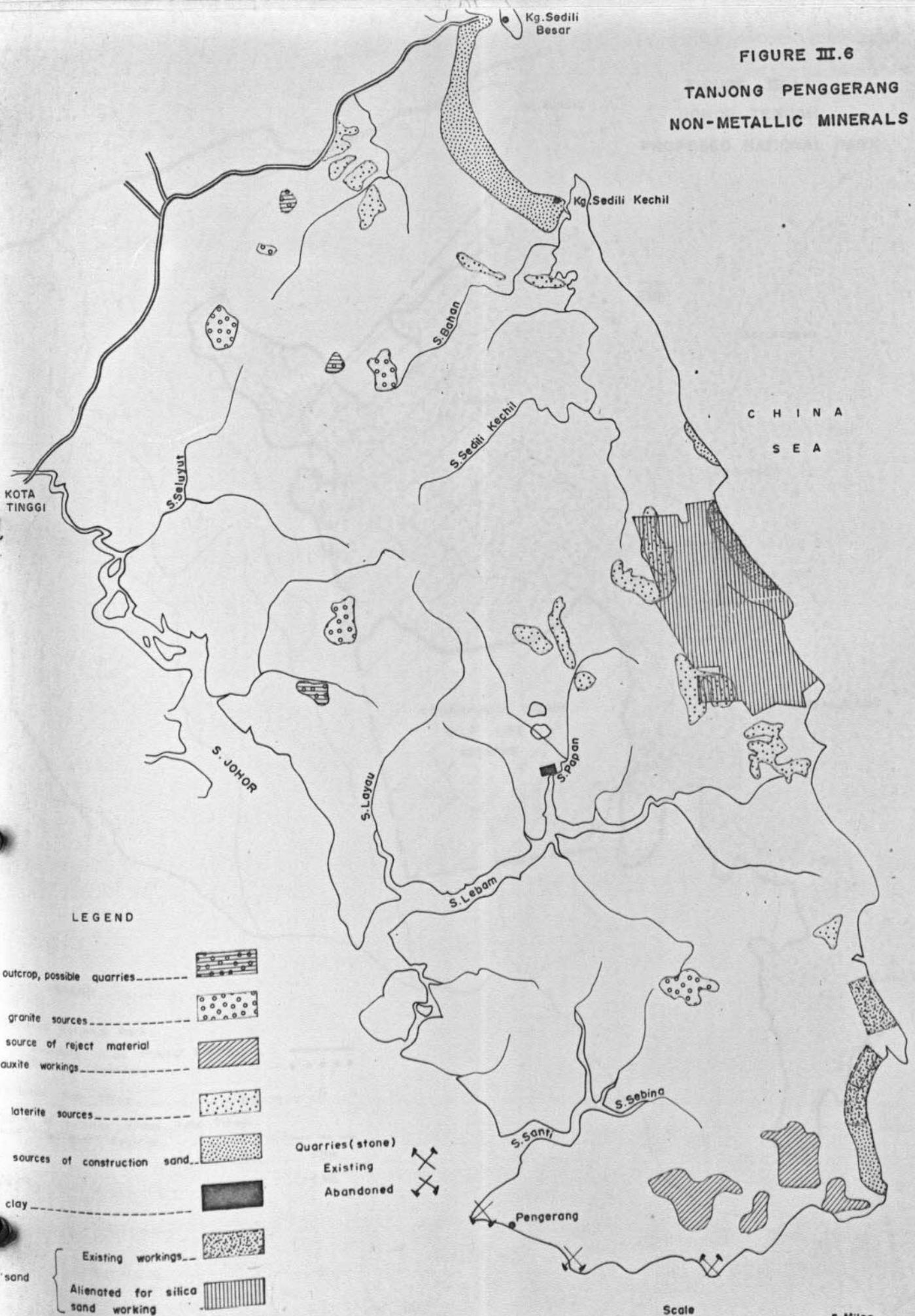
LEGEND

- Possible granite sources
- Possible construction sand
- Tengkil decorative granite

Miles 5
0
5 Miles
 Scale

KOTA TINGGI

FIGURE III.6
TANJONG PENGERANG
NON-METALLIC MINERALS



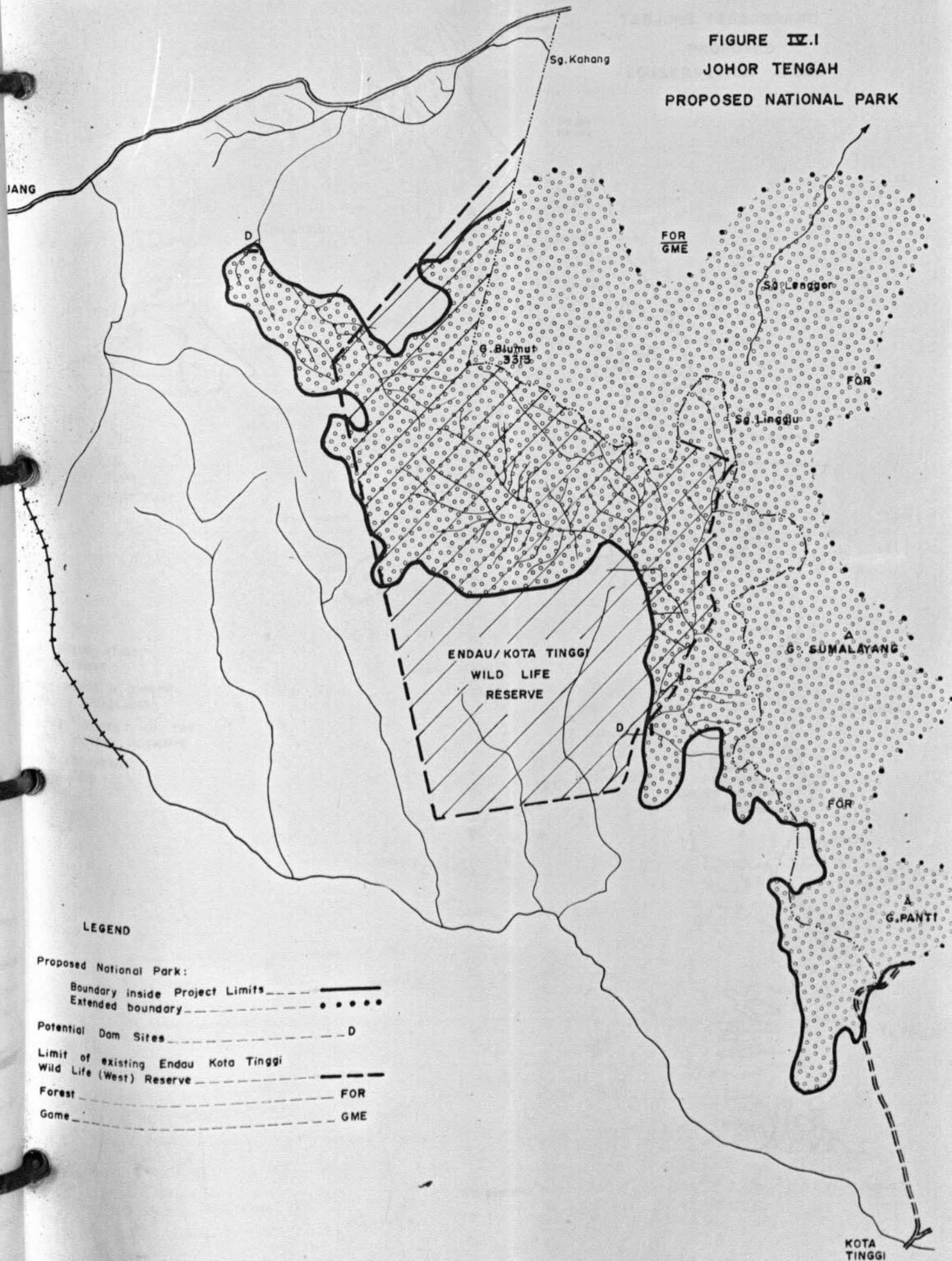
LEGEND

- Rock outcrop, possible quarries
- Possible granite sources
- Possible source of reject material
- Bauxite workings
- Possible laterite sources
- Possible sources of construction sand
- Clay
- Existing workings
- Alienated for silica sand working

- Quarries (stone)
- Existing
 - Abandoned

Miles 5
 Scale 0 5 Miles

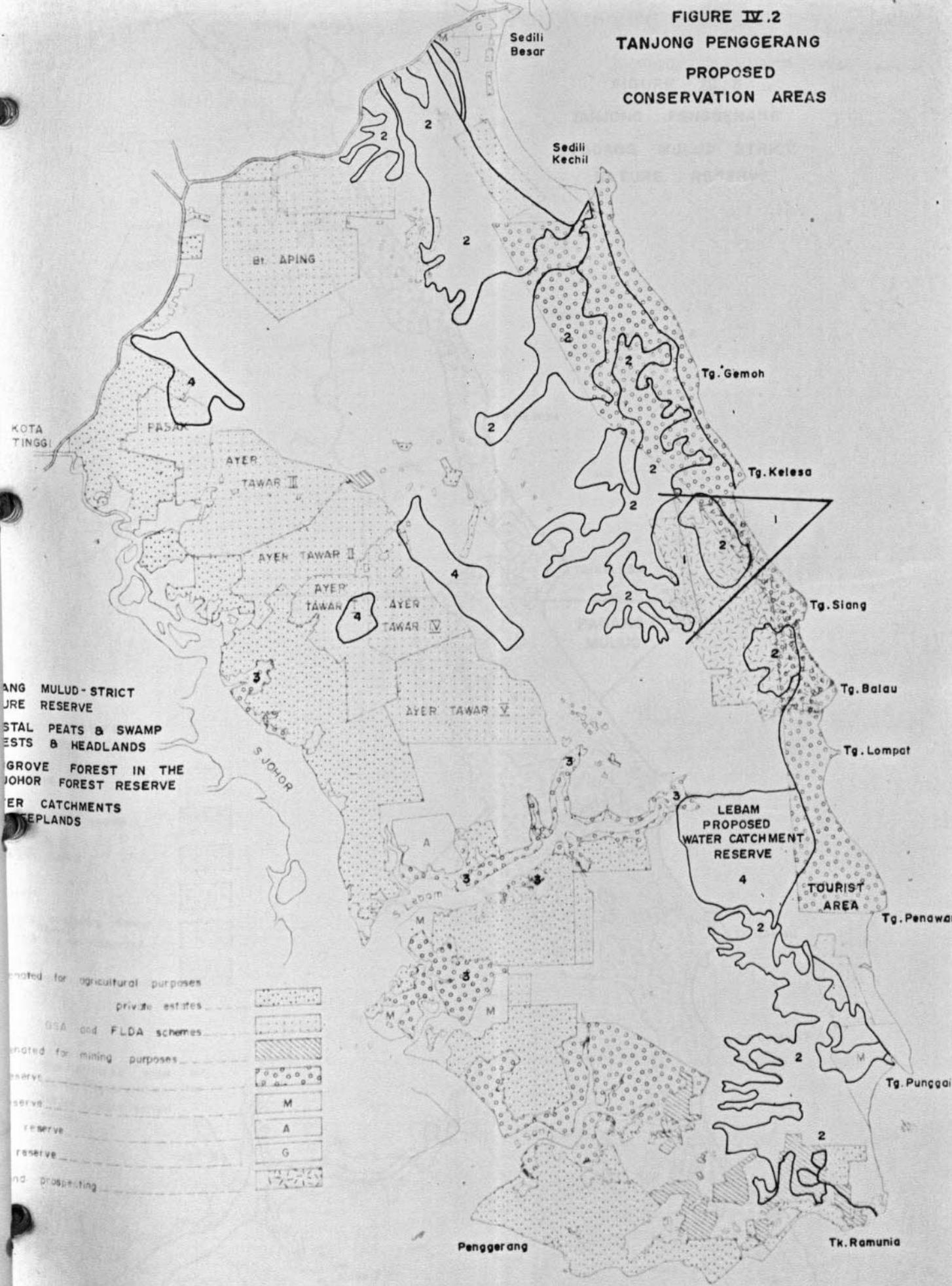
FIGURE IV.1
 JOHOR TENGAH
 PROPOSED NATIONAL PARK



LEGEND

- Proposed National Park:
- Boundary inside Project Limits ————
 - Extended boundary
 - Potential Dam Sites ———— D
 - Limit of existing Endau Kota Tinggi Wild Life Reserve ————
 - Forest ———— FOR
 - Game ———— GME

FIGURE IV.2
TANJONG PENGGERANG
PROPOSED
CONSERVATION AREAS

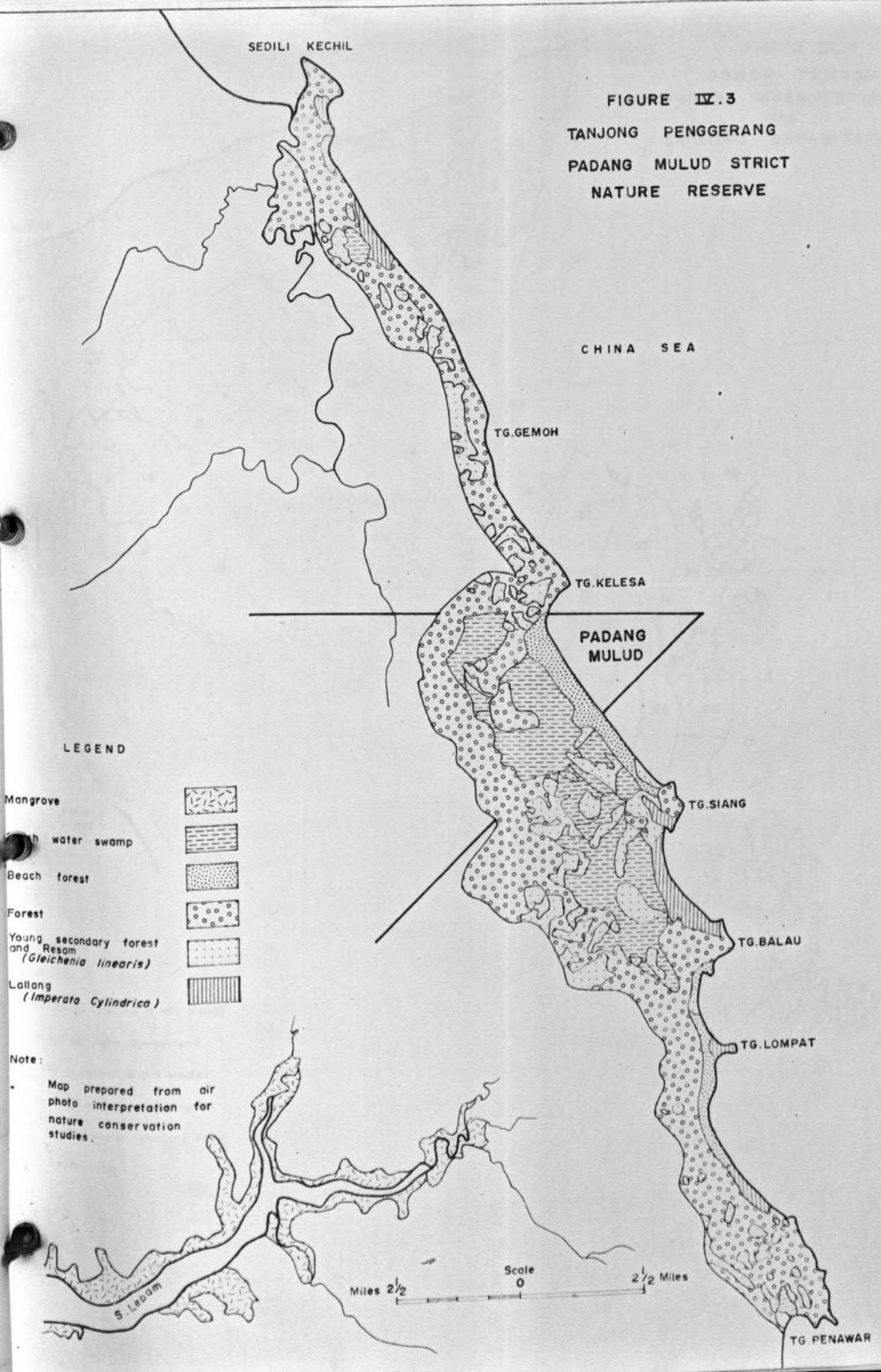


ANG MULUD-STRICT
 URE RESERVE
 TAL PEATS & SWAMP
 ESTS & HEADLANDS
 GROVE FOREST IN THE
 JOHOR FOREST RESERVE
 ER CATCHMENTS
 EPLANDS

ated for agricultural purposes	
private estates	
GSA and FLDA schemes	
ated for mining purposes	
erary	
serve	
serve	
serve	
nd prospecting	

Scale
 Miles 0 5 Miles

FIGURE IV.3
 TANJONG PENGGERANG
 PADANG MULUD STRICT
 NATURE RESERVE



SEDILI KECHIL

CHINA SEA

TG. GEMOH

TG. KELESA

PADANG
 MULUD

LEGEND

- Mangrove
- Fresh water swamp
- Beach forest
- Forest
- Young secondary forest and Resam (*Gleichenia linearis*)
- Lallang (*Imperata Cylindrica*)

TG. SIANG

TG. BALAU

TG. LOMPAT

TG. PENAWAR

Note:

Map prepared from air photo interpretation for nature conservation studies.

Scale 0 2 1/2 Miles

S. Labam

FIGURE IV.4
 JOHOR TENGAH
 FOREST INVENTORY AREA
 and
 EXISTING EXPLOITATION

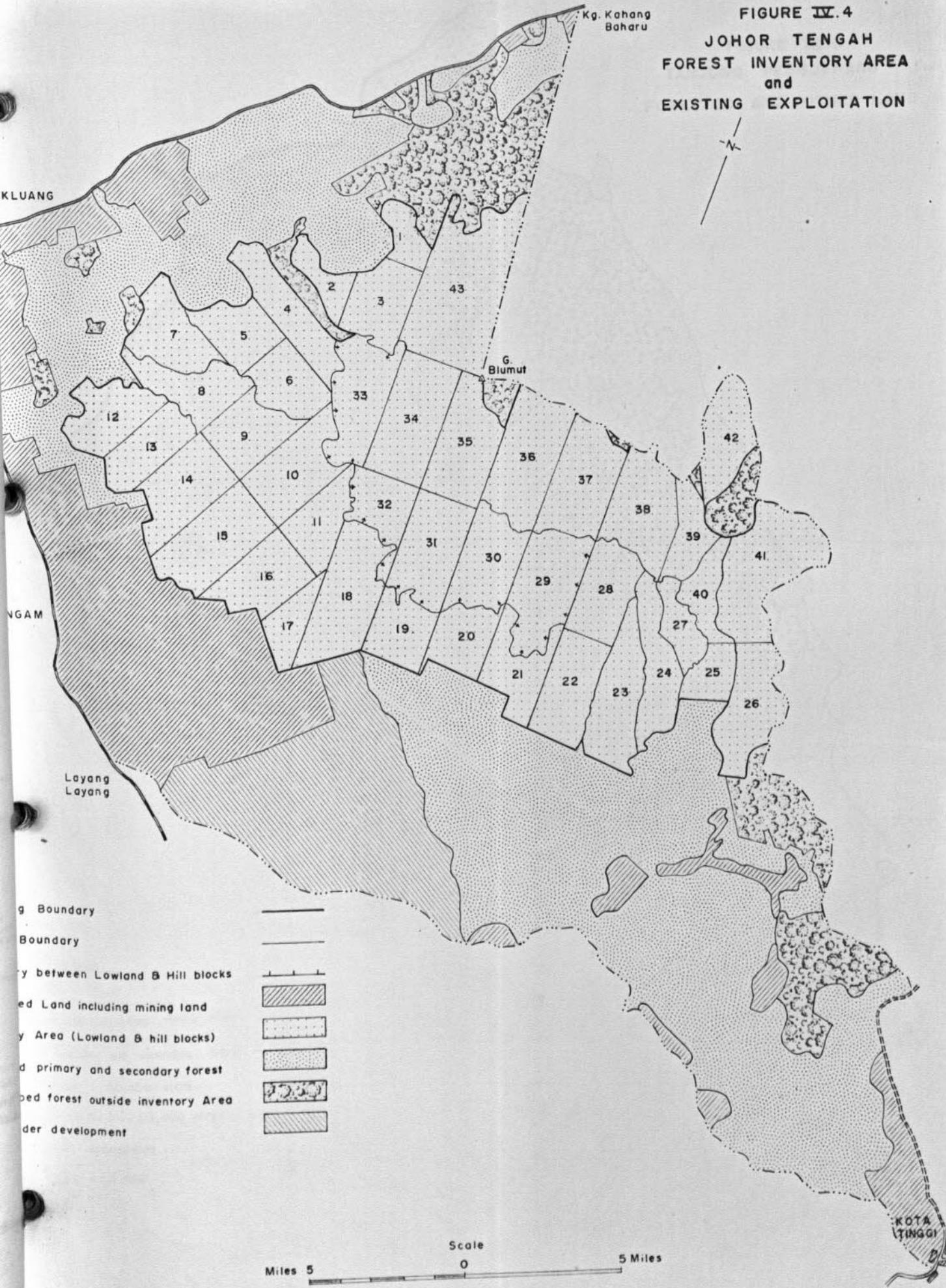
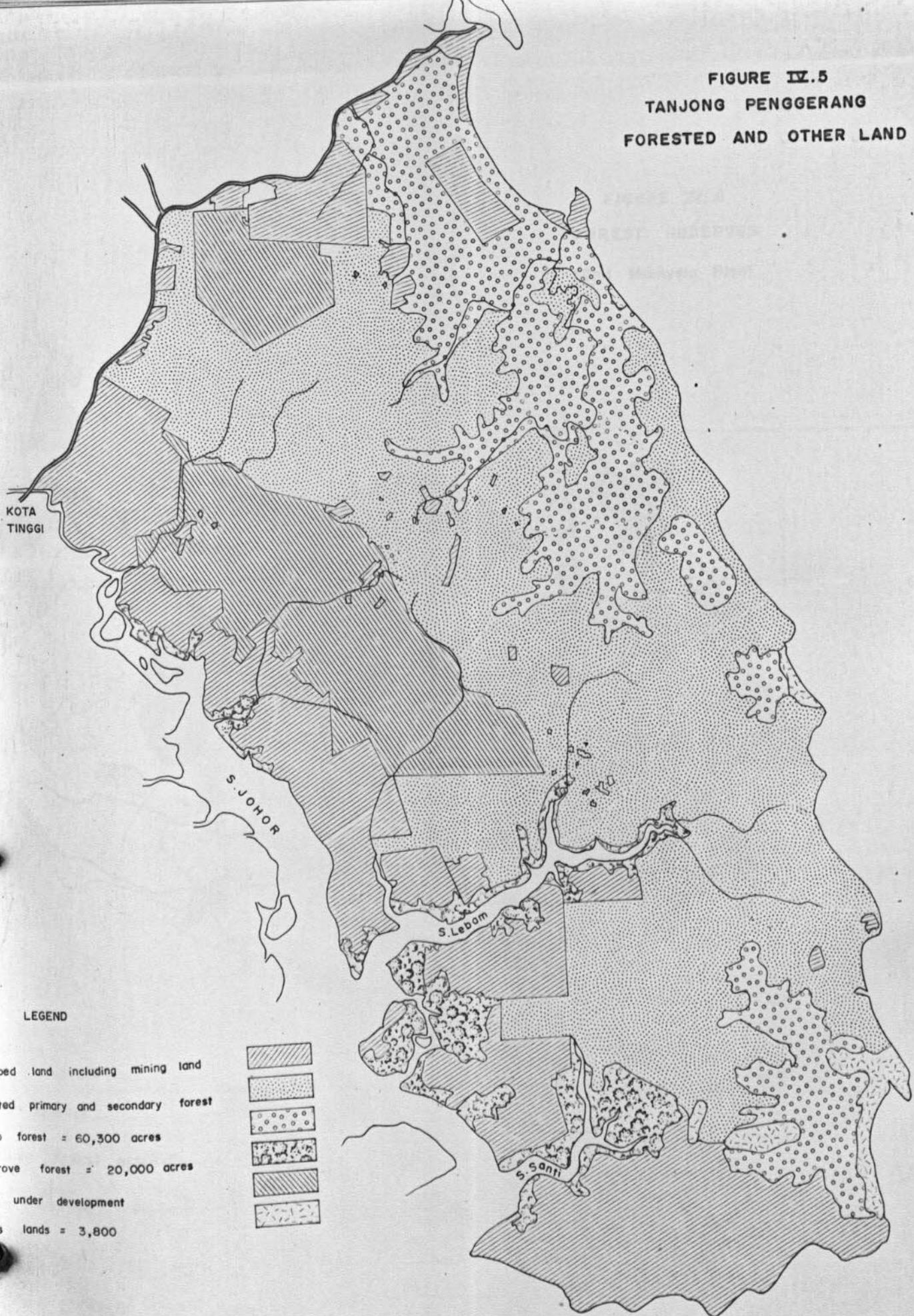


FIGURE IV.5
TANJONG PENGGERANG
FORESTED AND OTHER LAND



LEGEND

- Developed land including mining land
- Cleared primary and secondary forest
- Temp forest = 60,300 acres
- Grove forest = 20,000 acres
- Land under development
- Waste lands = 3,800

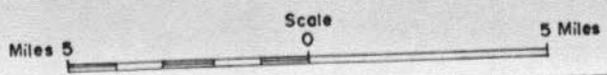
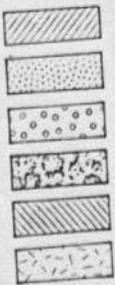
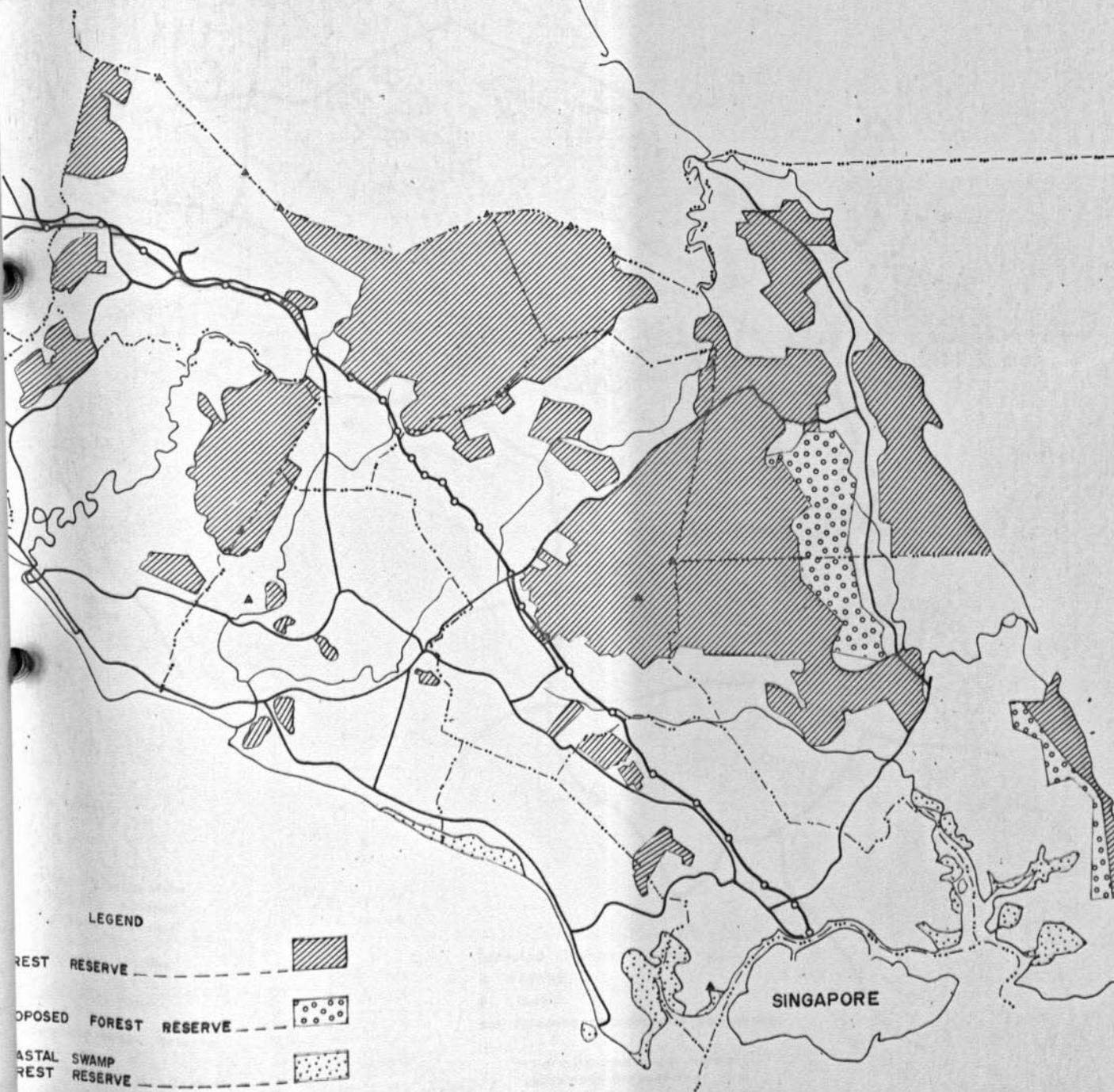


FIGURE IV.6
 FOREST RESERVES
 (2nd Malaysia Plan)



LEGEND

EXISTING FOREST RESERVE — [diagonal hatching]

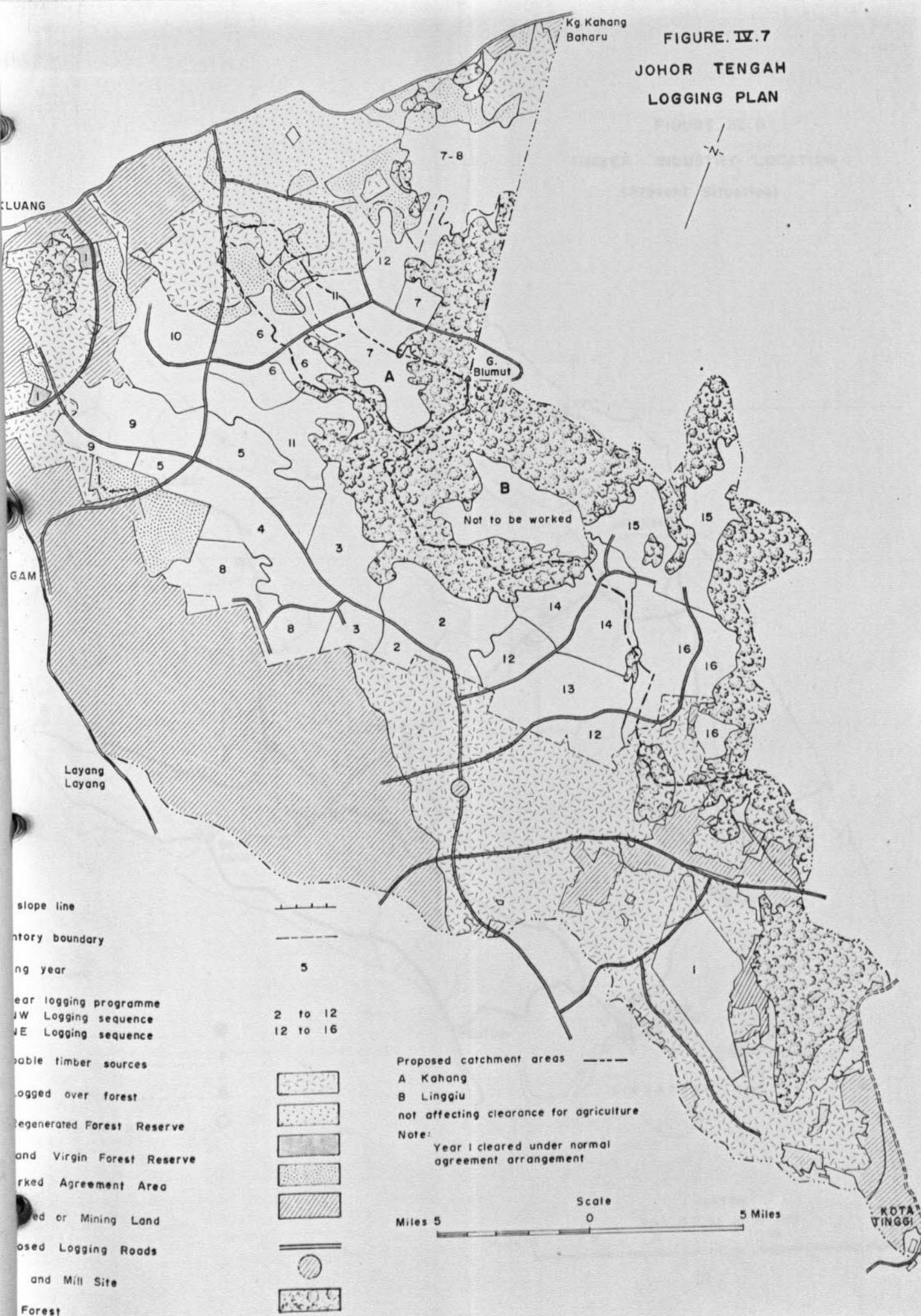
PROPOSED FOREST RESERVE — [dotted pattern]

COASTAL SWAMP FOREST RESERVE — [cross-hatching]

1:1013760
 Scale: 16 Miles to an inch

Miles 16 8 0 16 32 Miles

FIGURE IV.7
 JOHOR TENGAH
 LOGGING PLAN



LUANG

Kg Kahang
Baharu

N

7-8

10

12

7

G. Blumut

9

5

A

B

Not to be worked

5

3

15

15

GAM

8

2

14

16

16

Layang
Layang

8

3

2

12

13

12

14

14

16

16

16

16

16

16

16

16

16

16

slope line

ntory boundary

ng year

ear logging programme

W Logging sequence

E Logging sequence

oable timber sources

ogged over forest

egenerated Forest Reserve

and Virgin Forest Reserve

arked Agreement Area

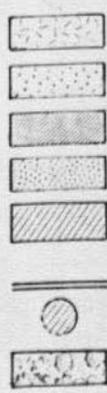
ed or Mining Land

osed Logging Roads

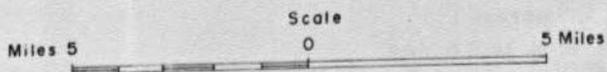
and Mill Site

Forest

2 to 12
12 to 16

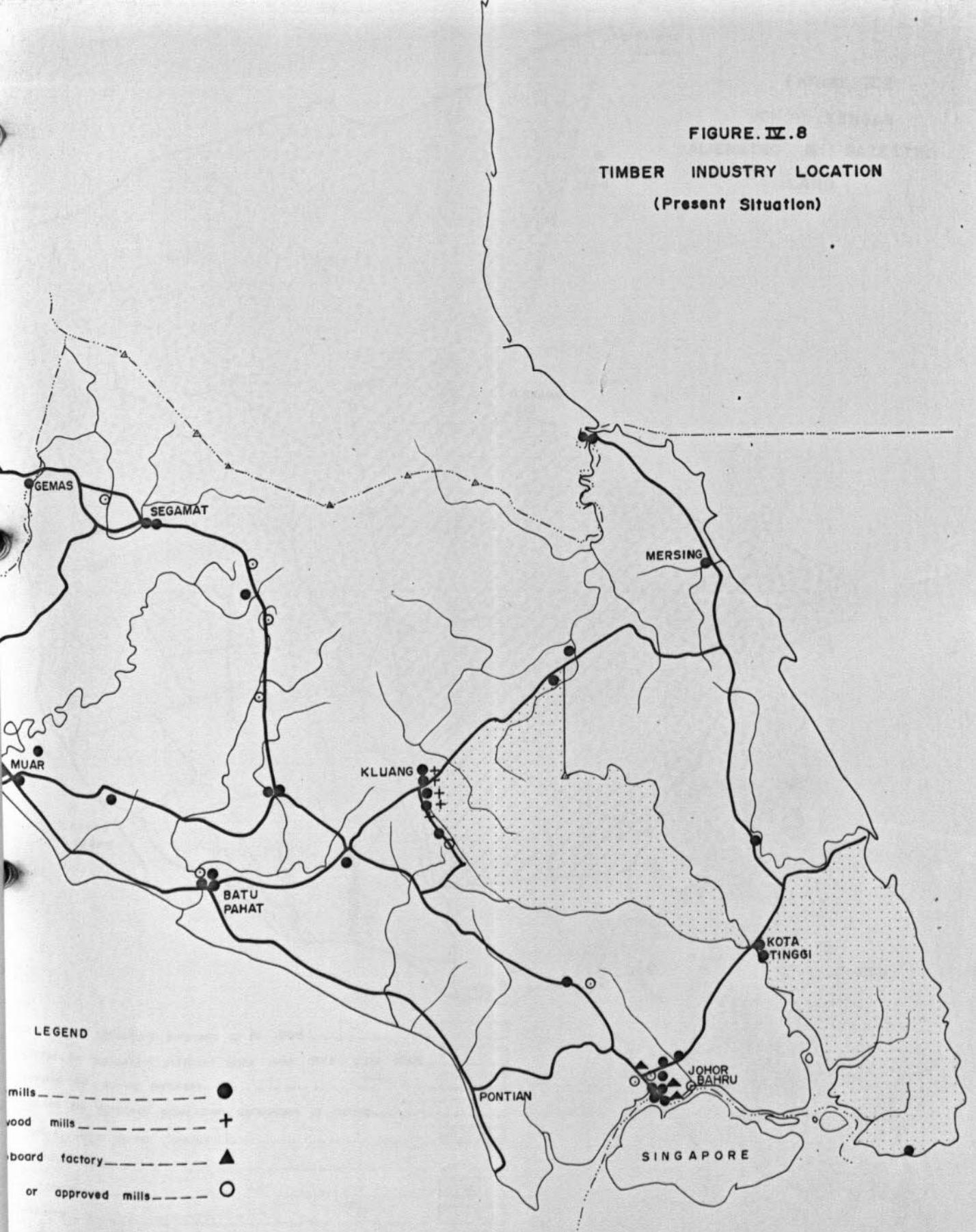


Proposed catchment areas
 A Kahang
 B Linggiu
 not affecting clearance for agriculture
 Note:
 Year 1 cleared under normal
 agreement arrangement



KOTA
TINGGI

FIGURE IV.8
 TIMBER INDUSTRY LOCATION
 (Present Situation)



LEGEND

mills ——— ●

wood mills ——— +

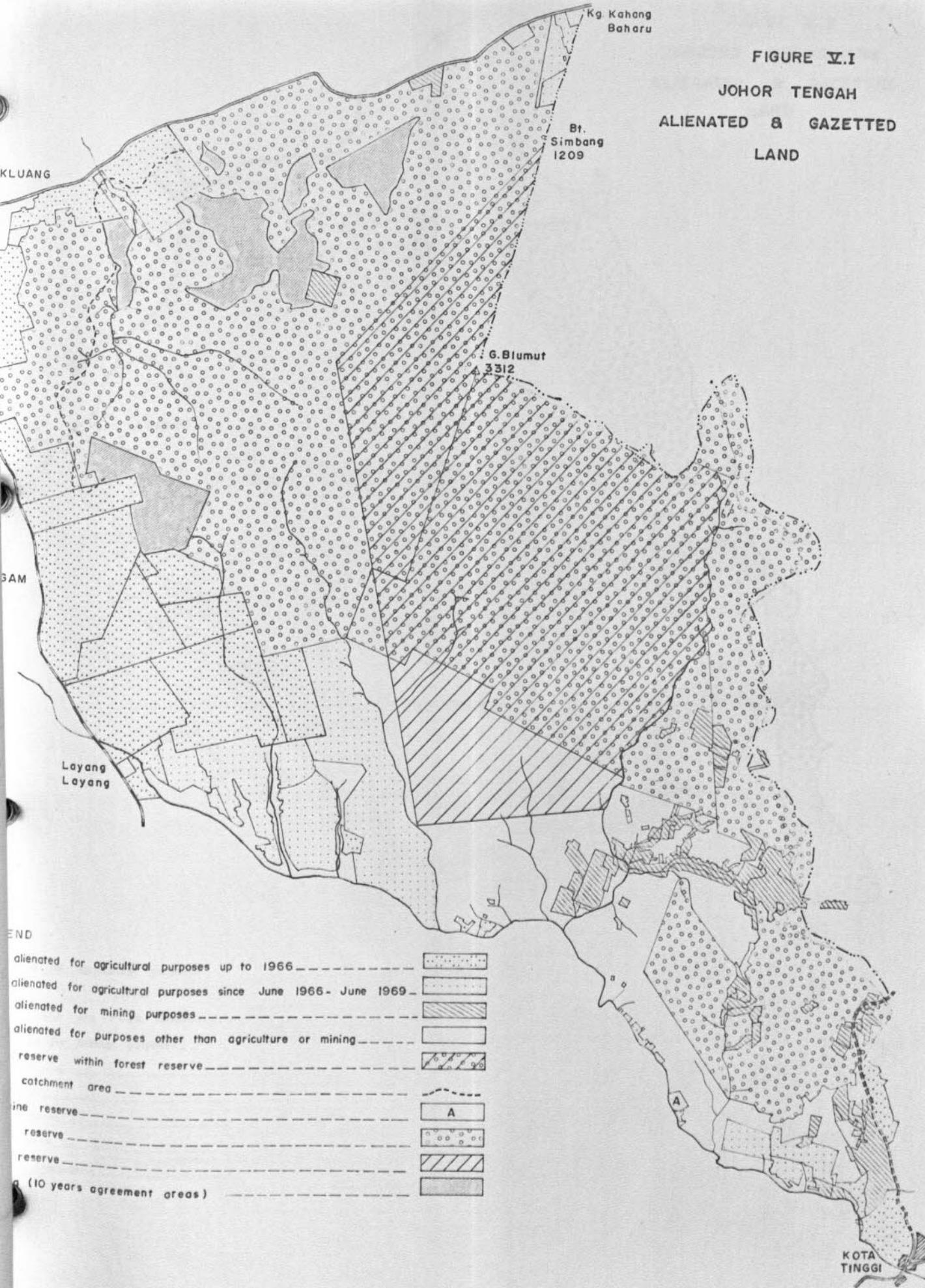
board factory ——— ▲

or approved mills ——— ○

1:1013760
 Scale 16 Miles to an inch

Miles 16 8 0 16 32 Miles

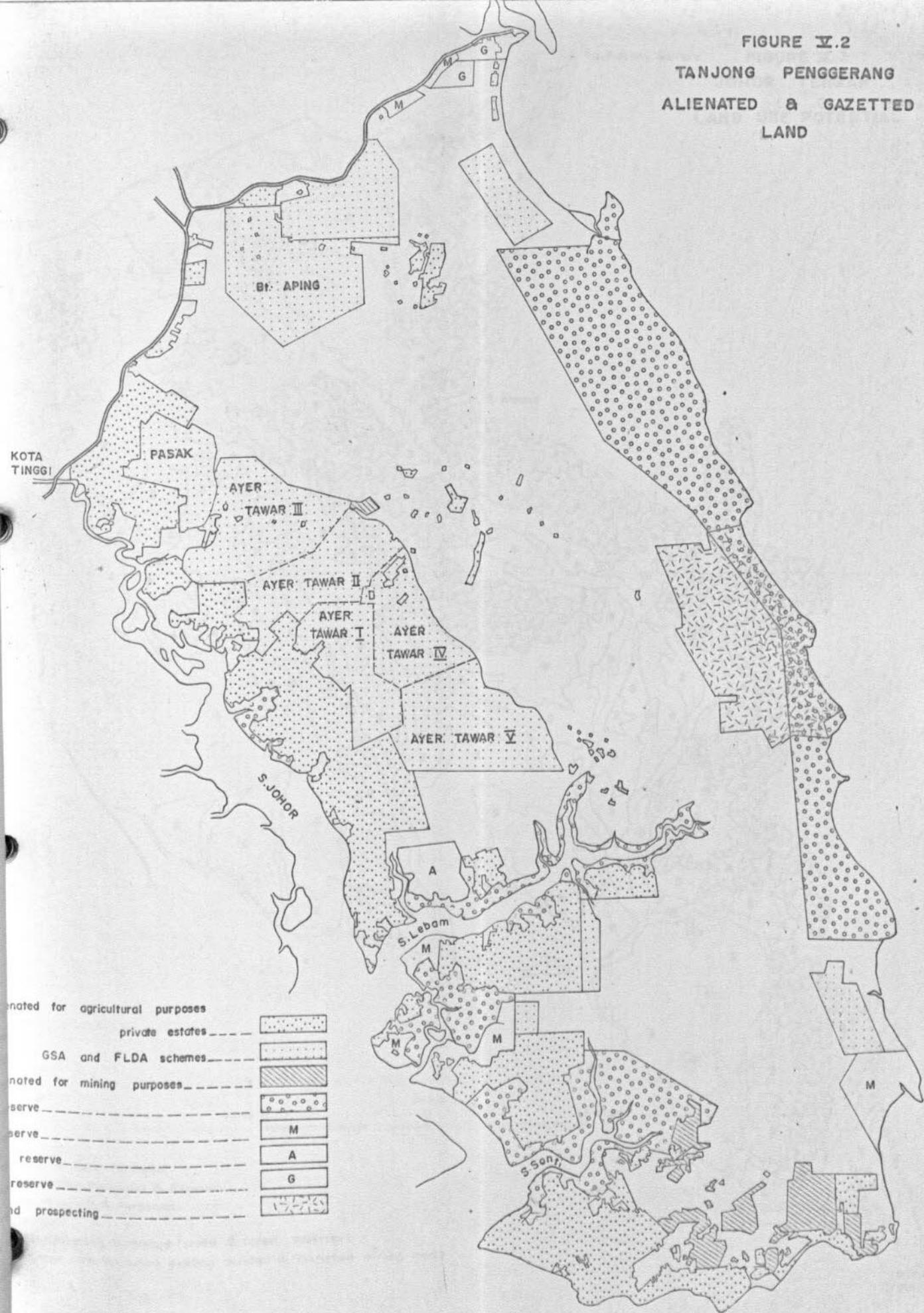
FIGURE V.I
 JOHOR TENGAH
 ALIENATED & GAZETTED
 LAND



- Legend:
- alienated for agricultural purposes up to 1966
 - alienated for agricultural purposes since June 1966 - June 1969
 - alienated for mining purposes
 - alienated for purposes other than agriculture or mining
 - reserve within forest reserve
 - catchment area
 - line reserve
 - reserve
 - reserve
 - (10 years agreement areas)

END

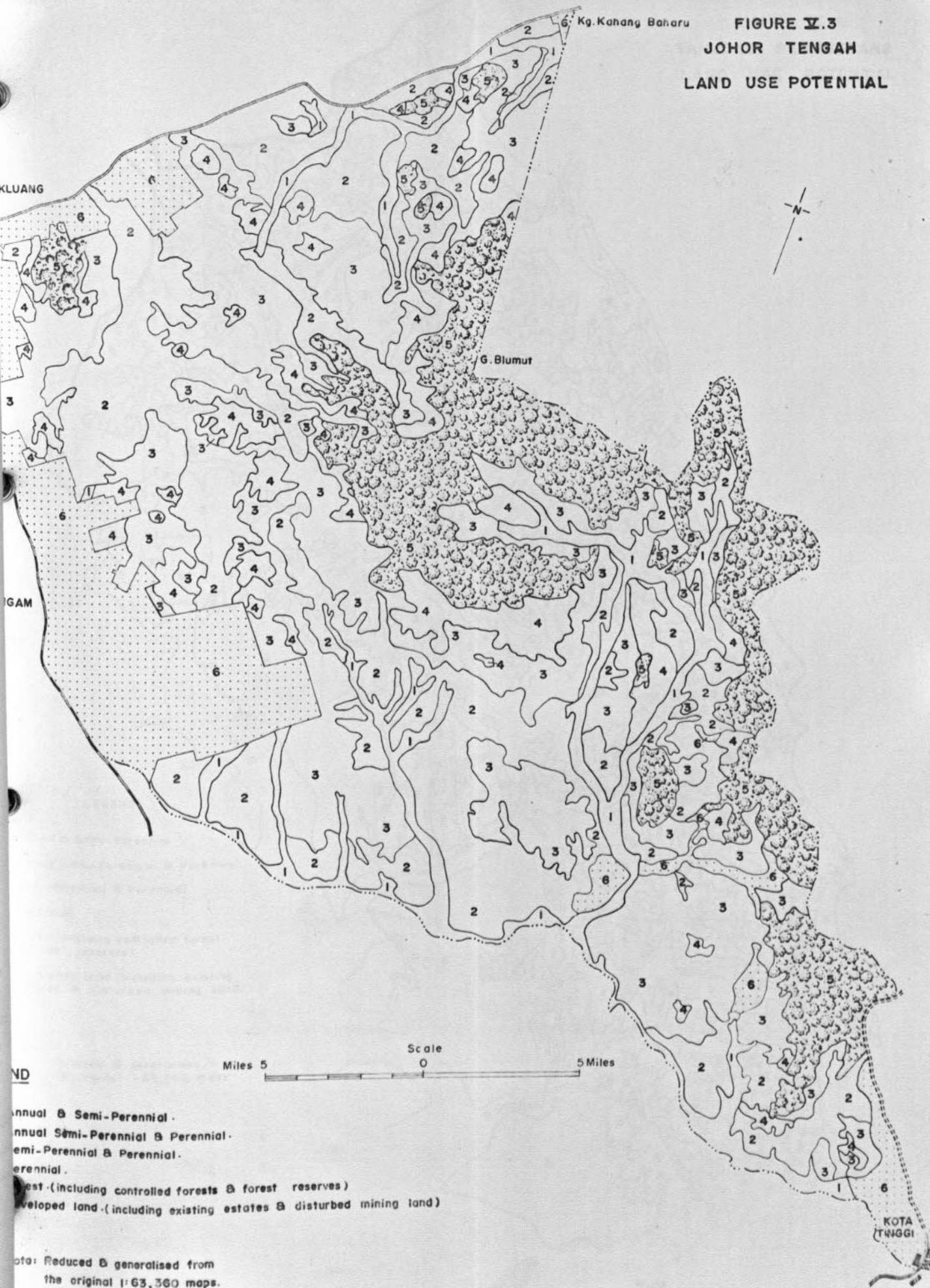
FIGURE V.2
 TANJONG PENGGERANG
 ALIENATED & GAZETTED
 LAND



- designated for agricultural purposes
- private estates
- GSA and FLDA schemes
- designated for mining purposes
- reserve
- reserve
- reserve
- reserve
- and prospecting

Scale
 Miles 5 0 5 Miles

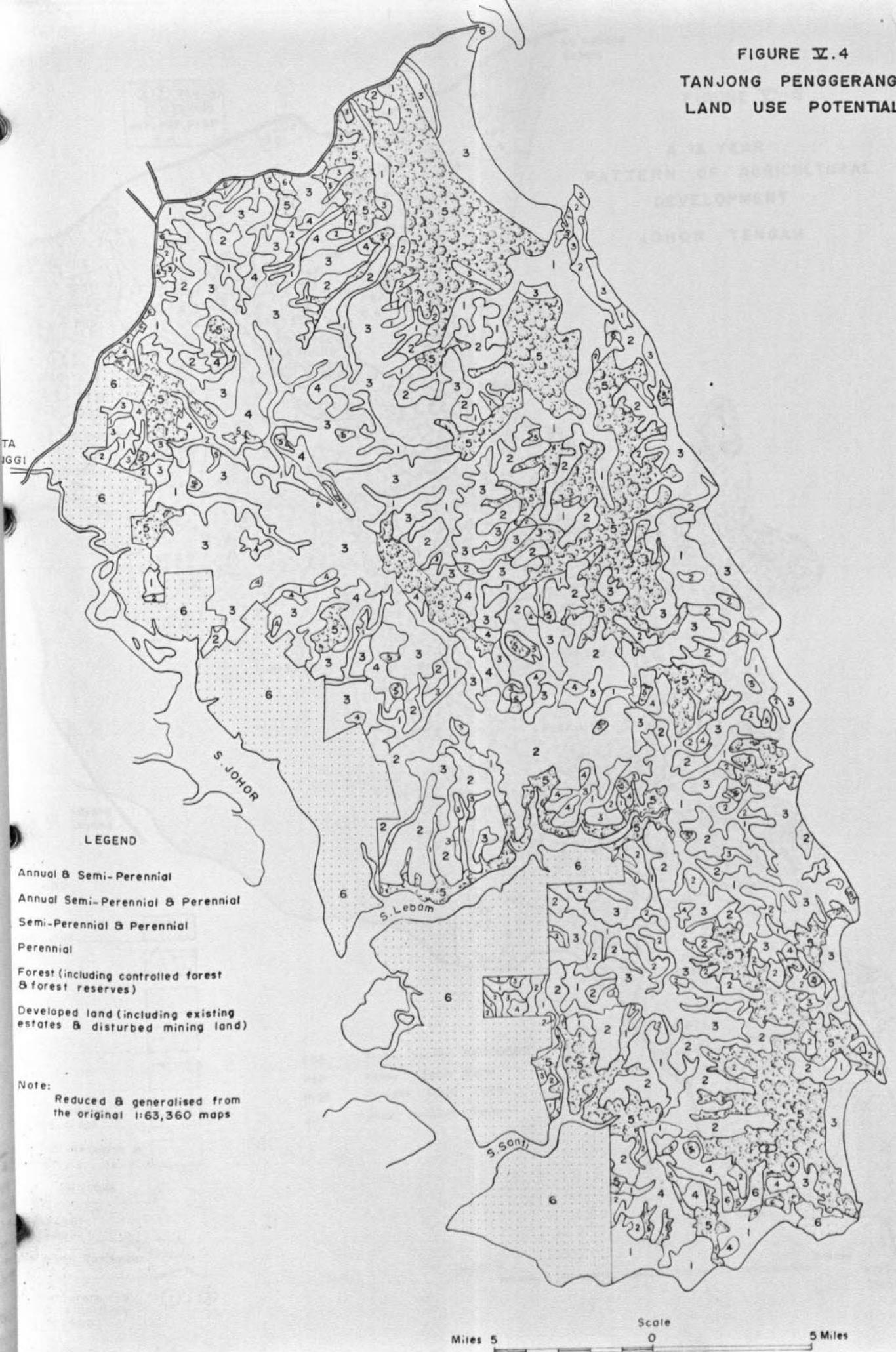
FIGURE V.3
JOHOR TENGAH
LAND USE POTENTIAL



- 1. Annual & Semi-Perennial.
- 2. Annual Semi-Perennial & Perennial.
- 3. Semi-Perennial & Perennial.
- 4. Perennial.
- 5. Forest (including controlled forests & forest reserves)
- 6. Developed land (including existing estates & disturbed mining land)

Notes: Reduced & generalised from the original 1:63,360 maps.

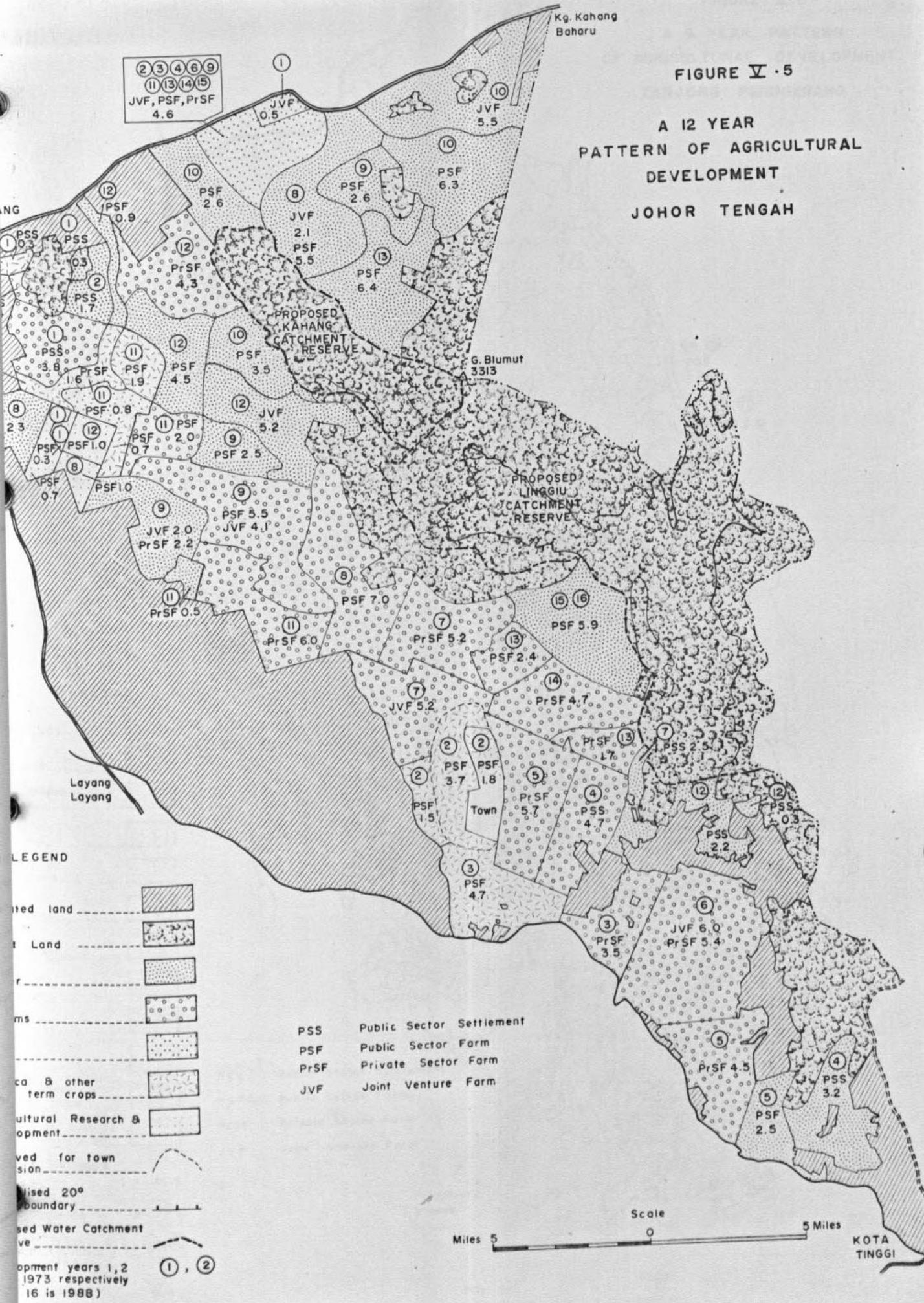
FIGURE V.4
TANJONG PENGERANG
LAND USE POTENTIAL



Kg. Kahang
Baharu

FIGURE V .5

A 12 YEAR
PATTERN OF AGRICULTURAL
DEVELOPMENT
JOHOR TENGAH



2 3 4 6 9
11 13 14 15
JVF, PSF, PrSF
4.6

- LEGEND
- ated land
 - t Land
 - r
 - ms
 - ca & other term crops
 - ultural Research & opment
 - ved for town sion
 - lised 20° boundary
 - sed Water Catchment ve
 - opment years 1, 2 (1973 respectively 16 is 1988)
 - (thousands)

PSS Public Sector Settlement
PSF Public Sector Farm
PrSF Private Sector Farm
JVF Joint Venture Farm

Scale
Miles 5 0 5 Miles

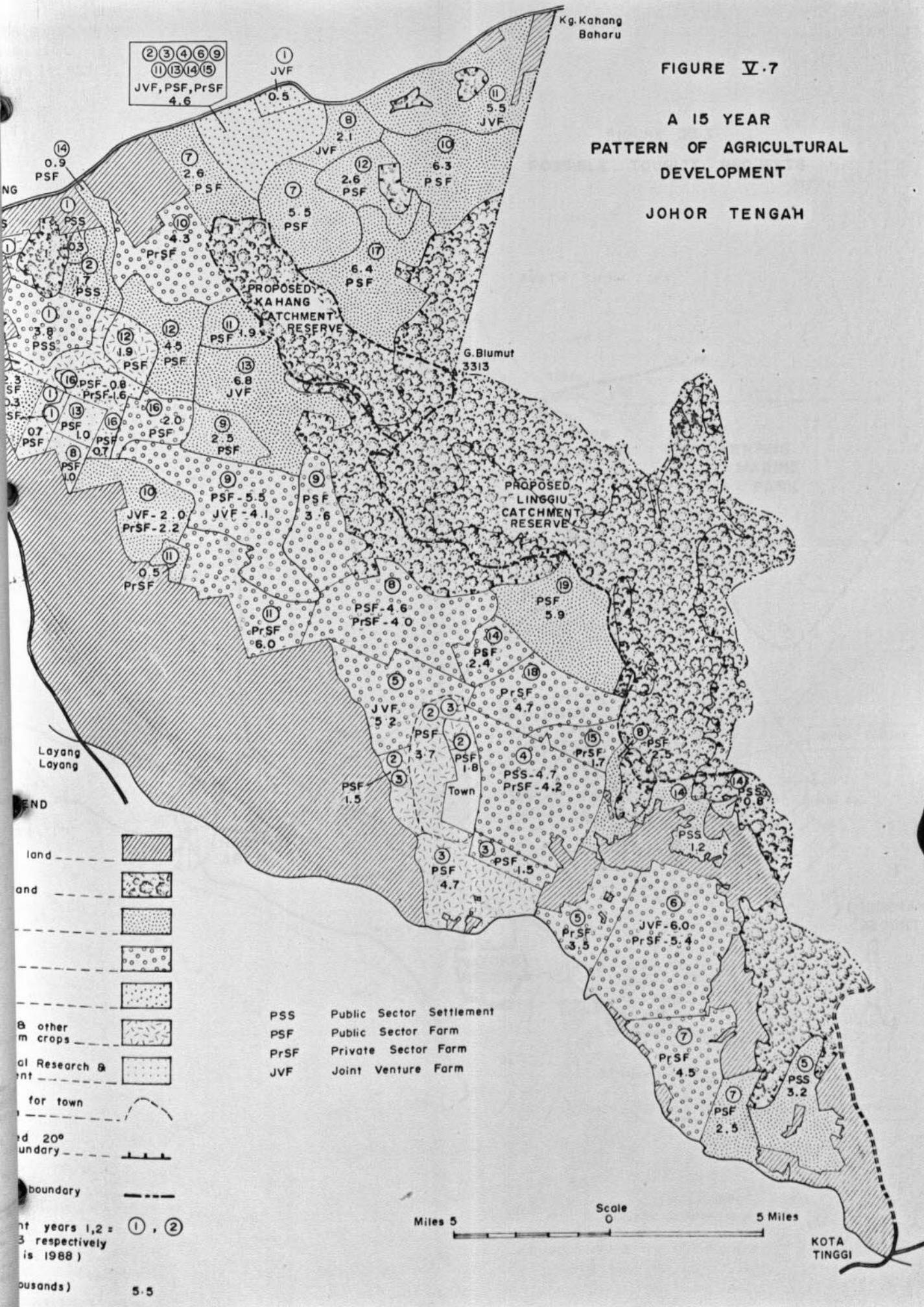
KOTA TINGGI

Kg. Kahang
Baharu

FIGURE V.7

A 15 YEAR
PATTERN OF AGRICULTURAL
DEVELOPMENT

JOHOR TENGAH



2 3 4 6 9
11 13 14 15
JVF, PSF, PrSF
4.6

PSS Public Sector Settlement
PSF Public Sector Farm
PrSF Private Sector Farm
JVF Joint Venture Farm

- land
- and
- and other crops
- al Research & ent
- for town
- and 20° boundary
- boundary

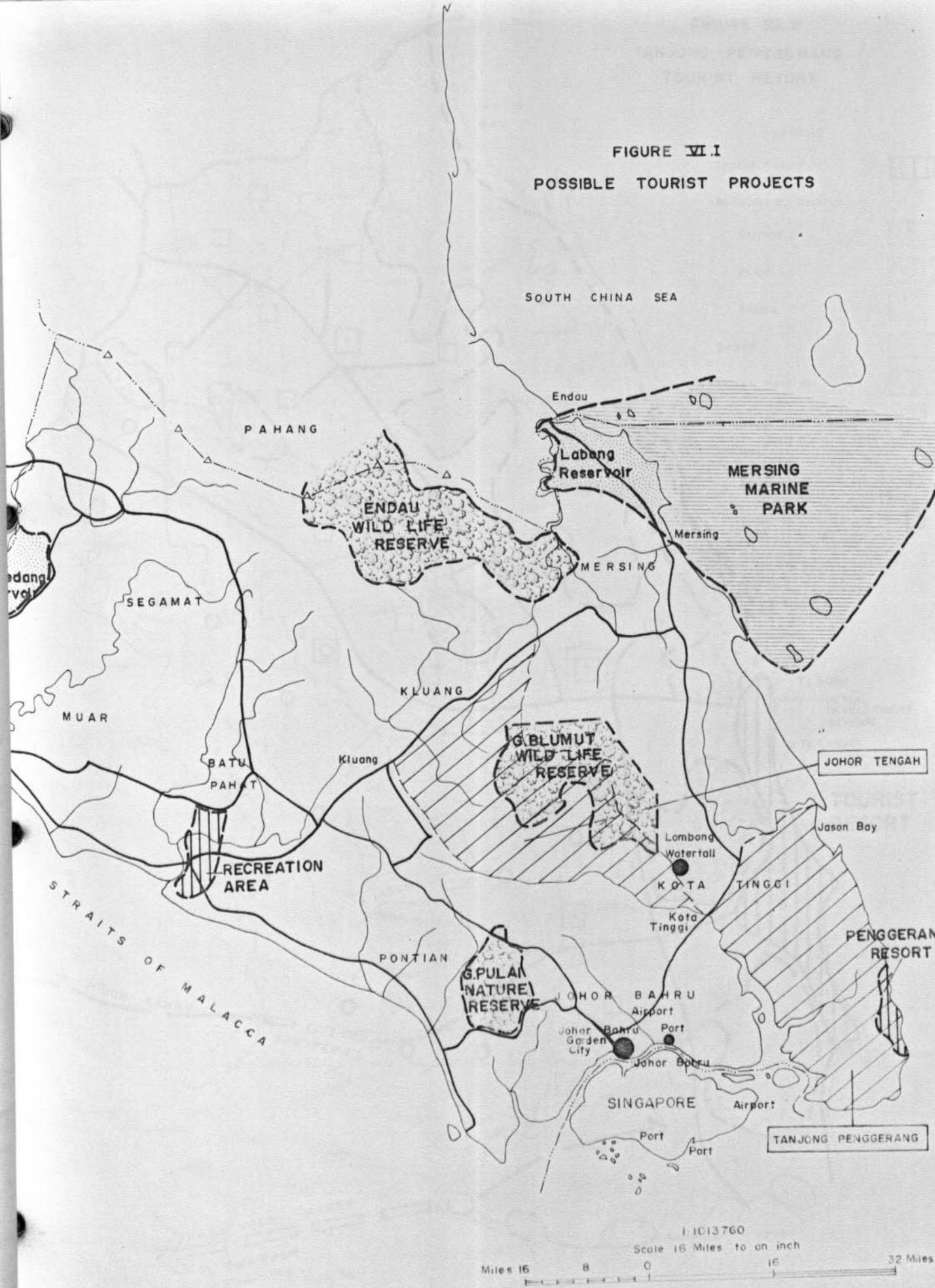
nt years 1,2 = ①, ②
3 respectively
(is 1988)

Miles 5 Scale 0 5 Miles

KOTA
TINGGI

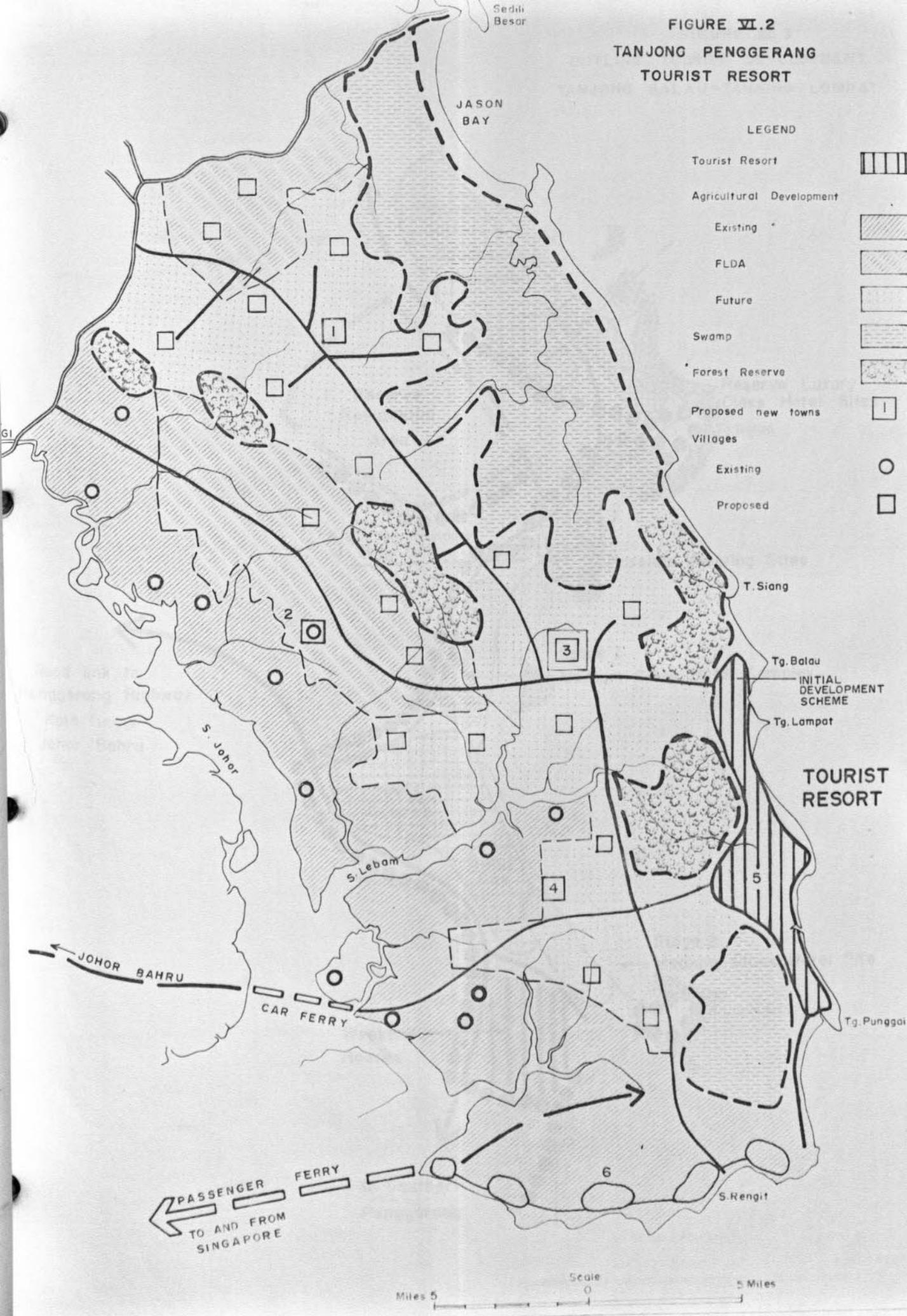
ousands) 5.5

FIGURE VI.1
POSSIBLE TOURIST PROJECTS



1:1013760
Scale 16 Miles to an inch
Miles 16 8 0 16 32 Miles

FIGURE VI.2
TANJONG PENGGERANG
TOURIST RESORT



LEGEND

- Tourist Resort 
- Agricultural Development
 - Existing 
 - FLDA 
 - Future 
- Swamp 
- Forest Reserve 
- Proposed new towns 
- Villages
 - Existing 
 - Proposed 

Scale
 0 5 Miles

FIGURE VI.3
 OUTLINE TOURIST DEVELOPMENT
 TANJONG BALAU-TANJONG LOMPAT

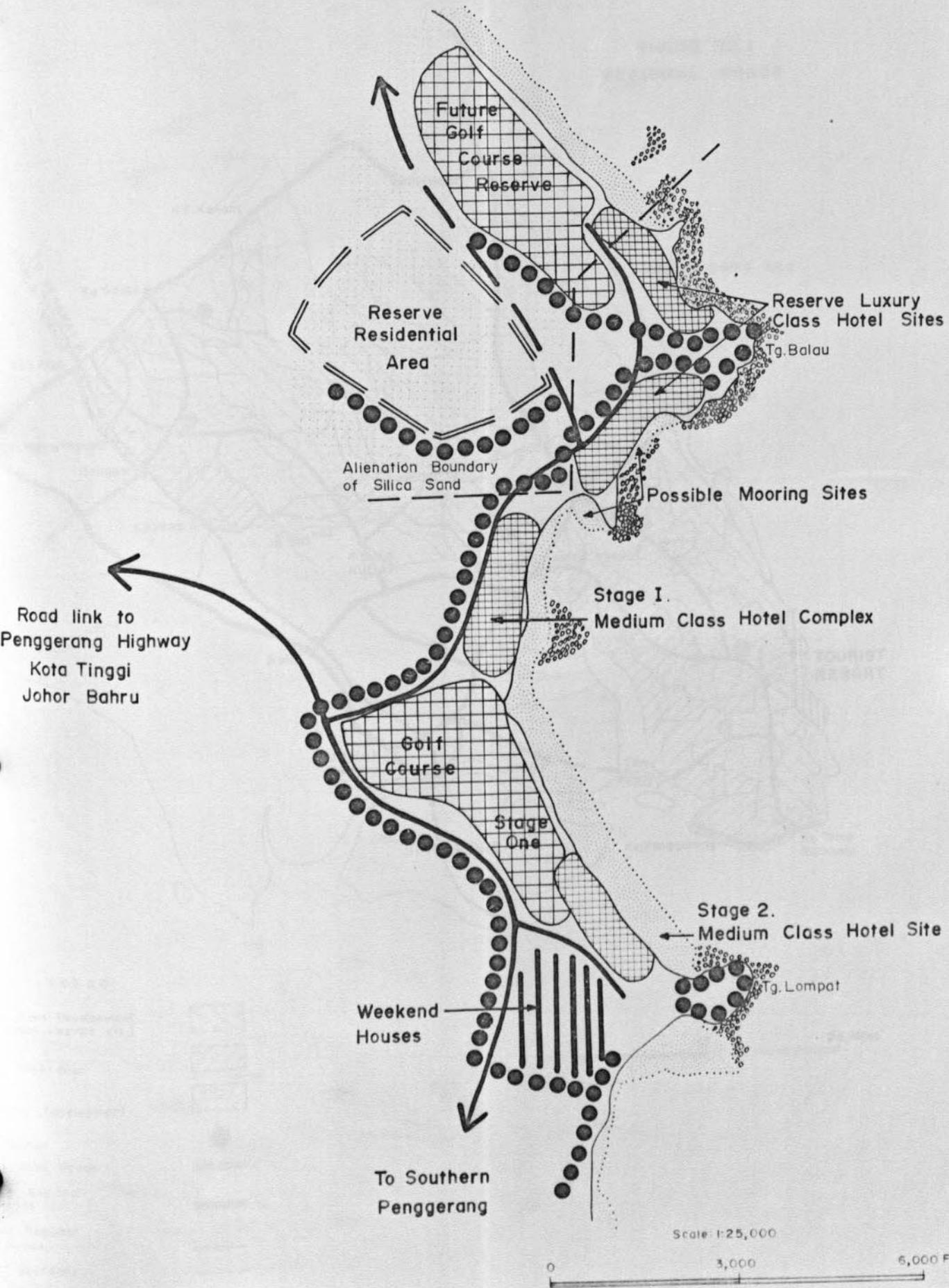
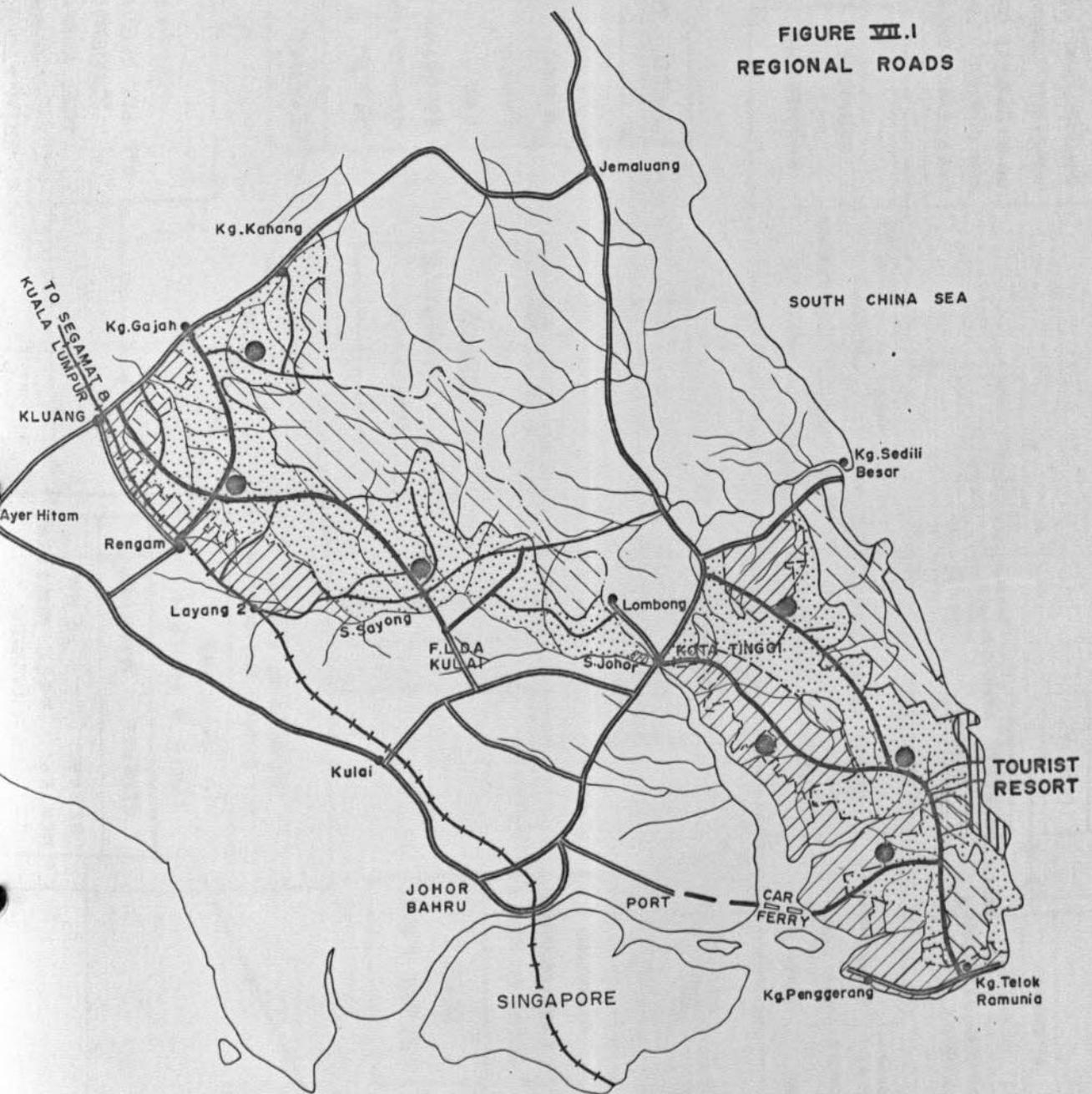
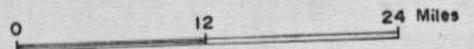


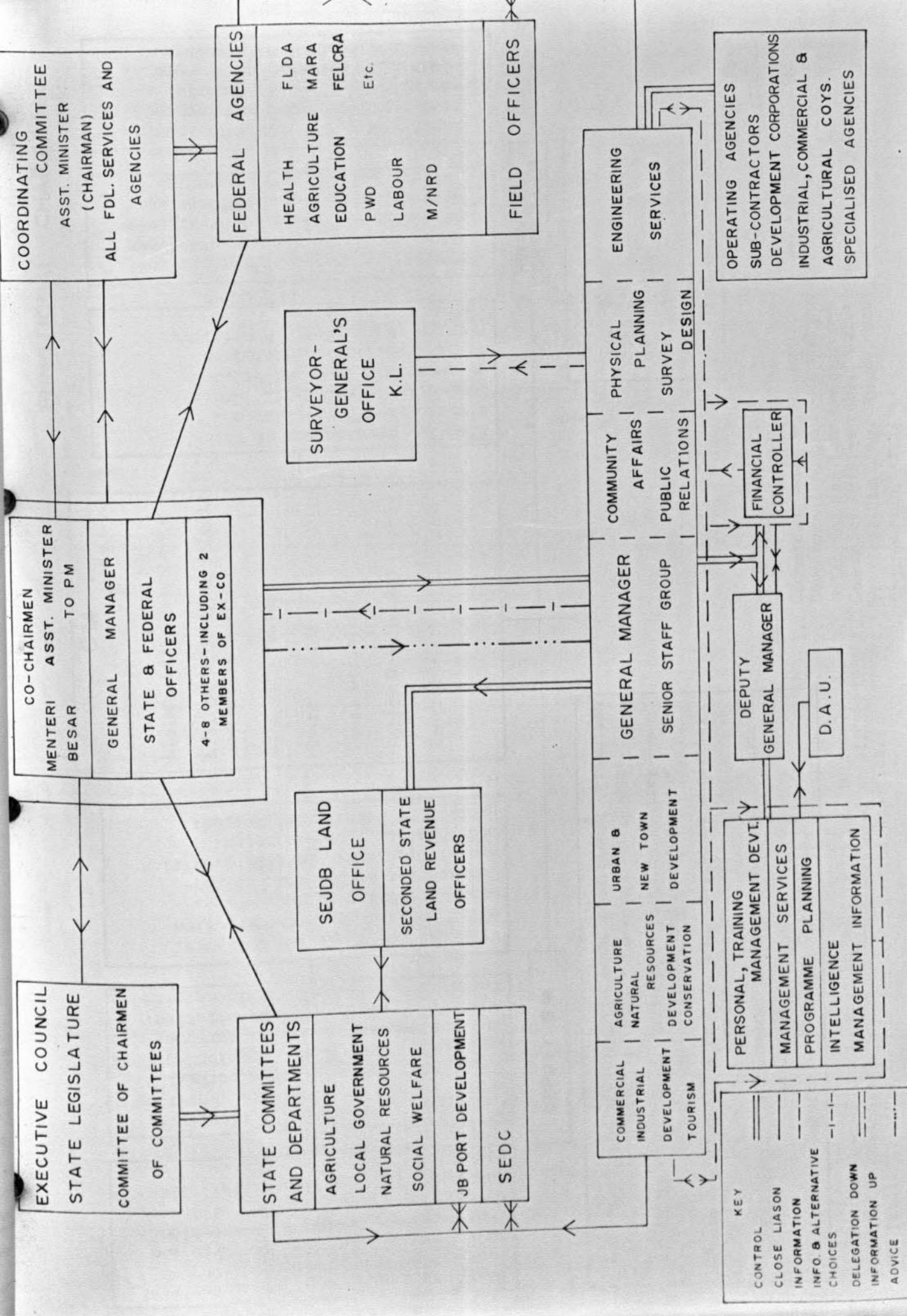
FIGURE VII.1
REGIONAL ROADS



LEGEND

- ed from Development
(ervation, swamps' etc.)
- ng Alienation
- ltural Development
- Centres
- g Main Roads
- ed Regional
Roads
- sed Regional
Roads
- ct Boundary





FUNCTIONAL CHART

6

5

4

3

2

1

GM

- Leadership
- Liaison with Governments
- Liaison with major private and public bodies
- Link with Policy
- Board
- Final Decisions
- Policy Development
- Control

Planning new towns and villages, enlarging old towns in connection with S. setting objectives. Concern for Social and Environmental problems. Capital provision and physical implementation. Control of Development Boards.

Planning development. Agriculture, Forests and Fisheries etc. Ensuring necessary, infrastructure, credit and other facilities. Developing land and resources directly or through Agents. Promotion and Negotiation. Technical control and Training.

Maximising commercial and industrial development in accordance with objectives. Promotion of these and Tourist, Development Direct action or through Agents, Control of these, Ensuring, infrastructure available etc.

Planning development of thinking citizens and participation. Control of temporary Town and Village Committees link with citizen opinion and groups. Publicity, Press, TV and Radio.

Physical planning objectives and means to attain these; standards of design. Control of developers approval of design. Surveys for Title; and for development.

Engineering Planning - to ensure that infrastructure requirements met by dead lines in forward Planning. Directly or by Agents. Standards control Maintenance.

FINANCIAL CONTROLLER

- Accounting Services
- Cash flow
- Finance
- Estimates
- Budgetary control
- Financial Analysis and information

DEPUTY G.M

- Personnel - Establishment; Staff conditions; Promotion policies; etc. - etc. Manpower Budget.
- Training - All Staff training; training centre; Management Training and Development.*
- Programme Planning - programme budget, issue analysis; performance measures.
- Intelligence - statistical and other information and interpretation
- Management Services - O and M, work Study.

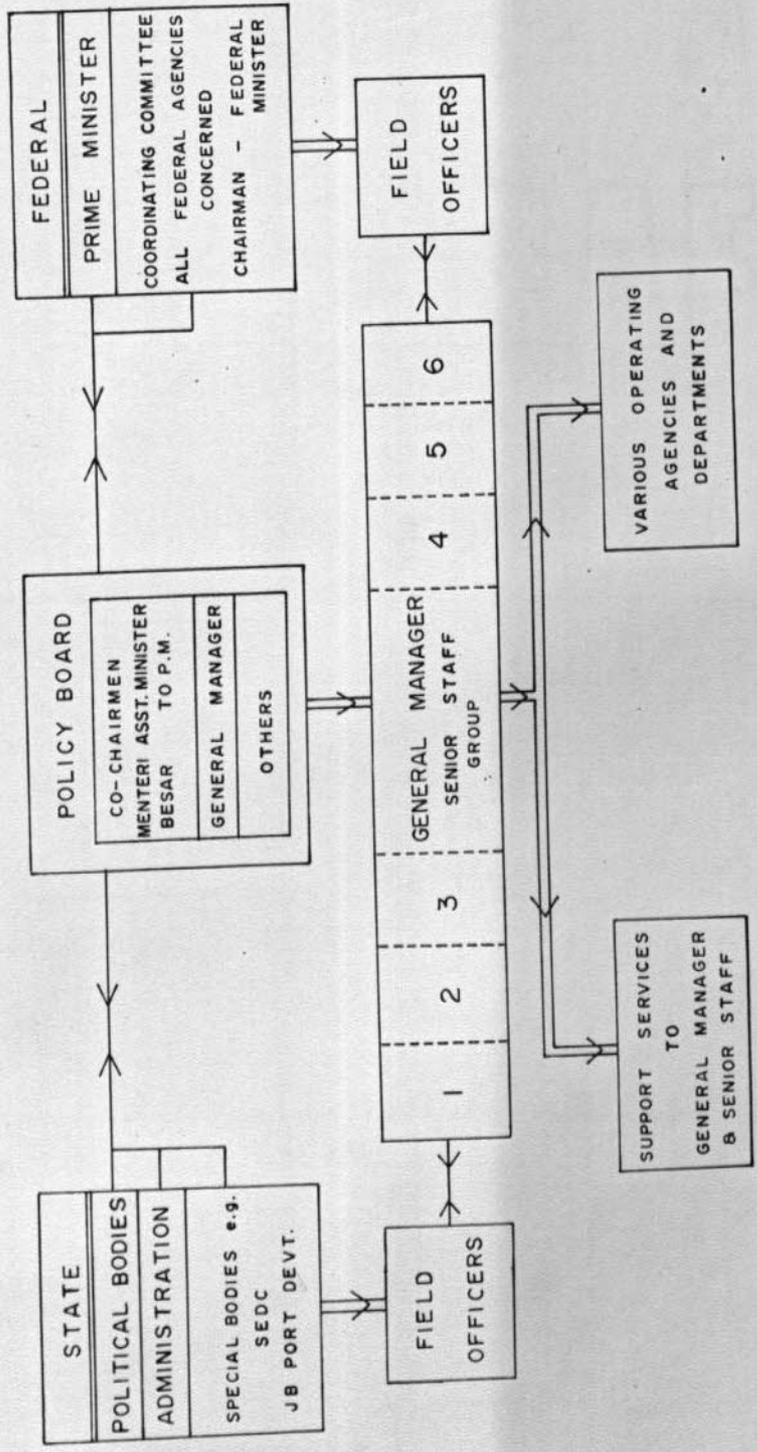
SENIOR OFFICERS

1. Commercial Industrial Development and Tourism.
2. Development Agriculture and Natural Resources; Conservation
3. Urban and New Town Development Villages.
4. Community Affairs Public Relations.
5. Physical Planning, Survey, Design.
6. Engineering Services.

* Training would be to meet SEJDC's needs AND to supply trained technical, and managerial personnel at all levels to other Boards and Governmental Agencies.

ORGANISATION CHART III
SIMPLIFIED ORGANISATIONAL CHART

SOUTH EAST JOHOR DEVELOPMENT CORPORATION



KEY
 AUTHORITY
 CLOSE LIASON.....

