

SOUTH EAST JOHORE PROJECT.

WORKING PAPERS.

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ECONOMICS, ORGANISATIONS, EMPLOYMENT.

ECONOMICS, ORGANISATIONS, EMPLOYMENTVariety of production agenciesCONTENTS

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Variety of production agencies

1. Within the S.E. Johor Project areas a variety of agencies will be engaged in agricultural production and processing, timber, tourism and other industry and the provision of housing and services. This variety will include - in proportions yet to be decided - Federal agencies (FLDA is already developing part of the areas), agencies under the auspices of the SEDC and State Government, and private sector interests - estates (perhaps in joint ventures), cooperatives, smallholders. This variety of production agencies and of productive activities distinguishes the S.E. Johor Project areas from other regional development schemes such as the Jengka Triangle, in which settlement and agricultural production is wholly under FLDA, or the Muda River scheme, in which irrigation for rice production is common to the region.

A. Project area development and regional planning

2. In the first development period - the period of land clearing, timber extraction, land development and settlement and the establishment of production - it is clear that there will have to be an organization with overall responsibility for the detailed implementation of the Master Plan for the new land of the Project areas. Following the Prime Minister's statement of October 1970, this organization will be some form of Development Corporation for each of the SEJP areas or for both combined.

3. But this Project Area organization, by itself, is not enough. It is equally important that, at the same time, development planning and policy-making be undertaken for a larger region than the SEJP areas alone, in greater detail and with more specific regional and local information than has been done up to now. This requires a regional extension of the national planning organizations. The main purpose of this paper is to explain the need to implement plans for the Project areas in the context of developments in a larger region.

Project Area Development Organization

4. The nature and functions of the project area development organization will largely depend on the selection of development agencies and the nature of finance for development of the areas or parts of them. A large area for smallholders would require much more administration and organisation of extension and other services by the development organisation itself, in conjunction with the departments concerned, than would a similar area under private estates or FLDA. If external aid were obtained for development of the areas as a whole this would probably entail more precise control than if finance were obtained by each agency separately.
5. The main definite functions of the organisation will be to ensure that implementation in the project areas proceeds in accordance with the Master Plan as accepted or amended by Governments; to ensure that Government departments and other agencies outside the project areas provide inputs of roads and other physical infrastructure, public utilities, education and health services, etc. when they are required. These functions may entail taking over existing functions of Government (e.g. land administration) at least temporarily.
6. Other possible functions are to promote and guide private investment in the areas; to establish subsidiary enterprises, including public sector estates, in conjunction with the SEDC or private agencies. If the principle of separating housing from employment is accepted, the development corporation will be responsible for the provision of housing, partly by itself and partly by organization of private construction and/or housing finance.
7. The functions listed here are primarily executive and coordinating functions within the Project areas, not overall planning functions.
8. The representation on the decision taking board of this organization will ^{again} depend largely on the selection of agencies; but it will include Federal Government (Federal finance will be involved) FLDA (already at work in the area), State Government, probably S.E.D.C. and perhaps some representatives

of private interests, if they are substantial in the areas.

9. The auspices under which the corporation should be established and coordination with agencies outside the Project areas, are discussed later.

10. At this stage, there appears to be no reason in favour of having more than one initial project area development/corporation for the two project areas as defined at present; whereas there are reasons against division into two.

Planning for a larger region

11. The "Master Plan" for the development of the SEJP areas over the next 20 years will be presented in August 1971, prepared in accordance with the strategy selected by Federal and State Governments on the basis of the Draft Report. This plan will set out programmes for implementation by public sector agencies and guidelines for policies towards private sector participants in development. It will also try to indicate ways in which the programmes and policies should be revised in the future to take account of progress in development of the areas, changes in national and local economic and social conditions and in world markets, new information and changes in Government policy objectives.

12. This plan will be the start of the process of planning for the SEJP areas. This process should be continued by the organisation(s) responsible for further planning of the areas' development. The initial Plan will need to be revised in light of changing conditions; such revisions should be based on much the same kind of information and analysis of alternative ways to achieve current objectives as have been used to prepare the initial report.

13. The 1971 report will, however, be concerned with plans for the development of the project areas alone; it will consider and prescribe for developments elsewhere only to the extent that they are directly relevant to the development of the project areas. But in practice these areas are

not separable nor self-contained. Their development must be undertaken, and plans revised, in the context of developments in surrounding areas.

14. The implementation of the initial land development and settlement programmes in the project areas depends on the provision of services and material from outside. Further developments in the areas require complementary developments elsewhere. Coordination, progress monitoring and forward planning of these linked developments are required.

15. More generally, the rate and nature of development of the SEJP areas will have effects on, and be affected by developments in surrounding areas - e.g. by the growth of industry and employment in Johor Baharu, the growth of incomes and employment for Malaysians in Singapore, the rate of migration into Johor from other states of West Malaysia. Over time many choices will have to be made, in the allocation of resources, between the project areas and other areas of the state or country. These effects and choices can only be considered by a planning organization which is concerned with development in the area of the State as a whole or in some larger region, and not in the S.E. Johor Project areas alone.

Two alternatives

16. Two alternatives will be considered:-

1. A permanent "task force" concerned with planning and coordination of development in a larger region, combined with a development corporation with implementation functions in the S. E. Johor Project areas.
2. A more powerful Project area development corporation, with functions of overall planning as well as implementation, combined with a little new machinery for planning and coordination outside the Project areas.

17. Neither alternative requires any significant change in the existing location of responsibility for decisions on, say, the allocation of financial resources.

Alternative 1

18. The first alternative entails an extension of the national planning and coordinating machinery and development and improvement of coordination of joint action by Federal and State Government departments. At official level the proposed task force might be regarded as a development of the Steering Committees established for the S. E. Johor and Pahang Tenggara Projects. The SEJP Steering Committee is considering the potential developments in the two Project areas, sometimes in great detail; but, for most of the members, the larger geographical context in which these developments are considered is that of West Malaysia, not of a smaller region of which the SEJP areas form part. The Committee as a whole has had little more information about surrounding areas (apart from that supplied by the Consultants) than, it has through normal departmental information, about any other part of West Malaysia. The proposed task force at official level would, of course, be much smaller and require more time from its members; but its purpose would be similar: to consider development of a specific region - bigger than the Project areas but much smaller than West Malaysia. To do this it is essential that it has planning staff, concentrating full-time on the region, to take over the role of the Consultants after completion of the Master Plan.

19. This body and the fulltime staff would at first concentrate strongly but not exclusively on the S. E. Johor Project areas, and through time would develop its information systems and capacity to plan for the larger region. It would be responsible for overall supervision of progress in the implementation of the SEJP Master Plan, for revision of plans in the light of changing conditions, and for coordination of the services required by the Development Corporation from outside the area. As an extension of existing national planning machinery it should be established by the Prime Minister's Department, in cooperation with the State Government.

20. Within the Project areas themselves, a Project Area Development Corporation ^{have} would executive responsibility for implementation of the Master Plan, and the powers and the planning and management capacity required for

this limited task. The scope of its functions would gradually be reduced as land development and settlement proceeded. Once all new land to be developed was in production under various agencies and the initial population was settled, the Project areas would cease to be new development areas, distinguishable from surrounding areas. The Development Corporation would hand over most or all of its remaining functions to the normal authorities and agencies.

21. Questions of ministerial participation and of the powers and finance required for effective "coordination" are raised here but are not discussed in this paper.

Alternative 2

22. The second alternative concentrates resources on the creation of a more powerful Project Area development organisation, which would have full responsibility for implementation of the Master Plan and for revision of plans and which would continue to plan and control the further development of the project areas after the first stage of land development and settlement was complete. It would coordinate its own programmes with those outside the project areas, with the help of a local (state level) coordinating body, but (without a movement towards the first alternative) this would be relatively weak.

23. Concentration of resources and functions on the Development Corporation for the Project areas alone runs into the objections mentioned in paragraphs 14 and 15. Any development corporation for these Project areas will be (and ought to be, if it is to be effective) in a strong position to claim resources and services. It begins with good information about potential development of the areas and a series of development projects; good information alone is a great source of strength. If it also has full responsibility for the implementation of the Master Plan it will be responsible, in some degree, for the annual disposal of resources equal to or greater than the annual expenditure of the Johor State Government. Without an intermediate body, concerned with planning at a

regional level and with specific ^{regional} information, most the decisions and much of the advance coordination which ought to be routine, would have to take place at the level of the Federal Government.

Planning and coordination in the State

24. The first alternative proposes an extension of the national planning apparatus, with state participation, to be concerned specifically with development in the area of the State of Johor or a larger region.
25. It does not propose to strengthen directly the planning capacity of the State Government itself although it would help to do this indirectly. The reasons are given below.
26. The main reason is that the State Government is a sovereign, Government with limited functions. Its functions and powers cover only a part of the range of matters related to development. The main relevant legislative powers are over the allocation and use of land - mining, forestry, agriculture, water. Even in these matters the State is subject to decisions of the National Land Council and the State Agricultural and Forestry officers are required to accept professional advice from the Federal Government.
27. In practice the State's capacity to act even on State subjects is severely limited by finance and by the need for Federal approval of additional posts above a very junior level. All major development projects within the State require Federal finance and therefore approval by the Federal Ministry concerned and allocation of funds by the NDPC, on the advice of the Treasury and the Economic Planning Unit and D.A.U. in the Prime Minister's Department.
28. Total Federally controlled expenditures in the area of the State or on behalf of the State's population probably amount to about ten times the State Government's expenditures from its own revenue.
29. Among the many subjects relevant to development which are on the Federal list are education, health, labour, commerce and industry, major communications, external trade, taxation policy etc. Services and expenditures

on these subjects in the area of the State are managed by the Federal Departmental officers within the frame work of decisions and budget of each Federal Ministry. The State Government has no formal powers - the Mentri Besar may, for example, press the Federal Government for more school teachers, but if the request is refused, the State cannot finance additional teachers (apart from religious teachers) from its own revenues.

30. No economic development plan has been prepared for the State of Johor. The State's submission for the Second Malaysia Plan was concerned mainly with the State's proposals for Government development expenditure from its own resources (on State subjects) with additional proposals for Federally financed expenditures. It was prepared without information about the S.M.P. proposals of Federal Ministries for expenditures within the State, although an attempt was made to get this information in order to avoid duplication and inconsistency. In fact, it is unlikely that this information is easily obtainable - allocations of resources are made by the Federal Government to the various Ministries, which then adapt their national programmes to these allocations. The combined effect of the programmes of all Ministries together on any one State does not appear to be examined - except in very broad outline - by the Federal Government.

31. Coordination at the State level between State officers and officers of the main Federal departments is the business of the State Development Committee, partly superseded by and overlapping with the Capital Investment Committee. In both Committees the principal officer concerned is the State Development Officer - a Federal officer appointed (and paid, unlike other Federal officers in the State) by the Federal Ministry of National and Rural Development. The Development Committee's coordination functions appear to be limited in practice mainly to dealing with snags or exceptional cases that have arisen. It is little concerned with coordination in advance - with the anticipation of problems of interdependence. It is not a planning body (for example, it apparently did not consider the South East Johor Project before the study began) - it would be surprising if it were,

since it has no staff, apart from the S.D.O. with one recently added assistant, to undertake collation and analysis of information.

32. The problems and currently effective methods of coordination can be illustrated by FLDA, which is as dependent as the South East Johor Project area development corporation will be on services provided by outside departments and agencies. Once FLDA has been allocated land, it has little to do with the State Government. It has Regional Secretaries who are responsible for coordination with departments at State level: P.W.D., education etc .. In the event of serious delay, or difficulty, however, the most effective action for the Regional Secretary is to inform FLDA Headquarters, which will then bring pressure to bear, in the capital, on the Federal Ministry concerned to give the appropriate directions to its officers at State level.

33. The preponderance of Federal expenditures and of Federal control over developments within State boundaries imply that improvement of forward planning and coordination within a State must begin in the Federal Government machinery.

34. Hence the first proposal, of a task force to be concerned with development within the State of Johor or a larger region, in which the State Government of Johor must, of course, take part to the full extent of its functions and powers.

35. This raises the question of the region with which this task force should be concerned.

State or larger region

36. One broad division of West Malaysia splits it into three regions - (i) the Western states, densely populated, with little undeveloped land but with industry (highly concentrated), with the majority of the population non-Malay; (ii) the South Eastern region of Johor, parts of Negri Sembilan, Pahang - an "opportunity" region with undeveloped land, on-going industrial development and further potential (in Johor) and a population about 50%

Malay, non-Malay; (iii) the North Eastern states, with undeveloped land, perhaps little immediate industrial potential, and a predominantly rural Malay population.

37. Adoption of this tripartite division would suggest that a task force, with planning staff, be set up for the South Eastern region. This would be a development from the Steering Committees of the South East Johor Project and the Pahang Tenggara Project. Some of the developments in Pahang will be closely interdependent with developments in Johor, so on this ground this combination would be quite sensible. On the other hand, developments in Pahang may be much more closely linked with planned migration from the North Eastern states than those in Johor. This suggests another combination. Moreover, although there may be advantages in linking the creation of a task force to the two on-going regional development studies, there may be disadvantages in introducing two State Governments, instead of only one. Finally, if West Malaysia were divided into more than three ^{planning} regions, with attention paid to existing administrative boundaries, Johor would almost certainly qualify as one - on grounds of population, peculiar problems of proximity to Singapore and differenced of current development and potential from the States immediately to the North (with the possible exception of Negri Sembilan).

38. In sum, there may be a case at present for linking the initial creation of a task force to the two current regional development studies in Johor and Pahang; but if so, subdivision should be expected later.

39. Whatever the decision on linkage, it is highly desirable that the nucleus of a task force, with planning staff be established and at work during the early part of the Master Plan preparation.

Project Area Development Corporation - State or Federal?

40. The Jengka Development Corporation is to be a State body, with the majority of the Board appointed by the Mentri Besar. This corporation will, however, have a narrower range of functions than the S.E.J.P. corporation. These functions include land administration, which is a State

matter; but they exclude agricultural development and settlement, which are FLDA's responsibility, and forestry and forest industries.

41. In the South East Johor Project areas FLDA will be only one of several agencies responsible for initial land development, settlement and establishment of agricultural production. For the reasons similar to those already given with reference to the planning "task force" it is proposed that the S.E.J.P. corporation should be a Federal body, though with strong State Government participation.

(A. S. Mackintosh)

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AGRICULTURAL LAND DEVELOPMENT IN SOUTH EAST JOHORE-STRATEGY I

1. Development during S.M.P. period

The tentative (confidential) figures for the Johor State targets in the SMP released by EPU (Note by RJS - 2/11/70) are:-

TABLE 1

<u>ORGANIZATION</u>	<u>ACRES</u>	<u>COMMENTS</u>
FLIDA	65,000	- 20,000 to be cleared in Ayer Tawah in 1971, 20,000 in North Johor. Therefore a further 25,000 acres possible in project area 1972-75.
FELCRA	13,000	- 5,300 acres to be handled for Police Benevolent Fund - located in project area and starting soon!!
FUND 'B' COOP	26,000	
YOUTH SCHEMES	10,000	
LOW COST SETTLEMENT	5,000	
PUBLIC SECTOR ESTATES	5,500	
	<u>124,500</u>	
JOINT VENTURE	5,000	- Presumably using S.E.D.C.
PRIVATE SECTOR	25,000	- 49,000 already alienated to our knowledge of which 9,000 to be handed to State when developed (C.L.M.) Of this 7,000 is in Layang Layang area-Pekan Plantation.
	<u>154,500</u>	
TOTAL	<u>154,500</u>	

MARDI require 3000 acres to be alienated and will wish to clear and develop 1000 acres in the first year in the project area. This does not fit into the above classification. In addition there are various pieces of G.S.A. land in various stages of development and planning. The acreage of these and the effect on land available in the project area is at present under investigation.

It will presumably be neither realistically possible or necessarily desirable to site the whole of the SMP allocation for Johor in the project area. If we take the above allocation between organizations as a guide, then the following virtually committed area/development would be indicated. (of

TABLE 2

FLDA	25,000	
FELCRA	5,300	
MARDI	1,000	- 3,000 alienated of which 2,000 developed later.
	<u>31,300</u>	

At present the Pekan Plantations alienation has been excluded from consideration. It is also unknown as yet at what rate of clearance and development this and the other private sector alienations are planned.

In so far as the SEJP area will be a testing ground for organisations it would seem reasonable to take a further cross section of those listed into the area, through the SMP period. These, with acreages, are suggested as follows:

TABLE 3

FUND 'B' COOP	say	13,000
YOUTH SCHEMES (or some modification)	say	5,000
LOW COST SETTLEMENTS		5,000
PUBLIC SECTOR ESTATES		5,500
JOINT VENTURE		5,000
PRIVATE SECTOR	say	13,000
		<u>46,000</u>

This, together with the 31,300 in Table 2 gives a suggested total of about 77-78,000 acres developed in the project area - 50% of the tentative Johor target.

2. Rate of Development

In view of possible existing commitments for land development which we may not know about, it seems sensible to get off to a slowish start in the project area in year 1 (which we are taking as starting on January 1, 1972). Also, in view of the assumed importance attached by the Government to the rapid construction of the Penggerang Highway, it seems sensible to concentrate earlier development in the Peninsula. The constraints acting on the rate of land development were tentatively identified in the previous note on this subject. The major measurable constraint was in fact PWD capacity and this has been reiterated by FLDA as causing hold-ups to their programme. The line has been taken as there is virtually no PWD capacity to spare, a major part of the work will have to be undertaken under technical aid programmes. If this is the case then road construction at least can no longer be considered a major constraint.

It is felt that the major constraint to any programme would be that of coordination and control at all levels. The build up of a new organization with overall powers in the area would have many problems involving inter departmental politics, personalities and staff availability.

The forest exploitation programme has been used as a reference point in later development in Tengah with allowances subjectively made for exploitation by chipping. Overall, the first development programme has been planned over 15 years, but the gradual expansion of a dairy project has been allowed for up to 20 years.

The areas used for development are shown on the maps. They effectively exclude all unsuitable land, known alienated land and the potential catchments of the Kahang and Lingui in Johor Tengah and the Lebam in Tanjong Penggerang. The acreages taken after these deductions and the straightening of a few lines on the maps are:-

Tanjong Penggerang	-	109,000 acres
Johor Tengah	-	182,100 acres
Total		<u>291,100 acres</u>

Of these areas, in the Peninsula, 85% is projected for development over 7 years and in Johor Tengah 85% is projected over 13 years. Overall 2/3 rds of the developable area could be developed by the end of the Third Malaysian Plan period in 1980.

The following Table shows the composition of the first suggested development rates.

TABLE 4 Rates of land clearance - '000 acres

Year	Tanjong Penggerang			Johor Tengah			Total J.T. + T.P.		
	Acres/yr.	Acres cum.	%cum	Acres/yr	Acres cum.	%cum.	Acres/yr	Acres cum.	%cum
1. 1972	5.0	5.0	4.6	7.1	7.1	3.8	12.1	12.1	4.1
2. 1973	10.0	15.0	13.8	7.7	14.8	8.1	17.7	29.8	10.2
3. 1974	16.8	31.8	29.2	7.7	22.5	12.3	24.5	54.3	18.6
4. 1975	18.5	50.3	46.1	4.8	27.3	14.9	23.3	77.6	26.6
5. 1976	18.5	68.8	63.1	7.1	34.4	18.8	25.6	103.2	35.4
6. 1977	13.8	82.6	75.8	9.0	43.4	23.8	22.8	126.0	43.0
7. 1978	9.5	92.1	84.5	13.5	56.7	31.1	22.8	148.8	51.1
8. 1979	3.7	95.8	87.9	18.2	74.9	41.1	21.9	170.7	58.6
9. 1980	2.2	98.0	89.9	20.9	95.8	52.6	23.1	193.8	66.5
10. 1981	5.8	103.8	95.2	18.6	114.4	62.8	24.4	218.2	74.9
11. 1982	3.2	107.0	98.2	16.4	130.8	71.8	19.6	237.8	81.6
12. 1983	2.0	109.0	100.0	11.3	142.1	78.0	13.3	251.1	86.2
13. 1984				13.5	155.6	85.4	13.5	264.6	90.8
14. 1985				12.4	168.0	92.2	12.4	277.0	95.1
15. 1986				11.6	179.6	98.6	11.6	288.6	99.1
16. 1987				.4	180.0	98.8	.4	289.0	99.2
17. 1988				.4	180.4	99.0	.4	289.4	99.4
18. 1989				.4	180.8	99.2	.4	289.8	99.5
19. 1990				.6	181.4	99.6	.6	290.4	99.7
20. 1991				.7	182.1	100	.7	291.1	100

Cropping pattern acreages are given as net assumed planted acreage. A deduction of 15% of gross area has been made for Johor Tengah and 20% for Tanjong Penggerang. This latter figure reflects the areas of deeply incised valleys in the peninsula.

TABLE 5

Cropping Pattern - I - Net area cropped

	<u>T. Penggerang</u>		<u>Johore Tengah</u>		<u>Total</u>	
	Acres	% of Tol.	Acres	% of Tol.	Acres	% of Tol.
Oil palms	52,000	59.6	68,000	44.4	120,000	49.9
Rubber	14,800	17.0	33,300	21.7	48,000	20.0
Coconuts/Cocoa	8,200	9.4	-	-	8,200	3.4
Coconuts/Cattle	11,000	12.6	14,500	9.4	25,500	10.6
Tapioca/Other S.T. Crops	-	-	31,000	20.2	31,000	12.9
Dairy	1,200	1.4	6,600	4.3	7,800	3.2
T O T A L	87,200		153,600		240,800	

The above cropping pattern gives a high proportion of land for diversification. It is not possible to say that this is a maximum as there is certainly land which has been put under oil palms which could be used for other crops. The land which has been put down to Tapioca and other short term crops will be available for dairy, beef or eventual conversion to a tree crop at any point in time.

F.A. SOLE

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STATE WORKING GROUP PAPERS

I AGRICULTURAL DEVELOPMENT PLANNING

CONCEPT

It is now clear that oil palms and rubber are the only two enterprises for which all the conditions required for immediate, large scale commercial exploitation can be adequately met. Concurrently with development of oil palms we consider that a start should be made on grassland production and commercial trials on beef and dairying. This will complement the scheme for stock multiplication and breeding up which the Veterinary has set up at Ayer Hitam. An additional rubber/oil palm enterprise will be the State sponsored scheme for ex-servicemen, south east of Kluang.

Clearing and infrastructural development should, we think at present proceed in a northerly direction from the Johore/Sayong rivers in the Johore Tengah area and in a southerly direction from the Kota Tinggi/Sedili Besar road in the Tanjong Penggerang area. Expansion of oil palms and rubber will mainly be on lands with an overall slope between about 6° and 20° except perhaps in the first few years especially as most of these lands lie in reasonably close proximity to the existing or developing estates or which are easily accessible from the skeleton road system shown on the first draft concept plan.

This will ensure that suitable land for enterprises alternative to the above will be available later if and when their commercial feasibility is proven on lands below about 6° slope. To that end MARDI hope to establish a research and experiment station to the south east of Kluang, in close proximity to the ex-servicemen scheme. This will create additional job opportunities for such settlers.

We anticipate such an approach will permit a progressively more diversified pattern as the developments proceed. We also consider that inland fisheries ie. fish farm and stocking of reservoirs should form an integral part of such developments both from the nutritional and profitability points of view.

II FOREST INDUSTRIES DEVELOPMENT PLANNING

FOREST RESOURCE AND INDUSTRY

Subject to a check of the volume stand tables there is likely to be some 121 million cubic feet of commercial timber of 4' girth and upwards in the Johore Tengah lowland area (i.e. some 90,000 acres below 500 ft $\frac{1}{2}$) which can be logged out as clearing proceeds. These figures apply only to those species currently accepted in the trade. Should it eventually be found possible to utilise down to 2' girth the utilised volume will increase by approximately 30%.

When considering the future of forest industries in the state of Johore it must be remembered that large areas in the Segamat, Kluang, Mersing and Kota Tinggi District now under forest on class 1, 2 & 3 soils are likely to be cleared for agriculture in the next 20 to 30 years i.e. 1.36 million acres inclusive of the Project area.* Also adjacent areas in S. Pahang. The trade and government must therefore look into the question of closer utilisation and quick maturing species as a matter of great urgency if the industry is not to **contract in the future.** Whilst the answers will not be available in time for this Project's report it would probably be better that development over the first three to five years be confined to logged over areas in order that **research and development** work can catch up.

During our studies we have carried out an inventory of the industry using district records and on site checks. The following tables dealing specifically with types of mills, productivity and employment were extracted from the inventory report .

* From UNDP/FAO Forest Industries Technical Report No.1, 1970
Page 125. T.2

TABLE 1 SCHEDULE OF INDUSTRIES

TYPE	NUMBER	NOTES
<u>ESTABLISHED</u>		
Sawmills	41	Includes 3 Drying kilns.
Chipboard Factories	3	
Plywood Plants	5	
Wood Wool Plants	2	- Very small plants
Impregnation Plants	2(2)	- 2 extra incorporated in sawmills.
TOTAL:	53	
<u>NEW OR APPROVED FACTORIES</u>		
Sawmills	10	
Sawmill/plywood Plants	1	
Plywood Plants	6	- 2 under construction
Veneer Plants	1	
TOTAL:	18	14 approved 1969/70 not yet under construction and some have no sites as yet

Productivity figures for certain of the above are as follow:-

TABLE 2. PRODUCTION

ENTERPRISE	LOG INPUT ACTUAL IN TONS 1969, OR ESTIMATED	NOTES	PRODUCTION IN TONS	LOG TONS NEEDED FOR JOHOR'S OWN TIMBER REQ'TS
Established sawmills	356,000	37 mills work one shift, 4 work 2	230,000 of which some 110,000 tons exported 80% Overseas 20% S'pore	1980 235,000 1990 380,000
New or approved sawmills	159,000	Estimate based on one shift		
Established Plymills	81,000	Based on ave. of 2 shifts	Approx. 40,000 tons of which 90% exported overseas.	
New or approved Plymills	168,000	Estimate based on three shifts		
	764,000 - 1969 Johor Log production was 434,000 tons of which some 200,000 tons were exported to Singapore and a small amount overseas.			

Table 2 should be read in the light of Pahang's stated intention of converting 95% of its own logs as soon as it can, and of Kelantan and Trengganu's intention of considering the same policy.

It is clear from the proceeding that:-

Actual and approved industry capacity is	764,000 tons
and Johor's actual 1969 log production is	434,000 tons
Johor's actual 1969 log exports were	200,000 tons
If Johor's log production remains the same and log exports continue Johore will depend on other States for	530,000 tons
If Johor's log production remains the same and log exports stop, Johore will depend on other States for	330,000 tons

Forest Reserves are now managed on a 7th year felling cycle and the area worked annually will be reduced to 11,700 acres after the 90,000 acres of Forest Reserve in the project are felled. This felling should produce 190,000 tons per annum over an 11 year period. Thereafter the remaining Forest Reserve even if managed on a 60 year felling cycle could supply only 234,000 tons per annum (at 20 tons per acre).

State land under forest could provide more logs. Some other F. Reserves are on agriculturally suitable land and could, on clearing, also provide more logs.

But even if all the land in Johore not suitable for agriculture were managed under sustained yield on a 60 year rotation as of now the maximum annual log supply from it would be some 619,000 tons of logs - already below industry's capacity. It is clearly impossible to undertake this vast management exercise now, and this figure must be regarded only as a theoretical maximum, not to be counted upon at this stage. In the meantime there will almost certainly be considerable oscillation in annual log supplies as this project and others log land for agriculture.

Over the next 15-20 years, when the project area is cleared there will be, if current logging elsewhere in Johor continues, an increased output of 120,000 tons of logs a year minimum. This could go to existing industry or be exported - in practice it might be very difficult to control which of the two took place - or it could be utilised in a new industrial complex in or near the project area.

These two possibilities make it necessary to attempt to evaluate existing industry versus a new complex. Of existing sawmills the majority have already paid their capital costs long ago, are not equipped with modern equipment and participate to a limited extent in the higher value added export sawn timber market. The few modernised mills participate in this market to a much greater extent and are interested in further processing. We are probably seeing the beginning of a sorting-out of the industry into the lethargic and progressive categories without much competitive pressure - all earn a living, some a very handsome one.

A new complex could ensure valuable project logs had high value added in Johore to a further level than even the present modern sawmills can at present.

Plymilling is a different industry from sawmilling and the majority of the plymills are quite modern. The complex could include a plymill which might have a longer assured life as regards log supply than existing plymills elsewhere in Johor.

It is not possible to carry evaluation further, other than to report that existing industry has a reputation for being resistant to amalgamation and that competitive pressure is low and is not strengthened by Government royalty and premium policies.

It would be necessary to review log exports. Clearly each log exports with it employment and value-added which Johore industries are in need of.

Research and development into quick growing forest species, which offer some hope of financial returns equivalent to rubber, would also appear justified as they offer the possibility of maintaining a larger timber industry, and of diversification. The retention of some experimental areas for this is recommended, say 2000 acres.

During our researches we have also ascertained figures for employment for the 41 (one not operating but licensed) established sawmills and these are summarized below:-

TABLE 3. LABOUR EMPLOYED BY GRADES

GRADES	MALAY	CHINESE	INDIAN	OTHERS	TOTALS
MANAGERS	2	38	-	-	40
OFFICE	11	207	-	-	218
SKILLED	100	742	2	2	846
UNSKILLED	458	389	33	-	880
TOTALS	571	1376	35	2	1984

TABLE 4. % EMPLOYED BY GRADES

GRADES	MALAY	CHINESE	INDIAN	OTHERS	TOTALS
MANAGERS	5%	95%	-	-	40
OFFICE	5%	95%	-	-	218
SKILLED	12%	87.5%	0.25%	0.25%	846
UNSKILLED	52%	44%	4%	-	880
% OF TOT.	28.78%	69.35%	1.76%	0.11%	1984

FOREST RESOURCES

It is essential that steps be taken to set aside areas above 20° slope as National Parks so as to conserve and protect the higher watersheds and the flora and fauna. These areas amount to only 6.5% of the land area of the State (coinciding closely with land above the 500' contour). Within such parks some areas should even be completely closed except to members of the public and scientists on permit.

There is also a danger that the existing raw material on lands scheduled for agricultural development (including the project area) over the next 20-30 years could be lost if immediate steps are not taken to safeguard the forest resource. The Jengka project has alerted us to the danger of losing much raw material between project presentation time and implementation.

III WATER - FLOOD MITIGATION AT KOTA TINGGI

INTRODUCTION

In accordance with our terms of reference and the instructions of the Y.O.B. Tun Razak at the briefing meeting last January, we have reviewed the position and propose to submit a detailed technical Interim Report for consideration at the next meeting of the Steering Committee.

However, we feel that it would be appropriate to present our conclusion to the State Working Group as an item of report.

KLUANG

It is understood that the D.I.D. have in hand a satisfactory flood mitigation scheme for Kluang.

KOTA TINGGI

We have considered a number of possible engineering schemes for flood mitigation and find that one of the alternatives could be justified in view of heavy annual subsidies involved.

The following table sets out the main features of the alternative schemes.

(\$ M' 000)

Scheme	Annual Cost	Annual Benefits		Net finance required from public sector
		Private Sector	Public Sector	
1	2	3	4	5 (= 2-4)
Storage on S.Johor	583	33	12	571
Relief Channel	693	28	12	681
Bunds	367	28	12	355

Subsidies of the order indicated above represent a very heavy investment indeed for the sake of avoiding periodic inconvenience and distress to the people involved. Before adopting subsidies on this scale consideration should be given to a policy of restricting development on the low ground and of encouraging relocation of existing low lying dwellings on higher ground.

IV CONTEXT FOR PLANNING THE SOUTH EAST JOHOR PROJECT AREAS

INTRODUCTION TO PAPER "THE STATE OF JOHOR & THE PROJECT REGIONS 1970 - 1990"

During the course of our studies we have undertaken a series of projections of population trends, economic activity, urban and rural growth to 1990 for the State of Johor to help provide the sort of planning basis that is required in our Master Plan Study for development of the project areas.

The attached paper sets out the major problems the State faces in its planning and development over the next twenty years as seen by your consultants. A summary, with our conclusions is given on pages 2-8 and it is not proposed to attempt a further summary as much would be lost in the process.

Certain of the conclusions affect the future of the State as a whole and areas outside the project regions. While hoping that this will assist in overall planning, we wish to make it clear that this paper was produced as an aide to master planning the project areas.

INSTITUTIONS

Under our term of reference, we are required to study the organisational requirements for implementation in the context of the existing systems and organizations and make recommendation as to change and or the establishment of organization(s) to take overall responsibility for the implementation.

In Appendix B pages 35-36 of our Progress Report No.5 and again on page 14 (last paragraph) of Progress Report No.6 the organization of planning and control of development and selection of agencies for implementation were discussed at some length and we would greatly appreciate views and comments from the State officials.

Organisations

Agricultural Production agencies

The table suggests comparisons between various forms of agricultural production organisation in terms of the following characteristics:

- | | Suitable | Other |
|------------------------------------------------------------------------------------|----------|-------|
| 1. Distribution of income - to labour (L) the agency (A) public or private. | | |
| 2. Participation of labour in control | | |
| 3. Security of employment | | |
| 4. Ease of introduction of innovation | | |
| 5. Flexibility of adjustment of land/labour ratio. | | |
| 6. Provision of partial employment in conditions of unemployment. | | |
| 7. Income of members of labour force:
(a) initial level (b) prospects of growth | | |
| 8. Management/technical staff input required from estate. | | |
| 9. Additional services (marketing, processing) required from outside. | | |
| 10. Sources of finance | | |
| 11. Public finance: NPV of expenditures and receipts (gain +, loss or cost -). | | |
| 12. Characteristics of labour for whom organisation is best suited. | | |
| 13. Other characteristics. | | |

- Ranking: 1 High
 2 Medium
 3 Low
 4 Very low

Agricultural Production agencies

	1	2	3	4	5	6	7	8	9	10	11	12	13
	Distribution of income	Participation control	Security employment	Innovation Introduction	Flexibility land/labour upwards	Partial employment provision	Income (a) Initial (b) growth	Staff input required	Services required	Finance sources	Public finance N.P.V. (gain + loss -)	Suitable for	Other
1. Smallholdings (6-7 acres)	L: all	L: all	1	3	4	yes	a: 4 b: 4	Advisory: 3	Market, process etc.	Pub: 3 Priv: 1/2	- 3	Some skill, capital	Crops: rubber, O.P.? New: H.V. crops, livestock give medium/high income, need capital, skill, good land.
2. Smallholdings (10 acres)	L: all	L: all	1	3	4	yes	a: 3 b: 2/3	"	"	"	- 3	skill, capital	
3. Cooperatives: fixed share = 10 acres; pub. finance	L: all	L: all	1	2	3/4	yes	a: 3 b: 2	Management 1	" by coop	Pub: 1	- 2	"	
4. FLDA before transfer	L: all net	L: 3(OP) 2/3 rubber	1/2	1/2	4	yes	a: 4 b: 2	Management 1	by agency	Pub: 1	- 2	un-/s/ skilled no capital	
5. Private estates	L: wages A private: surplus	L none 4	4	1	1	no	a: 3* b: as market 2/3	Management 1	by agency	Priv: 1	+ 3	s/skilled no capital	*nearly 2 workers per household raises household income; predominantly non-Malay owners.
6. Public estate A: distributing all net income to labour	L: all net	L: 2-3 variable	2 variable	1/2	1	possible	a: 2/3 b: 1	Management 1	by agency	Pub: 1	-/+ 3 see col. 13	un-/s/ skilled no capital	Public finance gain or loss possible
7. Public estate B: paying "good" wages; surplus reinvested in other schemes	L: wages A public: surplus	L: 3 variable	2-3 variable	1	1	unlikely	a: 2/3 b: 2	Management 1	by agency	Pub: 1/2 Priv: poss.	+ 1	un-/s/ skilled no capital	

within sectors, various producers) which may add greatly to national income but whose benefits are not widely shared by the poor or unemployed, and those which add less to total income but which are more widely shared.

In the very restricted range of crops now available for the project areas some (fairly high) minimum standard of modern cultivation needs to be made possible (or ensured). Ways need to be found to achieve the participation objectives as far as is compatible with that minimum standard. This need not (and preferably should not) mean continuous direct and specific control from "above". To find these ways is one the more difficult parts of our job, especially in view of the importance of "the poor, the Malays retaining a significant share of the benefits", and of avoiding seizure by other groups, which is stressed in the second quotation.

A.S. Mackintosh

ASM/NHB/23/9/70

GROWTH IN EMPLOYMENT IN JUNIOR AND PROJECT AREAIntroduction

In order to assess the extent and form of development appropriate to the Project areas, we have undertaken a series of exercises to try and assess population growth and economic activity to 1990 for the State of Johor, as a whole. A series of assumptions, and tests on each of the following were made:-

- i) Total agriculture output and value added.
- ii) Agricultural labour force required.
- iii) Overall population growth and urban migration.
- iv) Expected occupational distribution and economic activity.

These studies are described in Pages 1-5; and the calculations involved given in the attached appendices.

The conclusions are described in Section v (Pages 6-7).

i) Agricultural Output & Value Added

The first exercise was to attempt to project the total output of agriculture in the State to 1990 and value added by agriculture in the period. After inspection of the Land Capability Study for the State it was assumed that approximately 1 million acres would be developed for agricultural use by 1990. This was broken down into 300,000 acres of rubber (15,000 per year), 500,000 acres of oil palm and 200,000 acres of other crops, the principal additions being 120,000 acres in short term crops, 25,000 acres pineapples and 30,000 acres tapioca. An estimate of growth in the livestock industries place upon previous projections of demand and potential Johor supplies was also made. Table 1* shows the acreages assumed for the various crops in 1970, 1980 and 1990. Having made assumptions about the annual output per acre and value purchased input per acre the gross output and value added for each activity was estimated and is also shown in Table 1.

These estimates indicated that gross agricultural output would rise from \$532 million in 1970 to \$858 million by 1980 and \$1,432 million by 1990. Since a fair proportion of the increase in output was in oil palm, short term crops and livestock, the proportion of purchased inputs to total output rises over the 20 year period from 12½ per cent to 28 per cent. These estimates suggest a total output of rubber by 1980 of \$360 million or about 400,000 tons. The Rubber Research Institute (RRI) has been

*For Tables See Appendix

talking recently about an output level of 2 million tons nationally by 1980. Since about 30 per cent of the national rubber acreage in the country is in Johor this would suggest a much higher output of rubber in the State than indicated by our estimates. If this RRI estimate is correct, then even allowing for some lowering of prices there would probably be an increase of rubber sales in the State of about \$100 million. A second estimate of agricultural output has been made on this basis which gives a gross of \$950 million by 1980 and \$1,550 million by 1990. These results and the rates of growth which are represented have been summarised in Table 2. This table also gives an estimate of the total State product assuming that the value added in agriculture is 33 per cent of this product in 1980 and 25 per cent in 1990. These figures suggest overall rates of growth in 20 year period and just over 5 per cent per annum in gross agriculture output $4\frac{1}{2}$ per cent in value added in agriculture and $6\frac{1}{2}$ per cent in total State product.

ii) Agriculture Labour Force

An attempt was then made to estimate the labour force which might be required to achieve these levels of output. Two sets of assumptions were used for this purpose and these are given in Table 3. The first of these was derived from estimate made by the Economic Planning Unit (EPU) and published in 1968 as part of the high model agriculture projections. The second was based upon consultants' estimates of labour force requirements in the Project area. An estimate of the agricultural labour force required in 1970 was made using the EPU estimate. The additional labour force required to achieve the increased crop acreages and livestock production by 1980 was estimated using both sets of assumptions and the same thing was done to obtain the labour force requirements for 1990. The total labour forces indicated are shown in the following table.

Table

AGRICULTURAL LABOUR FORCE REQUIREMENTS - JOHOR (Thousands)

	1970	1980		1990	
		TOTAL	INCREASE OVER 1970	TOTAL	INCREASE OVER 1980
Estimate A	247	309	62	377	68
Estimate B	247	286	39	330	44

The population growth of Johor in the planning period was estimated from the Department of Statistics Projections for West Malaysia in 1970 assuming that Johor maintains the same proportion of the national population as at present i.e. 15.15 per cent. The Statistics Department Report makes

four different estimates from population growth and in this exercise "medium A" estimate for assumptions was taken. This assumes declining fertility and mortality rates over the period to the end of the century. The labour force was estimated in two ways. First, by taking it to be the male population age 15-54 plus 20 per cent of the female population in the same age group. The second estimate took the labour force in 1970 to be 30 per cent of the population (as indicated by the Socio-economic Survey) and one-third of the population in 1990. These population in labour force projection are given in Table 4. On this basis the agricultural labour force previously estimated would be approximately 48 per cent or 41 per cent of total labour force.

iii) Population Growth & Urban Migration

This exercise was carried out based on projections of overall population growth rate and migration. A series of assumptions on these variables were made.

- Assumption A:
1. State population growth as previously estimated.
 2. Johor Baharu to grow by 5.6 per cent per annum.
 3. The following medium size towns to grow by 4.2 per cent per annum. The towns included were Batu Pahat, Kluang, Muar and Segamat.
 4. Small towns to grow by 3.5 per cent per annum. These were Tangkak, Yong Peng, Pontian, Mersing, Labis, Kota Tinggi and Kulai.
 5. That employment created by the new agricultural development between now and 1990 would be as under the consultants' estimate. In these areas an additional 50 per cent of that employment would be created in service industries. One-third of the population is economically active. This provides an estimate of the population directly supported by new agricultural development.
 6. The remaining State population to be in present rural areas and villages.

The resulting population growth pattern is indicated in Table 5. It will be seen that Johor Baharu will have grown to almost 400,000 and the other medium size towns to a total of 440,000 in the planning period. Some 390,000 people are supported by new agricultural development, some proportion of which will be in areas already fairly well settled.

- Assumption B: 1. The State population grows at a more rapid rate, consistent with the high population growth assumption of the Department of Statistics. This assumes constant fertility and mortality rates over the period under study.
2. Other assumptions as before.

This assumption would mean an additional 200,000 people in the State by 1990 who would have to remain in present rural areas given our assumptions about urban growth.

- Assumption C: 1. Natural population growth in Johor as at the medium rate.
2. That migration into the State occurs so as to raise the population in the State to $17\frac{1}{2}$ per cent of the national total by 1990.
3. Other assumptions as before.

This would result in a further 200,000 increase in the State population which would have to be accommodated in rural areas, so that rural population would rise by about 45 per cent over the 20 year period. It would seem unlikely that migration on this scale would occur unless urban growth in the State was much more rapid than has been forecast here.

Assumption D: The projected growth in Johor Baharu used in the above assumptions would require about 4,500 additional jobs per year on average over the 20 year period. It is likely that given the function of the town within the State that at least one-half of the employment of the town will be in service type activities. Thus about 2,000 jobs per year would be created in basic activities such as manufacturing, construction, and port functions. Given the development of the port complex, it is likely that employment growth in this type of activity will be much greater than 2,000 per annum over the whole period, since manufacturing is already expanding at this rate in Johor as a whole and most of these jobs are coming to Johor Baharu. A second projection of population in Johor Baharu was made assuming an average of 4,000 jobs per annum in basic activities and the same number in services over the 20 year period. The resulting population picture is given in Table 5 under assumption D. Growth on this scale would result in Johor Baharu having about 600,000 inhabitants for about one-quarter of the total State population. Assuming no migration from other states the population in present rural areas would decline by about 150,000.

Estimates of the number of people employed in agriculture under these four assumptions were then made assuming that one-third of the population is economically active and that two-thirds of those employed in rural areas are engaged in agriculture. The resulting figures are given in Table 6. The agricultural population indicated by this exercise would range from 276,000 under assumption D where urban growth is fastest to 413,000 under assumption C with heavy migration into the State.

iv) Occupational Distribution & Economic Activity

The socio-economic survey indicated a distribution of the labour force between occupations as shown in the first column of Table 7. Fifty-one per cent of the labour force is at present in agriculture, 12 per cent in manufacturing and mining, 3 per cent in construction and 33 per cent in service activities. Column 2 of the Table shows the 1966 occupational distribution in the United Kingdom. This has 52 per cent of the labour force in services and 48 per cent in agriculture, mining, manufacturing and construction. Since countries such as Malaysia are moving towards a western type of economy it is likely that the proportion of the population employed in service industries will rise considerably in the future. Three sets of assumptions have been made on the employed distribution in Johor for 1990. These are shown in Table 7.

1. High agriculture - This assumes an increase of manufacturing employment to 14 per cent of the total, construction to 6 per cent and service industries to 40 per cent. Agriculture is therefore about 38 per cent of the total.
2. Medium agriculture - Manufacturing employment is assumed to grow to 16 per cent and service employment to 42 per cent agriculture thus falls to 34 per cent of the total.
3. High services - Service employment rises to 45 per cent of the total and agriculture therefore falls to 31 per cent.

Assuming a total labour force of 815,000 in 1990 total employment in the different industries is shown in Table 8. Agricultural employment ranges from 310,000 in high agriculture assumption to 253,000 in the high services. It is noticeable that the agricultural labour force under the medium agricultural assumption is virtually the same as that estimated under the earlier assumption of a rapid rate of growth in Johor Baharu.

v) Conclusions

The results of exercises such as those shown above must of course be treated with a fair degree of caution because of the extent of the assumptions involved. However they do give some idea of the overall state wide content within which development in the project area will occur:-

I It seems inevitable that urbanisation will continue on a considerable scale, and an increasing rate .

II Both the assumption made about the rates of growth of town in the state, and on occupational patterns give similar results.-

About 60 per cent of the population in 1990 in urban places (assuming 20 per cent of agricultural based population is urban), and an agricultural labour force of about 275,000.

III This latter figure is well below the estimates made of labour required to operate 2.6 million acres of agricultural land by 1990 (17 per cent below the lower of the two estimates).

IV This suggests that either (a) sufficient labour will not be available, or that (b) productivity and acreage per man must rise in order to achieve this rate of growth of output. A compromise might be a slightly lower rate of land development to 2.4 to 2.5 million cultivated acres by 1990, leaving 500 to 600 thousand acres of land suitable for agricultural undeveloped. This would employ about 55,000 in new areas, leaving 220,000 or about 10 per cent less than at present in present areas. Since there is plenty of scope for increased agricultural output there, especially if RRI is to be believed, this should not create any great problem.

V The role of manufacturing may not necessarily have to be as great as has often been supposed. Economies like Malaysia are copying and will probably continue to copy those of the west, which are becoming increasingly service oriented. In the United States at present only 26 per cent of employment is in manufacturing (including associated clerical) and this is expected to fall below 22 per cent in the present decade. Since developing countries will adopt fairly sophisticated technologies it may be reasonable to question whether the proportion of population in manufacturing will ever rise to much above 20 per cent of employment. The general trend might be of the following orders:-

	1990	2010
Agriculture, fish	34	22
Mining	2	1
Manufacturing	16	20
Construction	6	6
Transport	5	5
Utilities	1	1
Trade	14	16
Other services	22	31
	<hr/>	<hr/>
	100	100
	<hr/>	<hr/>

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The proportions of employment in services are then 42 per cent in 1990 and 51 per cent in 2010.

VI In terms of the total state picture, the agro-based employment in project area will play a fairly small role. By 1990 there will perhaps be employment of 22,000 to 23,000 in agriculture and 12,000 or so in associated services in the area. This will constitute just over four per cent of employment in the state or about nine per cent of additional employment created by 1990.

VII Overall agricultural development would, if pursued on the scale suggested here create about 60,000 jobs directly and about the same number indirectly. This will be around 30 per cent of new jobs.

VIII Population in the project area by 1990 might be around 100,000. This should be compared with the growth which could occur in Johor Baharu of 300-500,000 and over 200,000 in the other four major towns. Over concentration of governmental effort in agriculture could be detrimental to the development of the State as a whole.

IX Probable growth in manufacturing, trade, and services will be sufficient not only for the State to need to plan for the marine growth of Johor Baharu, but also for the State to consider town expansion and new town projects.

X In relation to the project areas, Kluang and Kota Tinggi should be considered as town expansion areas. In Johor Tengah, a new town (site of master village zone 4) should be proposed. In Tanjong Penggerang, a new town (site of master village zone 3, and tourist resort) should be proposed.

XI The focus to land development given by a new town's and town expansion schemes offering a range of urban facilities and job opportunities should considerably merit in attracting settler population.

John English

Dave Walton

JCE/DW/PW/6/8/70

APPENDIX

TABLE 1

CROP	1970						1980						1990					
	Acreage		Output	Gross	Purchased	Value	Acreage		Output	Gross	Purchased	Value	Acreage		Output	Gross	Purchased	Value
	Gross	Mature	per Acre	Output	Inputs	Added	Gross	Mature	per Acre	Output	Inputs	Added	Gross	Mature	per Acre	Output	Inputs	Added
			\$	\$ Mil.	\$ Mil.	\$ Mil.			\$	\$ Mil.	\$ Mil.	\$ Mil.			\$	\$ Mil.	\$ Mil.	\$ Mil.
Rubber - Estate	450,000	350,000	425	149	15	134	600,000	380,000	450	171	21	150	750,000	550,000	500	275	25	260
- Smallholder	750,000	450,000	300	135	5	130	750,000	550,000	350	192	12	180	750,000	550,000	400	220	15	205
Oil Palm	205,400	125,000	1,000	125	19	106	450,000	350,000	700	245	52	193	700,000	575,000	750	432	115	317
Coconuts	135,000	135,000	140	19	-	19	135,000	135,000	160	21	-	21	135,000	135,000	190	24	-	24
Pineapples	36,000	36,000	300	11	2	9	50,000	40,000	400	20	4	18	60,000	60,000	500	30	6	24
Tapioca							20,000	20,000	350	7	2	5	30,000	30,000	400	12	4	8
Pepper & Veggies.	3,000	2,000	3,000	6	1	5	4,500	3,500	3,500	11	2	9	6,000	5,000	4,000	20	5	15
Sugar							20,000	20,000	1,000	20	8	12	20,000	20,000	1,000	20	8	12
Other S.T.C.							30,000	30,000	500	15	7	8	120,000	120,000	700	84	40	44
<u>Livestock numbers</u>																		
Pigs	120,000			13	9	4	275,000			30	22	8	650,000			65	49	18
Poultry - Meat	6,000			13	13	5	20 Mil.			56	42	14	60 Mil.			150	113	37
- Eggs	340,000			5	3	2	800,000			12	9	3	1.9 Mil.			30	23	7
Cattle & Goats				1	-	1				8	1	7				20	3	17
Other Subsistence				50		50				50		50				50		50
TOTAL				532		465				858	182	676				1,432	406	1,036

G.V. = 2.70

Rate of Growth 1970-90 :-
 (a) Gross Agric. output = 5.1%
 (b) N.V.A. = 4.3%
 (c) G.N.P. = 6.4%

Rate of Growth 1980-1990 :-
 (a) Gross Agric. output = 5.25%
 (b) N.V.A. = 4.3%
 (c) G.N.P. = 7.3%

(II) Gross Agric. output = \$1,550 million
 Net value added = \$1,140 million
 G.N.P. = \$4,560 million

Rate of Growth 1970-1990 :-
 (a) Gross Agric. cutput = 5.5%
 (b) N.V.A. = 4.55%
 (c) G.N.P. = 6.9%

Rate of Growth 1980-1990 :-
 (a) Gross Agric. output = 5.1%
 (b) N.V.A. = 4.15%
 (c) G.N.P. = 7.2%

Gross Agricultural Output = 34.5% in I
 = 34.0% in II

...4/-

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TABLE 3

AGRICULTURAL LABOUR REQUIREMENTS.

ACTIVITY	E.P.U. estimate	Consultants estimate
	Acres/man	
Rubber	6.67	10.0
Oil Palm	8.0	15.0
Coconuts	12.0	12.0
Pineapple	5.0	6.0
Tapioca	12.0	20.0
Vegetables	4.0	5.0
Sugar	n.a.	10.0
Short-term crops	n.a.	20.0
Other	5.0	5.0
	Output/man	
Cattle	n.a.	\$10,000
Pigs	n.a.	450 fat pigs
Poultry-broilers	n.a.	15,000 broilers
Layers	n.a.	3,000 layers

TABLE 4

JOHORE POPULATION AND LABOUR FORCE 1970-1990

	<u>1970</u>	<u>1980</u>	<u>1990</u>
POPULATION	1,425,000	1,900,000	2,450,000
LABOUR FORCE 'A'	415,000	580,000	780,000
	427,500	598,000	815,000

...5/-

TABLE 5

DISTRIBUTION OF POPULATION JOHORE ASSUMPTION. A.ASSUMPTION A

<u>AREA</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>
JOHORE BAHRU	133,478	230,164	396,891
MEDIUM TOWNS	192,720	290,858	438,856
SMALL TOWNS	79,280	111,784	156,975
NEW AGRICULTURE	-	196,173	389,062
RURAL AND VILLAGES	1,019,472	1,071,021	1,068,216
TOTAL	<u>1,425,000</u>	<u>1,900,000</u>	<u>2,450,000</u>

ASSUMPTION B

TOWNS	405,528	632,806	992,722
NEW AGRICULTURE	-	196,173	389,062
RURAL AND VILLAGES	<u>1,019,472</u>	<u>1,131,021</u>	<u>1,268,216</u>
TOTAL	<u>1,425,000</u>	<u>1,960,000</u>	<u>2,650,000</u>

ASSUMPTION C

RURAL AND VILLAGES	<u>1,019,472</u>	<u>1,211,021</u>	<u>1,468,216</u>
TOTAL	<u>1,425,000</u>	<u>2,040,000</u>	<u>2,850,000</u>

ASSUMPTION D

JOHORE BAHRU	133,478	284,000	613,000
OTHER TOWNS	272,000	402,642	595,831
NEW AGRIC.	-	196,173	389,062
RURAL AND VILLAGES	<u>1,019,472</u>	<u>1,017,185</u>	<u>852,207</u>
TOTAL	<u>1,425,000</u>	<u>1,900,000</u>	<u>2,450,000</u>

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TABLE 6

AGRICULTURAL LABOUR FORCES UNDER POPULATION GROWTH
ASSUMPTIONS

<u>ASSUMPTION</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>
I	226,504	281,542	323,804
II	226,504	204,931	368,248
III	226,504	312,705	412,692
IV	226,504	269,605	275,812

TABLE 7

OCCUPATIONAL DISTRIBUTION

<u>OCCUPATION</u>	<u>MALAYSIA</u>	<u>U.K.</u>	<u>JOHORE</u>		
	1967	1966	High Agric.	Medium Agric.	High Services
Agriculture	51.56	3.2	38	34	31
Mining	3.05	2.3	2	2	2
Manufacturing	9.08	34.8	14	16	16
Construction	3.34	7.8	6	6	6
Public Utilities	0.94	1.7	1	1	1
Commerce	10.79	13.4	13	14	14
Transport & Comm.	3.64	6.7	5	5	5
Services	17.46	29.8	21	22	24
Miscellaneous	0.15	0.3			

...7/-

- 7 -

TABLE 8EMPLOYMENT DISTRIBUTION. JOHORE 1990 (Thousand)

<u>OCCUPATION</u>	<u>HIGH AGRICULTURE</u>	<u>MEDIUM AGRICULTURE</u>	<u>HIGH SERVICES</u>
Agriculture	310	277	253
Mining	16	16	16
Manufacturing	114	130	130
Construction	49	49	49
Public Utilities	8	8	8
Commerce	106	114	114
Transport and Comm.	41	41	49
Services	171	179	196
	<u>815</u>	<u>815</u>	<u>815</u>

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INTERNAL REPORT : PLANNING : SECTION I

THE STATE OF JOHOR & THE PROJECT REGIONS : 1970 -1990

PEOPLE, JOBS, URBAN & RURAL DEVELOPMENT

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APPENDICES

1. INTRODUCTION

We have undertaken a series of exercises to describe population trends, economic activity, urban and rural growth to 1990 for the State of Johor, in order to assess the scale, form and timing of developments appropriate to the Project Areas. A series of assumptions, and tests on each of the following were made:-

- i) Total agriculture output and value added.
- ii) Agricultural labour force required.
- iii) Population growth and urban migration.
- iv) Occupational distribution and economic activity.

These studies are described in Sections 4-7 and the calculations involved tabulated in the attached appendices.

The method of making and testing a series of assumptions and comparing results, was used because of the severe limitations of existing statistics as a basis for trend forecasting, and because it enabled us to derive certain general results, regardless of the doubtful nature of the existing information base.

A Summary is given in Section 2 (Pages 3-5), and this and the Conclusions in Section 3 (Pages 6-7) also draw on the preliminary results of the Sociological Field Studies, and on other work by all divisions.

John English
 Dave Walton
 14th August 1970

2. SUMMARY

2.1 LAND DEVELOPMENT & AGRICULTURAL EMPLOYMENT

- a) Approximately 1.4 million acres of land in the State suitable for agricultural development are at present unalienated. Initially it was assumed that 1 million acres could be developed by 1990.
- b) The probable state agricultural labour force in 1990 (250,000) is well below the estimates made of labour required to operate 2.6 million acres of agricultural land by 1990 (almost 25 per cent below the lower of the two estimates).
- c) This suggests that either (i) sufficient labour will not be available, or that (ii) productivity and acreage per man must rise in order to achieve this rate of growth of output. A compromise might be a slightly lower rate of land development of 800 to 900 thousand acres by 1990, leaving 500 to 600 thousand acres of land suitable for agriculture undeveloped. This would employ about 50,000 in new areas, leaving 200,000 or about 10-20 per cent less than at present in areas. Since there is plenty of existing scope for increased agricultural output here, this should not create any great problem.
- d) Agricultural development would, if pursued on this scale, create about 50,000 jobs directly and about the same number indirectly. This will be around 25 per cent of new jobs.
- e) Agro-based employment in The Project Areas, will play a fairly small role in terms of the total state picture. By 1990 there will perhaps be employment of 22,000 to 23,000 in agriculture and 12,000 or so in associated services in the areas. This will constitute just over 4 per cent of employment in the State, or about 9 per cent of additional employment created by 1990.
- f) The population in The Project Areas by 1990 based on agricultural development might be around 100,000.

2.2 URBAN GROWTH

It seems inevitable that urbanisation will continue on a considerable scale, and an increasing rate:-

- a) In 1970, approximately 45 per cent of the State's population live in towns.
- b) In 1990, about 60 per cent of the State's population will be living in towns (assuming 20 per cent of the agro-based population to be urban).
- c) In 1990, Johor Baharu will be a conurbation of over 500,000.
- d) In 1990, there will be three other towns in the State of over 150,000 - Batu Pahat, Kluang, and Muar.
- e) Probable growth in manufacturing, trade, and services will be sufficient not only for the State to need to plan for the large scale expansion of Johor Baharu, and the three other major towns, but also to consider New Town and Town Expansion Projects in the period 1975-1990.
- f) There are dangers of a massive uncontrolled population drift to the towns, which could swamp the social and physical infrastructure services available, if measures are not taken to plan both for i) large scale urban growth, and ii) for urban development in land development regions.

2.3 URBAN JOB CREATION

- a) The necessary growth of manufacturing jobs to sustain the probable rates of other job creation in the urban areas, is in line with existing trends, and
- b) The role of manufacturing may not necessarily have to be as great as has often been supposed to sustain this rate of urban growth. Economies like Malaysia are copying and will probably continue to copy those of the west, which are becoming increasingly service oriented. In the United States at present only 26 per cent of employment is in manufacturing (including associated clerical) and this is expected to fall below 22 per cent in the present decade. Since developing countries will adopt fairly sophisticated technologies it may be reasonable to question whether the proportion of labour force in manufacturing will ever rise to much above 20 per cent of employment.

2.4 WHAT DO THE PEOPLE WANT?

The preliminary Sociological Field Studies reports indicate:-

- A demand for rising real incomes which enable settlers to enjoy what may be called the apparent advantages of an urban way of life e.g. choice of how and where those economically active in a family work, and facilities for education, health and welfare, shopping and markets, recreation, economy of travel.
- A desire to be fully involved and employed in creating a society, which they can see will give these advantages.
- Settlers do not regard themselves as peasants, and wish to progressively enjoy the benefits they think a modern society should be capable of providing.
- Strong frustrations over low incomes and underemployment in land development schemes.
- A range of job opportunities, vocational training, and freedom to pursue any skill developed.
- The freedom to set up their own enterprises, earn money and spend it how they think best.
- The security of possessing their own home, separate from tied employment.

2.5 THE JOHOR DILEMA

Against a national background of high unemployment and underemployment and low wages, the people of southern Johor are well aware of the dramatic rise in real incomes and employment taking place a few miles to the south. They read Singapore newspapers, listen to Singapore Radio, and watch Singapore T.V. The real achievements and propaganda give a sense of progress, achievement, and a focus of objectives in which every citizen of the island is involved.

The complexities and difficulties of governing and developing the Federation, mean it is very difficult for the State and Federal Governments to give its people the same sense of involvement in a programme of total national progress, and the Malaysian Government has no alternative but to attempt to correct imbalances of incomes and employment between the various ethnic groups.

However, the Government is attempting to create a fast growing industrial and commercial economy integrated with agricultural development into the National Development Programme, e.g. - The establishment and activities of F.I.D.A., MARA, State Development Corporations and Toursit Development Projects.

3. CONCLUSIONS - AIMS OF DEVELOPMENT PLANNING

3.1 THE BASIC TREND

Today Johor is still predominantly a rural and agricultural based society. But urbanization is taking place at a rapid rate with a striking growth in employment in manufacturing industry and services. In the long term, only by planning through rising real incomes of the rural population, to increase consumption and the demand for services, will the economic growth rate be sufficient to create the jobs, wage levels, and amenities the people as a whole will want.

3.2. DEVELOPMENT PLANNING APPROACH

Urban and rural (Agricultural and Industrial) development have to be regarded as complementary and integrated processes within the Total Development Programme of the State, and/Project Areas. /the

For the South East Johor Regions, we have to plan a development system, which has many parts - an industrial and urban growth centre at Johor Bahru, medium sized towns capable of certain industrial activities - Kluang, Kulai, Kota Tinggi, and the New Towns (master villages) we plan, through to small towns and villages based mainly on agricultural production.

Throughout this system, development investment has to be organised to give high employment rates and rising real incomes, in those activities which can operate successfully in each sector in the region. Enterprises have to be set up, or if they exist at present, altered and adapted, to use, train and offer career opportunities to settlers. The development of a modern industrial economy has to be as apparent in the Villages as in the Cities, and the people settled in the villages must be given the advantages they feel an urban way of life offers.

3.3 STATE PLANNING

The preparation of a Development Plan for the State, and its towns particularly the Johor Bahru Region, should be regarded as a High Priority Project. Such a plan should take into account the likely extent of urban and rural development, national and state communication, the provision of the necessary social and physical infrastructure services, other possible major developments eg. Tourism etc. and be designed to be used as a frame-work to guide developments over the next 20 years.

It is of course outside the Terms of Reference, and capacity of the Project to undertake this work, and it could be argued that a study of this sort should be delayed until the 1970 Census is published. However, there could be great benefits to the State's future development in this work being undertaken at the Master Planning Stage of this Project.

3.4 AGRICULTURE AND LAND SETTLEMENT IN SE JOHOR PROJECT AREAS

The results and conclusions of these studies will obviously influence the planning of agricultural land use, acreages per settler, types of land tenure, forms of enterprise and settlement patterns. The results of the enterprise evaluation stage of the project (September - December) will be described in the Draft Report, End of January 1971

However it should be noted:-

- i) Even by maximising the number of settler families working in agricultural land development, the SE Johor Project Regions cannot hope to make more than a small contribution to the national employment numbers.
- ii) Despite the natural resources of land, water, and labour, agricultural land development in itself cannot be expected either to solve the National Employment Problem in the long term, or to give incomes in tune with the population's desires. And in general terms, the more people are settled in a given area, the less income per head, and the greater under employment.

3.5 TOWNS IN SE JOHOR PROJECT AREA

The attractions and facilities of urban centres are wanted in Land Development Regions, in order to attract and retain settler population. The Urban/Village system should have a sufficient range of employment opportunities and commercial and social facilities, for settlers and their families to relate their own skills, aspirations and enterprise to the opportunities that occur in their area through time.

In relation to the development of our regions, it means we should plan for the growth of Kluang to approximately 175,000; the growth and relocation of Kota Tinggi as a New Town/Town Expansion Scheme on high ground. (population 40,000)

It also means that New Towns, within the Project areas, should be developed. While more work needs to be done on this, it could mean the following New Towns for example:-

- 1) Johor Tengah Population 1990:50,000 say,
based on Primary/Secondary Agricultural Processing, Distribution, Manufacture, Services, Commerce, Construction, Research and Development, etc.
- 2) Tanjong Penggerang Population 1990 : 150,000 say
based on Tourism, and as i) above; but existing population involved and a far smaller area served.

4. AGRICULTURAL OUTPUT AND VALUE ADDED

The first exercise was to attempt to project the total output of agriculture in the State to 1990 and the value added by Agriculture in the period. The Land Capability Classification Report for Johor indicates that at present there are approximately 1.4 million acres of land in soil capability classes 1, 2 and 3, which are unalienated. It was assumed that approximately 1 million acres could be developed for agricultural use by 1990. This was broken down into 300,000 acres of rubber (15,000 per year), 500,000 acres of oil palm and 200,000 acres of other crops, the principal additions being 120,000 acres in short term crops, 25,000 acres pineapples and 30,000 acres tapioca. An estimate of growth in the livestock industries placed upon previous projections of demand and potential Johor supplies was also made. Table 1 shows the acreages assumed for the various crops in 1970, 1980, and 1990. Having made assumptions about the annual output per acre and value purchased input per acre the gross output and value added for each activity was estimated and is also shown in Table 1.

These estimates indicated that gross agricultural output would raise from \$596 million in 1970 to \$948 - \$1068 million in 1980 and \$1,638 million by 1990. Since a fair proportion of the increase in output was in oil palm, short-term crops and livestock, the proportion of purchased inputs to total output rises over the 20 year period from 11 per cent to 25 per cent of the total output.

At present Agricultural Net Value added, \$529 million is about 35 percent of Gross State Product as estimated, \$1,500 million. This is assumed to fall to 30 per cent by 1980 and 22.5 per cent by 1990, and estimates of Gross State Product were made for those years. These rose from \$1,500 million in 1970 to \$2,550-\$2950 million in 1980 and \$4,900-\$5,475 million in 1990. The rates of growth implied for the 20 year period are 5.1 per cent for Gross Agricultural Output, 4.3 per cent for Net Value Added and 6.1 per cent 6.6 per cent for State Product. These results are tabulated in Table 2.

5. AGRICULTURE LABOUR FORCE

An attempt was then made to estimate the labour force which might be required to achieve these levels of output. Two sets of assumptions were used for this purpose and these are given in Table 3. The first of these was derived from estimate made by the Economic Planning Unit (EPU) and published in 1968 as part of the High Model Agriculture projections. The second was based upon our estimates of labour force requirements in the Project Area. An estimate of the agricultural labour force required 1970 was made using the EPU estimate. The additional labour force required to achieve the increased crop acreages and livestock production by 1980 was estimated using both sets of assumptions and the same thing was done to obtain the labour force requirements for 1990. The total labour forces indicated are shown in the following table:

Agricultural Labour Force Requirements - Johor (Thousands)

	1970	Total	1980 Increase over 1970	Total	1990 Increase over 1980
Estimate A	247	309	62	377	68
Estimate B	247	286	39	330	44

The population growth of Johor in the planning period was estimated from the Department of Statistics Projections for West Malaysia in 1970 assuming that Johor maintains the same proportion of the national population as at present i.e. 15.15 per cent. The Statistics Department makes four different estimates from population growth and in this exercise "medium A" assumption was taken. This assumes declining fertility and mortality rates over the period to the end of the century. The labour force was estimated in two ways. First, by taking it to be the male population age 15-54 plus 20 per cent of the female population in the same age group. The second estimate took the labour force in 1970 to be 30 per cent of the population (as indicated by the Socio-economic Survey) and one-third of the population in 1990. These population and labour force projections are given in Table 4.

Numerical estimates used in the remainder of this report have been based upon the larger of these two estimates (i.e. estimate 2). On this basis the agricultural labour force in 1970 as estimated is approximately 58 per cent of the total state labour force. This would decline as follows:-

Estimated Agricultural Labour Force Requirements as
Percent of Total

	1970	1980	1990
Estimate A	58	52	46
Estimate B	58	48	40

6. POPULATION GROWTH & URBAN MIGRATION

This exercise involved a series of natural growth rate and migration assumption for each period 1957 - 1970 and 1970 - 1990. The first to provide a base; the second to provide a picture of possible future trends. (Tables 5 - 6 Appendices)

6.1 THE BASE

Existing Population Statistics give no reliable picture of migration patterns within the State. However our own surveys show that because of migration, growth per annum 1957 - 70 has varied between 1 and 2 per cent per annum (Kota Tinggi, Rengam, Layang²) to 4 per cent (Kulai), and even to possibly 5.6 per cent (Kluang). These have been compared with the 3 per cent per annum rate applied in the Department of Statistics estimates to all areas of the State.

No reliable estimates exist at all of the population of Johor Baharu, which probably has the highest per annum growth rate anywhere in the State. Because of this we weighted the migration pattern of the major towns, as far as we could ascertain to get an existing population picture.

For Johor Baharu, as much of its real growth is and will continue outside its town boundaries, we took an artificially defined area - the Johor Baharu City Region, as a base. (Scudai - Ulu Tiram - Masai) Estimated population 1970 ; 175,000.

6.2 THE METHOD

From the 1970 base, for Johore Bahru, the medium-size towns (Batu Pahat, Muar, Kluang, and Segamat) and other towns of near 10,000 population in 1970. Populations were calculated according to the assumptions I - V listed in 6.3 for 1980 and 1990.

We then assumed that employment created by the new agricultural development between now and 1990 would be as previously estimated. In these areas an additional 50 per cent of that employment would be created in service industries. One-third of the population being economically active. This provided an estimate of the population in present rural areas and villages.

Estimates of the number of people employed in agriculture under these assumptions were then made on the basis that one-third of the population is economically active and that two-thirds of those employed in rural areas are engaged in agriculture. The resulting figures are given in Table 6.

6.3 ASSUMPTIONS

- I PRESENT TRENDS - Migration - Department of Statistics Media A estimate of Natural Increase, combined with the continued estimates of existing urban migration rates within the State.
- II "CONTROLLED" GROWTH - As I. Except greater migration opportunities assumed to New Towns, Town Expansion Schemes, etc, rather than existing West Coast Towns, in order to attract population to Development Regions.

III JOHORE BAHRU ACCELERATED GROWTH - Probably actually closer to rate of what is already happening with the Port, Industrial Development Areas, State Development Corporation etc. (6.5 per cent per annum assumed, as compared with 5.5 per cent in other assumptions). Otherwise as II.

NOTE: The first estimates of the projected growth in Johor Baharu used (5.5 per cent) would require about 4,500 additional jobs per year on average over the 20 years period. It is likely that given the function of the town within the State that at least one-half of the employment of the town will be in service type activities. Thus about 2,000 jobs per year would be created in basic activities such as manufacturing, construction, and port functions. It is likely that employment growth in this type of activity will be much greater than 2,000 per annum over the whole period, since manufacturing is already expanding at more than this rate Johor as a whole, and most of these jobs are coming to Johor Baharu. A second estimate of population in Johor Baharu was made assuming an average of 4,000 jobs per annum in basic activities and the same number in services over the 20 years period. Growth on this scale (6.5 per cent) would result in Johor Baharu having 620,000 inhabitants for about one-quarter of the total State population.

- IV "CONTROLLED" GROWTH (Higher Natural Increase) - As II, except Department of Statistics Higher Estimate of Natural Increase used.
- V "CONTROLLED GROWTH WITH INSTATE MIGRATION" As I and II, except assumed migration into the State occurs so as to raise the population in the State to 17.5 per cent of the natural total by 1990.

6.4

RESULTS SUMMARIZED FOR 1990 : POPULATION STATE OF JOHOR(Thousand)						
1970	ASSUMPTIONS:1990	I	II	III	IV	V
175	JOHOR BAHARU	510	511	616	510	510
230	OTHER LARGE TOWNS	598	546	546	546	546
79	SMALLER & NEW TOWNS	152	203	203	203	203
-	NEW RURAL	389	389	389	389	389
941	EXISTING RURAL	801	801	696	1,001	1,201
1,425	TOTALS	2,450	2,450	2,450	2,650	2,850
672	URBAN*	1,498	1,498	1,582	1,537	1,577
753	RURAL	952	952	868	1,113	1,273

* including 20 per cent of existing and new rural

6.5 COMMENTARY

The results of these calculations are;-

- i) The Agricultural population indicated by this exercise would range from 24, 110 under assumption III where urban growth is fastest to 353,300 under assumption V with heavy migration into the State.
- ii) Johore Bahru will grow, without planned overspill, to between 510,000 and 616,000. It should be noted that even the highest figure could be a conservative estimate.
- iii) With the continued economic expansion of the Kuala Lumpur region, and the SE Pahang Project, we consider in-state migration over the 200-400,000 allowed for in Assumption V unlikely. This would result in a further 200,000 increase in the State population which would have to be accommodated in rural areas, so that rural population would rise by about 45 per cent over the 20 year period. It would seem unlikely that migration on this scale would occur unless urban growth in the State was much more rapid than has been forecast here.
- iv) Batu Pahat, Muar, and Kluang will by 1990 each have population of around 170,000 i.e. as big as Johor Baharu at present.
- v) It can be seen that New Town Projects within Agricultural Development Regions are possible, as far as population resources are concerned (TABLE 5E). As far as an industrial base is concerned, primary and secondary processing, commerce, and services, for the agricultural hinterlands are certainly possible. It remains to be seen to what extent manufacturing industry can be attracted to such projects.
- vi) Planned overspill growth of Kota Tinggi will be necessary to consider its relocation and expansion on high ground.
- vii) It appears to us that somewhere between the figures in Assumptions I,II, III is the most likely trend and that a policy of 'planned' urban growth with industrial overspill to Town Expansion, New Town Projects etc. would be advisable. In which case, the central planning aim should be in the range expressed in Assumptions II and III.

Assumption	1970	1980	1990	1995	2000	2005	2010
Urban	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000	1,600,000	1,700,000
Rural	1,000,000	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000	1,600,000
Total	2,100,000	2,300,000	2,500,000	2,700,000	2,900,000	3,100,000	3,300,000
Urban	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000	1,600,000	1,700,000
Rural	1,000,000	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000	1,600,000
Total	2,100,000	2,300,000	2,500,000	2,700,000	2,900,000	3,100,000	3,300,000

7. OCCUPATIONAL DISTRIBUTION & ECONOMIC ACTIVITY

The socio-economic survey indicated a distribution of the labour force between occupations as shown in the first column of Table 7. Fifty-one per cent of the labour force is at present in agriculture, 12 per cent in manufacturing and mining, 3 per cent in construction and 33 per cent in service activities. Column 2 of the Table shows the 1966 occupational distribution in the United Kingdom. This has 52 per cent of the labour force in services and 48 per cent in agriculture, mining, manufacturing and construction. Since countries such as Malaysia are moving towards a western type of economy it is likely that the proportion of the population employed in service industries will rise considerably in the future. Three sets of assumptions have been made on the employed distribution in Johor for 1990. These are shown in Table 7.

1. High Agriculture:- This assumes an increase of manufacturing employment to 14 per cent of the total, construction to 6 per cent and service industries to 40 per cent. Agriculture is about 38 per cent of the total.
2. Medium Agriculture - Manufacturing employment is assumed to grow to 16 per cent and service employment to 42 per cent agriculture thus falls to 34 per cent of the total.
3. Low Agriculture - Service employment rises to 45 per cent of the total and agriculture falls to 31 per cent.

Assuming a total labour force of 815,000 in 1990 total employment in the different industries is shown in Table 8. Agricultural employment ranges from 310,000 in high agriculture assumption to 253,000 in the Low Agricultural Assumption. It is noticeable that the agricultural labour force under the low-medium agricultural assumption is virtually the same as that estimated under the present trends population growth and urbanisation assumption (See table 6).

8 From table 9 it can be seen that urban jobs creation based on manufacturing to 1990 is in line with present trends, as far as they can be accurately ascertained.

APPENDIX

TABLE 1

	1970						1980						1990					
	ACREAGE GROSS	MATURE	OUTPUT PER ACRE	GROSS OUTPUT	PURCHASED INPUTS	VALUE ADDED	ACREAGE GROSS	MATURE	OUTPUT PER ACRE	GROSS OUTPUT	PURCHASED INPUTS	VALUE ADDED	ACREAGE GROSS	MATURE	OUTPUT PER ACRE	GROSS OUTPUT	PURCHASED INPUTS	VALUE ADDED
	\$		\$	\$Mil.	\$Mil.	\$Mil.	\$		\$	\$Mil.	\$Mil.	\$Mil.	\$		\$	\$Mil.	\$Mil.	\$Mil.
Rubber - Estate	450,000	350,000	550	175	15	160	600,000	380,000	540-600	205-228	217	184-207	750,000	350,000	600	330	25	305
- Smallholder	750,000	450,000	385	173	5	168	750,000	550,000	450-500	248-275	12	236-263	750,000	550,000	520	286	15	271
Oil Palm	205,400	125,000	1000	125	19	106	450,000	350,000	700-900	245-315	52	193-263	700,000	575,000	900	517	115	402
Coconuts	135,000	135,000	140	19	-	19	135,000	135,000	160	21	-	21	135,000	135,000	190	24	-	24
Pineapples	36,000	36,000	300	11	2	9	50,000	40,000	400	20	4	16	60,000	60,000	500	30	6	24
Tapioca							20,000	20,000	350	7	2	5	30,000	30,000	400	12	4	8
Pepper & Veggies.	3,000	2,000	3000	6	1	5	4,500	3,500	3,500	1100	12	9	6,000	5,000	4,000	20	5	15
Sugar							20,000	20,000	1,000	20	8	12	20,000	20,000	1,000	20	8	12
Other S.T.C.							30,000	30,000	500	15	7	8	120,000	120,000	700	84	40	44
<u>Livestock Numbers</u>																		
Pigs	120,000			13	9	4	275,000			30	22	8	650,000			65	49	16
Poultry - Meat	6,000			18	13	5	20 Mil.			56	42	14	60 Mil.			150	113	37
- Eggs	340,000			5	3	2	300,000			12	9	3	1.9 Mil.			30	23	7
Cattle & Goats				1	-	1				8	1	7				20	3	17
Other Subsistence				50		50				50		50				50		50
				596		529				948-1,068	182	766-886				1,368	406	1,232

TABLE 2

Growth of Agricultural Industry

1970	Gross output	=	\$596 million
	Net Value Added	=	\$529 million
	State G.N.P.	=	\$1,500 million
	Agric. N.V.A.	=	35.3% G.N.P.
	Gross Agric. output	=	39.7% G.N.P.
1980 (I)	Gross Agric. output	=	\$948 million
	Net Value Added	=	\$766 million
	Let Agric. N.V.A.	=	30% of G.N.P.
	G.N.P.	=	2,553 million
	Rate of Growth 1920-80		
	(a) Gross Agric. output	=	4.8% p.a.
	(b) Net Value Added	=	3.7% p.a.
	(c) G.N.P.	=	5.5% p.a.
(II)	Gross Agricultural output	=	1,068 million
	N.V. Added	=	886 million
	G.N.P.	=	\$2,953
	Rate of Growth 1970-80		
	(a) Gross Agric. output	=	6.0% p.a.
	(b) Net Value Added	=	5.3% p.a.
	(c) G.N.P.	=	7.0% p.a.
	Gross agricultural output	=	37.1% of G.N.P. in I 36.2% of G.N.P. in II
1990	Gross Agric. output	=	\$1,638 million
	Net Value Added	=	\$1,232
	Let N.V.A. in agric.	=	25% of G.N.P.
	I G.N.P.	=	\$4,928 million
	II	=	\$5,475

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Rate of Growth 1970-90:-

(a) Gross Agric. output	= 5.1%
(b) N.V.A.	= 4.3%
(c) G.N.P.	= 6.1%
	(6.6%)

Rate of Growth 1980-1990 - 1980 - Low Figure

(a) Gross Agric. output	= 5.7%
(b) N.V.A.	= 4.8%
(c) G.N.P.	= 6.8%
	(6.7%)

Rate of Growth 1980-1990 - 1980 - High Figure

(a) Gross Agric. output	= 4.4%
(b) N.V.A.	= 3.4%
(c) G.N.P.	= 5.8%

Gross Agriculture Output	= 33.2% in I
	= 29.9% in II

TABLE 3 - AGRICULTURE LABOUR REQUIREMENTS

ACTIVITY	E.P.U. estimate	Consultants estimate
		Acres/man
Rubber	6.67	10.0
Oil Palm	8.0	15.0
Coconuts	12.0	12.0
Pineapples	9.0	6.0
Tapioca	12.0	20.0
Vegetables	4.0	5.0
Sugar	n.a.	10.0
Short-term crops	n.a.	5.0
		Output/man
Cattle	n.a.	\$10,000
Pigs	n.a.	450 fat pigs
Poultry	n.a.	15,000 broilers
Layers	n.a.	3,000 layers

TABLE 4 - JOHORE POPULATION AND LABOUR FORCE 1970-1990

	1970	1980	1990
POPULATION	1,425,000	1,900,000	2,450,000
LABOUR FORCE I	415,000	580,000	780,000
II	425,000	598,000	815,000

...17/-

TABLE 5A: POPULATION DISTRIBUTION OF DISTRICT - JOHORE. EXISTING TRENDS ASSUMING URBAN MIGRATION ONLY

DISTRICT		1957	1970	1980	1990	LAND ALIENATED	POTENTIAL AGRIC.	TOTAL AGRIC. LAND	ALIENATED PER RURAL HECTAR
JOHORE BAHRU	TOWN	95,168	188,000	318,181	539,099				
	RURAL	63,017	44,295	6,169	--				
	TOTAL	158,185	232,295	324,330	418,215	383,270	28,773	362,043	7.52
	% TOWN	60.16	80.93	98.10	128.90				
BATU PAHAT	TOWN	45,655	80,000	125,974	198,678				
	RURAL	150,614	208,221	276,446	520,232				
	TOTAL	196,269	288,221	402,420	518,910	370,944	47,196	418,140	1.78
	% TOWN	23.26	27.76	31.30	38.29				
KLUANG	TOWN	31,181	60,000	101,522	171,777				
	RURAL	60,748	74,998	86,958	71,263				
	TOTAL	91,929	134,998	188,480	243,040	278,622	271,791	550,413	5.72
	% TOWN	33.92	44.45	50.86	70.68				
MUAR	TOWN	48,053	94,000	131,616	206,637				
	RURAL	173,045	240,690	321,724	377,933				
	TOTAL	221,103	324,690	453,340	584,570	388,332	57,960	446,292	1.61
	% TOWN	21.74	25.87	29.03	35.35				
SEGAMAT	TOWN	25,165	40,500	60,081	89,202				
	RURAL	68,768	97,441	152,389	158,983				
	TOTAL	93,933	137,941	192,470	248,185	268,272	193,752	462,024	2.75
	% TOWN	26.79	29.36	31.22	35.94				
PONTIAN	TOWN	8,459	13,000	18,338	25,367				
	RURAL	90,844	132,533	184,772	236,038				
	TOTAL	99,103	145,533	203,110	261,905	187,877	3,512	171,189	1.27
	% TOWN	8.54	8.93	9.03	9.88				
MERSING	TOWN	7,228	10,600	14,245	19,145				
	RURAL	18,693	27,465	38,955	49,455				
	TOTAL	25,921	38,065	53,200	68,600	40,986	404,892	445,878	1.49
	% TOWN	27.88	27.85	26.78	27.91				
KOTA TINGGI	TOWN	7,475	8,300	9,168	10,128				
	RURAL	32,932	51,033	73,672	96,692				
	TOTAL	40,407	59,338	82,840	106,820	179,262	394,749	574,011	5.51
	% TOWN	18.50	13.99	11.07	9.48				
<u>TOTAL STATE OF JOHORE</u>	TOWN	268,389	484,400	786,265	1,262,524				
	RURAL	658,461	876,681	1,113,925	1,288,605				
	TOTAL	926,850	1,261,081	1,900,190	2,571,129	2,027,565	1,402,425	3,429,930	2.51
+ 10,000 (Pop)	TOWN	28.96	35.59	41.38	49.88 percent				
	URBAN TOTAL (20% of Rural in Small Towns)				60.00 percent				

TABLE 5: POPULATION PROJECTIONS

5B TOWNS: EXISTING TRENDS							1980	1990
	Census Base '57 Pop.	Stats. Dept. '69 Estimates @ 3%	Various sources estimated per annum % Increase 57-69	Various sources estimated 1970 Population	1970 Base Population	RATE		
JOHORE BAHRU	74,909	108,200	5.5(4.5)	150,000	175,000	5.5	138,918	510,615
J.B. Surrounding Area	12,500	25,300	3.0	25,000	(160,000)	(4.5)	138,480	385,872
BATU PAHAT	39,234	57,000	4.8	70,000	70,000	4.8	111,868	178,780
KLUANG	31,181	45,100	5.4	61,000	60,000	5.4	101,522	171,777
MUAR	39,046	56,600	4.8	70,000	70,000	4.8	111,868	178,780
SEGAMAT	18,445	26,800	4.2	30,000	30,000	4.2	45,270	68,309
TOTAL	127,966	185,500		231,000	230,000		270,389	597,646
TANGKAK	9,012	13,100	3.5	14,000	14,000	3.5	13,748	27,857
YONG PENG	6,361	9,230	3.5	10,000	10,000	3.5	14,106	19,896
PONTIAN	8,459	12,290	3.5	13,230	13,000	3.5	13,338	25,867
MERSING	7,228	10,550	3.0	10,600	10,600	3.0	14,245	19,145
LABIS	6,720	9,740	3.5	10,500	10,500	3.5	14,811	20,893
KOTA TINGGI	7,475	10,800	1	8,300	8,300	1.0	9,158	10,128
KULAI	7,759	11,250	4	13,000	13,000	4.0	19,245	28,484
TOTAL	53,014	76,960		79,630	79,400		109,659	152,272
GRAND TOTAL	268,000	396,000		486,000	485,000		779,000	1,280,000

JCE/RH/16/8/70

...19/-

TABLE 5C TOWNS - CONTROLLED GROWTH

	Planned Growth Rate (x)	Base 1970	1980	1990
J.B .	5.5	175,000	298,918	510,615
B.P.	4.2	70,000	105,625	159,387
K	5.0	60,000	97,734	159,198
M	4.2	70,000	105,625	159,387
S	4.2	30,000	45,270	68,309
TOTAL		230,000	354,254	546,281
T	3.5	14,000	19,748	27,857
Y.P.	3.5	10,000	14,106	19,898
P	3.5	13,000	18,338	25,867
M	3.5	10,600	14,952	21,092
L	3.5	10,500	14,811	20,893
K.T.	4.0	8,300	12,286	18,186
K	4.0	13,000	19,243	28,484
TOTAL		79,400	113,484	162,277
				1,220,000
				40,000
				1,260,000

OTHER NEWTOWNS = J.B. OVERSPILL SAY 5% = 25,000.

TABLE 5D DISTRIBUTION OF POPULATION IN JOHORE 1970-1990

I Present Trends	1970	1980	1990
Johore Bahru	175,000	299,000	510,000
Medium Towns	230,000	320,500	598,000
Other Towns	79,000	109,700	152,000
New Agriculture	-	196,000	389,000
Rural and Villages	941,000	925,000	801,000
	1,425,000	1,900,000	2,450,000

II Controlled Growth

	1970	1980	1990
Johore Bahru	175,000	299,000	511,000
Medium Towns	230,000	354,000	546,000
Other Towns	79,000	113,000	162,000
New Agriculture	-	196,000	389,000
Rural and Villages	941,000	925,000	801,000
'New Towns'	-	13,000	41,000
	<u>1,425,000</u>	<u>1,900,000</u>	<u>2,450,000</u>

III Rapid Growth of J.B.

Johore Bahru	175,000	328,000	616,000
Medium Towns	230,000	354,000	546,000
Other Towns	79,000	113,000	162,000
New Agriculture	-	196,000	389,000
Rural and Villages	941,000	896,000	696,000
'New Towns'	-	13,000	41,000
	<u>1,425,000</u>	<u>1,900,000</u>	<u>2,450,000</u>

(J.B. 'surplus over II') (29,000) (105,000)

IV Controlled growth with Higher Population Growth Rate.

Johore Bahru	175,000	299,000	510,000
Medium Towns	230,000	354,000	546,000
Other Towns	79,000	113,000	162,000
New Agriculture	-	196,000	389,000
Rural and Villages	941,000	985,000	1,001,000
'New Towns'	-	13,000	41,000
	<u>1,425,000</u>	<u>1,960,000</u>	<u>2,650,000</u>

V Controlled growth with Immigration.

Johore	175,000	299,000	510,000
Medium Towns	230,000	354,000	546,000
Other Towns	79,000	113,000	162,000
New Agriculture	-	196,000	389,000
Rural and Villages	941,000	1,065,000	1,201,000
'New Towns'	-	13,000	41,000
	<u>1,425,000</u>	<u>2,040,000</u>	<u>2,850,000</u>

TABLE 5E NEW TOWNS IN LAND DEVELOPMENT REGIONS

POPULATION SOURCES:

1) Difference between Existing Trends "Controlled Growth" see 5E	41,000
2) New Agric (20% in Towns, 10% in New Towns)	39,000
3) Johore Bahru (Planned) overspill (5%:50% to Newtowns)	25-30,000
say	100,000+

POPULATION DISTRIBUTION TO 1990 say:

1) JOHORE TENGAH & TANJONG PENGGERANG	60%	= 60,000
2) SEMBRONG/SEDILL/ LENGGOR/MERSING		= 40,000

TABLE 6 AGRICULTURE LABOUR FORCE - UNDER ABOVE ASSUMPTIONS.

	<u>1970</u>	<u>1980</u>	<u>1990</u>
I	209,109	249,109	264,418
II	209,109	249,109	264,418
III	209,109	242,664	241,109
IV	209,109	262,442	308,886
V	209,109	280,219	353,330

...22/-

TABLE 7

OCCUPATIONAL DISTRIBUTION

<u>OCCUPATION</u>	<u>MALAYSIA</u> 1967	<u>U.K.</u> 1966	<u>JOHORE</u> 1990		
			High Agric.	Medium Agric.	Low Agric.
Agriculture	51.56	3.2	38	34	31
Mining	3.05	2.3	2	2	2
Manufacturing	9.08	34.8	14	16	16
Construction	3.34	7.8	6	6	6
Public Utilities	0.94	1.7	1	1	1
Commerce & Comm.	3.64	6.7	5	5	5
Services	17.46	20.8	21	22	25
Miscellaneous	0.15	0.3			

TABLE 8 - EMPLOYMENT DISTRIBUTION. JOHORE 1990 (Thousand)

<u>OCCUPATION</u>	<u>HIGH</u> <u>AGRICULTURE</u>	<u>MEDIUM</u> <u>AGRICULTURE</u>	<u>LOW</u> <u>AGRICULTURE</u>
Agriculture	310	277	253
Mining	16	16	16
Manufacturing	114	130	130
Construction	49	49	49
Public Utilities	8	8	8
Commerce	106	114	114
Transport & Comm.	41	41	41
Services	171	179	204
	<u>815</u>	<u>815</u>	<u>815</u>

TABLE 9 - MANUFACTURING INDUSTRY JOHOR 1970-1990. HYPOTHETICAL

<u>1970</u>	<u>1990</u>	
1.4 mil.	2.5 mil.	Population
427,500	815,000	Jobs
9%	16%	% Manufacturing
38,500	132,000	Manufacturing Jobs
-	93,500	New Manufacturing jobs required
-	4,575	Per annum (Average 1970-90)
2,500	-	Manufacturing jobs being operated per annum at present.
6.5%		Present annual rate of increase in manufacturing jobs.
	136,000	Manufacturing jobs in Johore at 6.5% rate of growth.



II Regional Planning - Project Areas

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INTERNAL REPORT : PLANNING : PARTS II & III

PART II : Regional Planning - Project Areas

- 1 Introduction
- 2.1 Existing Population & Existing Alienated Land
- 2.2 Existing Private Estates
- 2.3 Existing Villages - Penggerang
- 2.4 Betterment and Land Speculation
- 3 Town Plans
- 4 Alterations to Draft Concept Plans
- 5 Phasing & Growth.

PART III : Settlement Size & Form

- 1 The problem
- 2 Comparative Analysis of Alternative Settlement Types
- 3 Conclusions
- 4 Size of Village
- 5 Residential Densities
- 6 Design & Implementation
- 7 Landscape

Appendix Accessibility Constraints by Crop Types.

II Regional Planning - Project Areas

The first Draft Concept Plan & Progress Report Number 5 June, 1970 - described initial conclusions on opportunities and constraints concerning Major Land Uses, Regional Communications, Urban Growth & Industrialisation, the Town & Village Development Patterns, Tourism, Recreation, Phasing and Implementation. (Pages 21-31), in the Project Areas. This should be read as a part of this report. Also,

Section I of this report, 'the State of Johor 1970-1990 - People, jobs, urban and rural development,' attempted to give a context for the development planning of the two project areas.

This report is a continuation of these two previous items of work; and is concentrated on what appear to be the major questions outstanding. These questions are put forward, discussed to a limited extent, and in some cases my own views about conclusions given. However, these conclusions are tentative, and are put forward to focus the attention of other team members on the implication of their work in relation to these problems.

2. Regional Planning - Major Issues

2.1. Existing Population & Existing Alienated Land

Introduction

Government Investment in new physical and social infrastructure systems in the Project Areas is likely to result in an increase in development potential of existing alienated areas, particularly on the West and South sides of Tanjong Penggerang. Also, the planning of Town Expansion Project Areas is likely to result in an increase in value of the alienated land affected.

The level of incomes, extent of under employment, quality of social services - housing, education, and health facilities, of the existing populations, particularly in the Tanjong Penggerang Region, are considerably below the levels we hope to plan for settler population, and the results of our Surveys indicate a high level of outward migration from such areas, in both regions. (eg. Sedili Besar, East Coast Fishing Village - over 80 percent of the population have a family income of less than \$150 per month; Tanjong Surat, Sungei Johor, average family income \$151 per month; including all teachers, government officials, etc.) (Natural rate of increase of 2.5-3.0 percent per annum; settlement population growth around 1 percent per annum).

While these areas were not covered by the soil surveys of the regions; and therefore our natural resource information base is not as good as for the unalienated land, these areas are likely to be affected in various ways by planning and development.

2.2. Existing Private Estates

The variety of locations size of estates and company resources mean there is enormous range of estate conditions in the project areas from the dynamic expansive estate with reinvestment continually taking place, e.g. Guthries through to old estates where no reinvestment is taking place, leading to inefficient land use, low productivity, low wages rates and levels of employment, and extremely deprived social circumstances for the resident labour eg. Sungei Patam Estate (Penggerang).

If the movement towards a more equitable society offering better opportunities to the underprivileged is to be successful, in the long term, the sort of proposals we are likely to make for Land Development Regions (eg. home tenancy separate from tied employment, village control separate from industrial enterprise control) should also be applied to new private enterprises and possibly in the long term to existing estates.

While private investment can assist the total national development programme by making additional resources available and therefore should be encouraged its objectives are not the same, or always compatible with national goals, unless certain conditions are applied, and acceptable to the private investors.

We also need to take account the such factors as the fund of under employed labour in FLDA schemes, already provided with houses, schools, social security arrangements, etc. which enables estates nearby to minimize their regular labour requirements and use casual labour paying only a daily wage for periods of intensive labour requirements. This is not necessarily a bad thing, but something that needs to be recognised, and if applicable, rationalised into the development programme of the project areas.

I think it is useful to consider what relationship project planning should take to private estates according to two broad types of estates - the Investors and the Sleepers.

- a) The Investors. The expansion and diversity effort of this sector should be encouraged to minimize the demand on Government development resources. They should compete alongside FLDA, and any other public sector enterprises we suggest, on the same sort of terms, in relation to

employment, types of settlement, and social facilities provided. What measures are necessary to move in this direction?, and how should the private sector contribute to the development and running costs for infrastructure they benefit from, which the Government has provided?

b) The Sleepers. These are most noticeable in the Penggerang area, where some 27,000 acres are in Singapore/Chinese ownership, and where the produce is taken out by sea mainly to Singapore.

Increased returns in job creation and incomes in these areas should be sought by stimulating investment in their redevelopment, when the government will be improving their potential by investment in new roads and other items of social and physical infrastructure. To achieve these aims, the phased build up of population to create competition for the labour force, and the creation of opportunities for existing resident labour on these estates to work on schemes in adjacent new enterprises, and none to new villages will be required.

2.3. Existing Villages

In contrast to Johor Tengah, where the existing villages and small towns are in or adjacent to existing successful estates, the villages of Penggerang face severe economic problems. The majority of these villages have a declining economic base. They are separated by topographical and soil features, in most cases, from the probable new agricultural areas. In Southern Penggerang in the later periods of the plan, employment and incomes in mining will diminish. While agricultural land development, tourism, and other developments, may to some extent improve the economic opportunities of those living in these villages, generally such developments will not in themselves resolve the problems they face.

Their major existing industry is either sea fishing or old rubber estates.

(1)

"Traditional Fishing" is more productive than "Rubber or Oil Palm Smallholdings" or "Other Agriculture and Livestock." Despite being below the national average in productivity, it is a possible source of growth. Firstly, productivity in "Modern Fishing" is well above the national average (higher than estate rubber). It is one of the growth industries of the Country (1966-67), Average 17.6 percent per annum). It is capital intensive, and largely Malay employing. Although it does not seem likely that fishing can become a major employer (in 1967, Nationally only 52,000 were employed in "Traditional" and 10,000 in "Modern Fishing"), the possible movement from "Traditional" to "Modern Fishing" in the Penggerang

(1) Dr. Snodgrass EPU Paper 1970.

Villages, with no other major likely source of increased incomes and employment required urgent consideration.

This is beyond our terms of reference. But, the Client's attention has been drawn to this possibility; especially as the market for sea fish in Southern Johor and the Development Regions is likely to expand, with the growth of population being planned in the hinterland of these villages, and investing actions have taken place to see whether these areas can be adapted to modern fishing.

Deep sea traveling is not a reasonable possibility for the east and south coasts of Penggerang. Suitable undeveloped sites at Johor Bahru Port, Kuantan and near Mersing have been identified and are being considered. No comparable sites exist within the project regions. Trapping in prawn ponds, and prawn culture research is already being undertaken, and considerable further development potential exists, but only in the Sungai Johor. The sea, and rivers of the existing villages are not suitable for developing this industry, or for fresh water fish culture.

The worst existing problem area is certainly Sedili Besar, as along the south coast of Penggerang, the predominately Chinese population appear to be making reasonable incomes by catching in nets and traps trash fish, and feeding these to pigs and poultry for sale in Singapore, and where additional income is available from tapioca cultivation, from harvesting coconuts and rubber; and from employment in mining.

We should therefore look at other possibilities that occur for improving the economic base, and the social facilities available in areas such as these, including those settlements in old estates, by giving access to new development projects nearby, and any developed organisation set up should be concerned with the development of the whole area of Penggerang including existing alienated and developed areas and be interested and involved in making the people concerned aware of the opportunities for alternative employment and residence that are being developed.

2.4. Betterment & Land Speculation

Certain outline project proposals may result in land speculation. Diagrammatic plans are now being produced - Kluang, Kota Tinggi - which are outside the strict boundaries of the Project Regions, and the gazetting of land value and ownership that exists in the Project regions does not apply. The Port Study indicated the cumbersome and inadequate nature of

existing land acquisition legislation for planning and development purposes. This indicates two problems:-

a) Betterment. The increase in land values of existing alienations brought about by Government plans and investment in infrastructure, should be resoupable by the Government, particular in areas of industrial and urban growth, in order to provide a contribution to infrastructure development costs, once the initial phase of a development scheme has been planned and financed. The methods used towards this end at present are temporary and cumbersome.

b) Speculation. Totally security over our plans is impossible as the project proceeds in detail, and while the gazettment gives temporary protection against speculation of the plans within the strict project boundaries, we are making outline linkage proposals outside the areas, and this may result in speculation, and the increase in land values, consequent on our plans and Government decisions in relation to our plans.

c) Lands. It is necessary to draw attention to the possibility of land speculation in and near the Project area. It is suggested that existing legislation is examined to ascertain whether or not the public interest is adequately protected in this regard.

The following might require gazettment or extension of existing notices:

1. The Project areas inclusive
2. Lands either side of existing communication routes.
3. Proposed new communication routes.
4. Existing and proposed routes for public utilities i.e. pipelines, cables.
5. Zoning of urban areas for expansion including the Port Area/Kluang/Kota Tinggi.
6. Terminals eg. ferries, outfalls, intakes.
7. Watersheds, forest and other reserves above 500 feet or on 20° slopes or over which extend outside the project area eg. G. Blumut and lands to the east of the project areas.

The Clients attention should therefore be drawn to the need for a review of land legislation procedures, in relation to development planning. The Town Planning Legislation now being considered for implementation should be integrated into this review.

3. Town Plans

Johor 1990 has given possible population figures for the Towns adjacent to the Project Areas, and for New Town Projects within the Regions. This will be supplemented by an estimate of possible tourist development projects in Penggerang.

Outline Structure Plans, ie. main land uses and communication networks, for the staged growth of these towns, have been prepared in first draft form.

These will be finalised in the Master Planning Stage of the Contract, and illustrated at the Client Discussions Stage (February) in Plan Form, and summarily described in the Interim Report.

They will be produced as policy guidelines for future urban development, but will not be detailed town plans, with costs. The new towns will contain long term expansion areas, which initially may will be available for short and medium term agricultural use.

4. Alterations to Draft Concept Plan

As compared with the First Concept Plan, there is at present only one addition suggested in the regional road network. This is an extended link to Kluang from the Tengah spinal route in order to give the development area east of the Sembrong better linkages to urban facilities. (5 miles of additional regional road).

The other changes so far are:-

- 1) The scale and direction of growth of Kluang and Kota Tinggi
- 2) The scale of the New Town (Master Village) in Johor Tengah.
- 3) The possible elimination of the three minor dam sites in Johor Tengah.
- 4) No railway link to the Port.

Other possible alterations may be expected when the Tanjong Penggerang Land Potential Map, and the water resources studies for these areas, are complete.

These changes will be incorporated in the revision of the "Draft Concept Plan" for the Draft Project Report.

5. Phasing and Growth

We have discussed the phased build up of villages, catering for natural growth, the need for an urban system previously (Progress Report No. 4). As time passes, so will certain of the constraints used to decide

village size change, eg. as people own cars or motor-cycles, or earn greater incomes, they will have a capacity to travel further to work and social facilities in the same time and for the same proportion of their income, as they walk or cycle at present. And as the desire for greater incomes increases, rural depopulation at least for work purposes may be expected, allowing greater per capita incomes from a given unit of agricultural land.

We need to plan for this to happen in land, which has yet to be settled and yet it is impossible for forecast accurately the extent and timing of such changes.

Certain principles need to be taken into account, so that, within the total State and National economy, the project areas will be capable of naturally adjusting to such changes. The principles suggested are:-

- 1) Land Ownership. Avoidance as far as possible of fragmentary and inflexible land ownership systems.
- 2) Acreage Family Ratios. These should be high enough initially and capable of increasing in the long term to remain attractive in comparison with opportunities elsewhere.
- 3) Diversification. Of types of enterprise, both in primary and secondary activities needs to be fully encouraged.
- 4) Urban/Village developments should be separated from Agricultural/Industrial enterprises.
- 5) Enterprise Organisations should be able to adjust labour requirements to give continually acceptable incomes to employees.

PART III

SETTLEMENT SIZE AND FORM

1. THE PROBLEM

- Scattered houses on smallholdings, groups of houses on larger farms, or villages or various sizes? What should we plan? This is perhaps the major outstanding question as far as physical planning within the project areas is concerned.

The proposals of the Jengka report were not adopted by the Government and FLDA. The settlement history of rural Malaysia shows no single traditional pattern. Large scale migration to new agricultural development regions has so far only been successful in the large FLDA villages; yet there is a constant demand for smallholding type schemes, where the settler lives on his plot.

While certain crops largely dictate that the farm worker lives on or very close to the land, (Diary farming) other do not (Oil Palm). Types of crop, acreages of units, forms of enterprise all condition the form of settlement. These will be taken into account - See Appendix, "Labour Accessibility Constraints by Crop Type", by Frank Sole.

But with the exception of certain small scale land users, the main questions still stand. And whatever pattern of settlement we suggest might be equally suitable, and possibly should be, for various types of organisations - Co-operatives, Low-cost family settlements, Private Estates, FLDA, or other new public or private enterprises. While in certain areas, constraints on settlement size and form will result from topographical considerations, there will usually be more than one possible settlement pattern. No necessarily clear indications emerge from the Sociological field studies.

There is no foolproof way of deciding the appropriate settlement pattern, as many of the factors concerned in deciding between alternatives cannot be costed, and any detailed infrastructure cost comparisons would be of limited value because of the extent of interpretation involved in deciding the appropriate level of services for different alternatives. There are also various transfer or hidden cost items - eg. self built housing, use of mobile power sources as against network systems, deferred expenditure, etc.; which would make any study of this sort extremely difficult, and the end result of limited value. However, one can make certain general statements about costs as between alternatives, and use

them to assist in deciding the form, or forms of appropriate settlement patterns.

2. COMPARATIVE ANALYSIS OF ALTERNATIVES

In order to take account of as many considerations as possible, I have prepared the following schedule, with summary notes of the apparent advantages and disadvantages of the three basic alternatives.

The list below is not exhaustive. I have added notes where they appeared required. The ranking system (Poor/Good/Medium) is crude, but appears sufficient for the consideration of alternative concepts taking into account the potentials and opportunities that appear likely.

ADVANTAGES AND DISADVANTAGES OF THREE BASIC SETTLEMENT TYPES:

<u>ITEM</u>	A) <u>SCATTERED HOUSES ON SMALLHOLDINGS</u>	B) <u>SMALL GROUPS OR TIED HOUSES ON FARMS/ESTATES</u>	C) <u>VILLAGES</u>
1. Size assumptions	Acreage 6-20	20-1000+ acres	150-500 families ie. 900-10,000 acres
2. Access to regular work	Good	Good	Not so good. For most crops acceptable criteria can be established, but impossible for certain crops, and the larger the village, the poorer the access. (See Section 4. Size of Village)
3. Access to alternative job opportunities	Poor	Poor/Medium	Good

<u>ITEM</u>	A) <u>SCATTERED HOUSES</u>	B) <u>FARM GROUPS</u>	C) <u>VILLAGES</u>
4. Compatibility with organisation giving freedom to resident to set up own industries, etc.	Good	Poor	Good
5. Opportunities of residents to set up own industries etc.	Poor/Medium Not so good as (c). Poorer access, and less identifiable markets	Poor	Good
6. Community Organisation and Enterprise	Poor	Poor/Medium	Good
7. Ability for agricultural innovation	Poor on small acreages. Medium/Is good on larger acreages	Good	Not comparable
8. Land Tenure Flexibility	Poor	Medium	Not comparable
9. People desire to live on own agricultural holding	Good	Medium/Poor	Poor, but acceptable arrangements possible with certain crops
10. House site ownership	Good	Poor	Good

<u>ITEM</u>	A) <u>SCATTERED HOUSES</u>	B) <u>FARM GROUPS</u>	C) <u>VILLAGES</u>
11. Access to schools, and other social facilities	Poor	Poor	Good
12. Opportunity for Agricultural Training	Poor	Very Good	Good
13. Security of crop against theft, fire, etc.	Good	Good	Poor. Measures however can be taken to overcome problem to some extent, and not applicable to certain crops
14. Quality of water supply, assuming similar unit costs	Poor	Medium	Good
15. Cost/Return on water supply of a given standard	Poor	Medium	Good
16. Quality of power supply assuming similar unit costs	Poor	Medium/Good	Medium/Good
17. Cost/Return on power supply of given standard	Poor	Medium/Good	Good

<u>ITEM</u>	A) <u>SCATTERED HOUSES</u>	B) <u>FARMS GROUPS</u>	C) <u>VILLAGES</u>
18. Standards of health risk due to sewage	Good	Good	Good for low densities and certain soils. Depends on density of village, drainage pattern, etc. Acceptable standards attainable, but generally Good/Medium
19. Cost of treatment to adequate standard	Good	Good	Medium
20. Cost/Return on items of Social Infrastructure	Poor	Poor/Medium	Good
21. Movement Cost/Return, eg. Journey to market, schools, etc.	Poor	Poor/Medium	Good
22. Road Construction Costs, to a given standard of road access	Poor	Poor/Medium	Good
23. Policing in emergencies	Poor	Poor/Medium	Good

<u>ITEM</u>	A) <u>SCATTERED HOUSES</u>	B) <u>FARM GROUPS</u>	C) <u>VILLAGES</u>
24. Suitability to all types of terrain eg. Flood risks	Poor	Medium/Good	Good
25. Proven suitability for large scale land settlement	Poor	Poor	Good
26. Suitability for administration and development of Social Services	Poor	Poor/Medium	Good
27. Possibility of preservation of desired features of traditional settlements	Poor	Poor	Good

3. CONCLUSIONS

Although in a few situations, scattered houses and farm groups may be appropriate and necessary, in general we should base our settlement proposals on a village system. The greatest advantage of a Village System is that potentially it offers diversity and flexibility, and yet can have many of the advantages of inherent in the traditional villages.

4. THE SIZE OF VILLAGE

4.1. The Problem

The size of any village will be mainly determined by the size its surrounding agricultural catchment area, by the density of workers, and the number of workers per family.

The Size of the Surrounding Area will have to be decided by examination of topographical constraints, considerations arising from likely crops, and journey to work limitations.

The Density of Workers and Workers per family will be decided by income opportunities necessary to work the crops concerned.

From work so far, we know acres per family may vary from 10 to 20. That a maximum journey to work of most crop types is 2.5 miles (absolute maximum 3 miles), and that the larger the village the better the social facilities particularly schooling, within it are likely to be. (Range 150-500 families). In order to attempt to make decisions on the size of village I have therefore prepared the table below:-

4.3. Summary

- i) The village of 500 families is only practical when acreage of 10 per family or less are being considered.
- ii) The village of 400 families is the maximum possible at 15 acres per family.
- iii) The village of 300 families works at all acreage assumptions.
- iv) While villages of 150 families may be necessary and appropriate in certain situations (topography and crops) and a minimum level of local social facilities eg. Primary Schooling can be provided, in general the higher unit development and running costs of social and physical infrastructure makes them less generally applicable than larger villages. These are among the reasons given for FLDA and Government Jengka village sizes.

4.4. Conclusions

- 1) Except in areas where special considerations come into play, our basic agricultural settlement pattern should be one of villages of 300-500 families.
- 2) Decisions on the number of families to be associated with a given area of agricultural land are essential for physical and water resources planning to proceed into the master planning of the Project.

5. RESIDENTIAL DENSITIES IN VILLAGES

Residential density, i.e. dwellings per acre, is usually one of the major variables affecting the cost of new dwellings and settlements. The length of distribution systems for water, electricity, roads, and sewers, are functions of density.

Conversely, from lower to higher densities, various thresholds of type of system to give the same service come into play; eg. 1) at much

4.2. VARIOUS ASSUMPTIONS OF FAMILIES/VILLAGE : ACRES/FAMILY

Column Reference Number	A1	A2	A3	B1	B2	B3	C1	C2	C3	D
	1. Families per village	150			300			500		
2. Acres per family (Agriculture)	10	15	20	10	15	20	10	15	20	8
3. Agricultural Acres Total	1,500	2,250	3,000	3,000	4,500	6,000	5,000	7,500	10,000	4,000
4. Gross Overall Village Area (+ 15% for other uses) in Square Miles.	2.5	4.0	5.3	5.3	8.1	10.8	9.00	13.3	18.00	7.2
5. $\sqrt{\text{of 4}}$	1.57	2.0	2.3	2.3	2.9	3.3	3.0	3.7	4.2	2.6
6. Journey to Work Range										
Min. (Assumes Existing Village Densities)	0.2	0.2	0.2	0.4	0.4	0.4	0.6	0.6	0.6	0.6
Max. (+ 25% for topography) All modes to extremity of area	1.4	1.8	2.0	2.0	2.5	3.0	2.6	3.4	3.8	2.3
7. Radius for Crude Location Purposes	0.9	1.1	1.3	1.3	1.6	1.9	1.7	2.0	2.4	1.5
8. Used in First Draft Concept Plan					X		X			

NOTE

D = The largest existing FLDA villages eg. Oil Palm Ayer Tawar and Kulai : FLDA villages are generally 300-500 houses in size.

more than 4 dwellings per acre, the individual dwelling soak away pit for sewerage usually becomes a health hazard, and a more expensive and sophisticated system is required, eg. 2) at much more than 20 dwellings per acre, it usually becomes very difficult to give direct vehicle access and parking space to each dwelling.

The density chosen for any development is usually conditioned by the price of land, the cost of infrastructure, the cost and speed of building construction, and the market - what the people willing to come and live in an area want and are able to afford.

Although we could spend a considerable time calculating costs and benefits for a whole series of residential densities, bearing in mind local construction costs, etc., I do not believe it is worth the time, because:-

- 1) The sociological studies conclude that potential settlers require the security of a plot of ground around the home sufficient to support some subsistence and cash crops. The minimum plot size for this appears to be the area allotted by FLDA at present, i.e. about 4 dwellings per acre.
- 2) This is close to the traditional Kampong Density.
- 3) It is a density which lends itself well to the traditional Malay detached wooden house, and to the gradual expansion of the dwelling as family size and incomes increase, using wooden construction.
- 4) It is a density at which changes in modes of transport, eg. rising car ownership and use can be accommodated.
- 5) Land values, which here are only the product of development costs, are not sufficiently high to secure major economies by increasing the density.
- 6) At an increased density of 6-10 dwellings an acre: a detached expandable wooden house would still be possible, but the value of the produce of the plot would be very limited, and each group of dwellings would require a sewerage system.

7) At 10+ dwelling per acre, semi-detached and terrace houses would be necessary. This would probably increase initial construction costs in sound proof/fire proof/cross walks etc. and call for greater design control and ingenuity to allow dwellings to expand. There would be insufficient land for produce from the plot to assist family to any extent.

5.1. Conclusion

Within the village areas, a residential density of 4 dwelling per acre should be used.

6. VILLAGE DESIGN & IMPLEMENTATION

6.1. Content of Plans

It is outside our terms of reference, and in any case impractical to attempt to design the proposed villages, and other settlements in detail, with the survey information available. It may even be that some of the village sites might need relocating, once the jungle is cleared and detailed contour surveys can be undertaken.

However, we can and will produce diagrammatic settlement plans, to illustrate principles for design and implementation. These will be based on existing village sites of similar topography for which detailed based on existing village sites of similar topography for which detailed contours are available.

The aims of these plans will be to illustrate methods of reducing development costs; to illustrate ways of introducing identity and interest to each village particularly in the design of the centre and by the use of planting and open space to blend the village attractively into its landscape; to introduce areas for local pursuits - Children's play areas, local shops, badminton courts for groups of houses for example; and by clustering the houses to give a sense of place to various parts of the village, while retaining the quarter acre lots; and by the use of a variety of house types including self built housing. Initial sketches have already been prepared and will be illustrated at the Draft Report Stage.

However, the planning and illustration of such proposals will not be enough to secure their implementation.

6.2. Problems of Implementation

At present FLDA Village Plans are prepared by a special section of the Department of Town & Country Planning, Ministry of Housing, in Kuala Lumpur. The process of implementation is via the Regional Office of FLDA, contractually out to PWD and/or Contractors, with site control by the FLDA scheme manager. Because of the many unavoidable problems that occur in the constructions stages, certain decisions have to be made on site; these decisions are reached by discussions between the Contractor and the Manager, with possibly some reference to the FLDA regional office. These decisions may result in an alteration to the plan, which destroys the total design objectives of that part of a village, eg. Not building a bridge, or rerouting road and bridging point, so that an essential link to the centre of a village is routed via another housing area, adding considerable distances to all trips in and out of the affected sector of the village for many years.

Also, the considerations in village design that are necessary to achieve the sort of improvements suggested eg. variety of layout and landscape design, demand more sophisticated design and control in the implementation process than exists at present.

Both these problems mean that to secure the advantages of reducing costs and better village developments, planning (including architectural and engineering) expertise is required in the implementation as well as the design process.

This is an absolute prerequisite to any real improvements in village layout.

The various surveyors, contractors, and builders need to be instructed by, and have convenient access to, a planner who is fully conversant with reasons behind the village plan, who preferably has both actually worked on its design, and also has access to associated professional advice - surveying, costing, architecture, building practice, engineering, etc.

6.3. Design & Implementation Possibilities

This means some order of decentralisation of the planning design function in creating new villages. A series of alternatives, not all mutually exclusive, are possible:-

- i) State level design/implementation groups - policy guidelines only given by Head Quarters
- ii) Action Groups - based on HQ but resident temporarily where advice is needed at any point in time
- iii) Foreign technical Assistance - particularly in early years with lack of sufficient national personnel of necessary calibre - possible funded by Aid Projects - could have additional advantages in training.

7. LANDSCAPE

Compared with the Western and Northern Regions of W. Malaysia eastern and central Johore has something of a monotonous landscape, the foreground view is generally dominated either by a single tree group planted in serried ranks - rubber and oil palm, or by the impervious green face of the jungle. Long views to distant hills, or down on to valleys or across open spaces are rare, and those that occur in hilly country are often dominated by a single type of tree crown, shape, and colour. The towns and villages have little of the charm and interest of

the west coast counterparts.

However, the landscape form of Central and Southern Johor, and the Project Regions need not be dull, if in its development landscape planning considerations are taken into account. A series of possibilities seem appropriate for making the villages and the routes around them more attractive to residents - providing shade in gardens and along roadsides, and in communal areas - and in certain cases providing possible produce for the homelot (bananas, coconut, for example) - and in certain Valley bottom and steep slope areas where cropping is not possible, planting stands of possible commercial timber - all adding to the variety of the scenery, and to the amenities to be enjoyed by both residents and visitors. The long term potential in relation to tourism should not be ignored.

B.A. Mitchell lists a whole series of appropriate trees for adding variety to the scenery ⁽¹⁾ with soil and topographic suitability, rates of growth, and planting distances, methods of planting, and the other characteristics necessary to decide on the suitability of each species for various uses.

Further investigations of the establishment of nurseries and the cost of various trees is to be undertaken in discussion with the Forestry Section. However, it can already be said that a series of plant nurseries (for oil palm, and cocoa) will be necessary in the project areas, that the cost of amenity trees will be comparable with oil palm (\$2.50 planted) and if bought (\$3.00 planted), and such trees as "Albizia Chimensis" (Cover Crop for Cocoa) will be grown in any event. These nurseries could be expanded to provide a fuller range of trees for amenity and cropping in the development regions.

The benefits this could bring would be enormous for a very low cost. For example, to plant one tree 100' alongside the regional road, would mean 20 trees a mile, i.e. 50-60\$, perhaps 1/4000 of the cost of the road.

Therefore, I suggest that the plant nurseries planned should include sections for other species than the main tree crops, that we determine the cost and other considerations involved, the likely extent of the market, and include the establishment of plant nurseries and the design considerations involved in introducing a landscape element into the physical planning of the regions.

(1)

Ornamental, Roadside & Shade Trees - B.A. Mitchell
Ministry of Lands & Mines Malaysia.

APPENDIX

"ACCESSIBILITY CONSTRAINTS BY CROP TYPES"

1. Oil Palms

Most oil palm areas are large. Theft will be little problem from estate area as fruit is not easily saleable. Some security measures necessary for factory and stores areas but can be provided by one or two watchmen. No need for field and harvesting labour to live on site although a 16,000 acre estate is about 25 square miles and if one village serve this for labour then maximum journey from the centre would be 2.8 miles and from one edge 5.6 miles.

Factory labour will be required to work night shifts but otherwise no requirement to live on site. Usual practise on estates is to rotate labour around estate so everyone has share of nearest and further land. Disease and pest inspection will be taken up in course of normal daily routine, no requirement to live on site for this. Oil palms do not break down fences and run away. No likelihood of crises requiring labour living on site.

Scale is large enough to generally be able to cope with high proportion of labour from one village.

2. Rubber

Slightly different proposition in some ways. Although there are economies of scale, smallholdings can be attractive for provision of income. Theft is possible by illegal tapping of unsupervised area - especially of new high yielding trees. There may be pressure by smallholders to live on site due to this - and also of course in order to build their houses on their own (to them - free) land. On larger estates, security is normally handled by watchmen and in areas where theft is prevalent, armed patrols are used. Rubber factories are often worked on a shift system but otherwise no particular need for on the spot dwelling. Tappers start work at dawn and this is necessary to extract maximum yields from the trees. It may be as well to allow for the tapping force at least to have as short a pre-dawn journey as possible. Disease and pest inspection has no requirement for immediate crisis type access to labour.

3. Other tree crops, Coconuts, Cocoa

These have the same characteristics as rubber.

4. Fruit crops

Security only necessary when fruit is ripe.

5. Annual crops

Grain vegetables and root crops are only worth stealing when they are ripe - i.e. at certain circumscribed and know periods of time. Security can be provided at these times. No other requirement for labour on site.

In early years on new clearings, there will almost certainly be a requirement to guard against large animal pests. Some pests such as porcupine and rats can be dealt with by poison baiting and no constant supervision is necessary. Others such as wild pig must be trapped or shot, and farmers may well feel that they have to live on site and have at least a certain proportion of their labour with them. This problem together with theft will tend to decrease in importance as the area under these crops gets larger.

6. Livestock

All classes of livestock are liable to produce crises at all times of the year and 24 hours per day. All farmers will require a very high proportion of their labour force to be living on site all the time.

Alternative Strategies - a tentative approach

Section 1.

1. It is proposed that Part I of the Draft Report, to be presented in January/^{end}February 1971, should contain brief information on the environment and with a chapter "Enterprise selection." This chapter will be supported by "Enterprise" reports, which will evaluate for each enterprise (agricultural, fisheries, forestry, industrial) "its viability under alternative systems of organisation and management, using discounting techniques. These individual and independent evaluations will be used for strategic planning."
2. This note outlines a tentatives approach to the problems of combining various enterprises and sequences to make up "alternative strategies" for the development of the project areas. At this stage it is not a description of the proposed presentation in the Draft Report.
3. The list of enterprises gives the range of possibilities from which selection must be made. The choice of any one enterprise - one crop or activity - one organisation and one rate of development for that enterprise implies certain requirements for factors of production and services. These requirements may perhaps be met in several alternative ways. Following the choice of enterprise, there are further choices to be made.
4. The choice of the one enterprise itself follows from the choice of strategy.
5. In other words, there is a hierarchy of choices or decisions. The following section (2) gives a provisional outline of this hierarchy of categories or levels. At any one time choices are restricted in various ways - by choice of objectives, by availability and costs of factors and markets, by general policy decisions, by ignorance etc. The categories of constraints are examined briefly in Section 3. Section 4 considers movement through time. Implications for preparation and presentation of the Draft Report will be set out in a separate note.
6. Some of this will appear to be (and perhaps is) unnecessarily complicated; but the ideas are familiar, if not all the words. The main purpose is to order, so as to aggregate, so as to simplify.

Section 2. Hierarchy

7. A provisional outline of categories :-
1. Alternative sets of OBJECTIVES (O_i)
 2. STRATEGIES: a. form or pattern of development (S_i)
b. RATE of development (R_i)
 3. ORGANISATION mix - use and development of human resources (H_i)
 4. ENTERPRISES
 - Primary : land using (EA_i) -
 - agricultural activities
 - fisheries
 - forestry, including timber extraction
 - water
 - mineral extraction
 - tourism/recreation
 - Other : (EI_i) -
 - Processing of output of EA
 - Manufacture of input to EA
 - Production of goods and services : market population
of project areas
 - " " " " " : employing labour and
capital in/from areas
 5. SERVICES (T_i) for EA and EI. These include the services listed in the first FLDA Working Group paper, sections A and B, and transport, power, water supplies etc.
 6. FACTORS (F_i) required
 - a. for EA and EI
 - b. for T.
 - c. for H, if not included in 6a and 6b
 7. OUTPUT characteristics of strategy, in terms of the set of weighted objectives.

8. A strategy is a planned movement through time, taking account of - and, where possible, advantage of - events and information which are now uncertain or unforeseen. At any point of time in the implementation of a given strategy, there will be in the project areas a number of different enterprises, each at a certain scale or stage and developing (i.e. expanding in scale and/or changing in nature) at a certain rate. This combination of enterprises, each organised in a selected way, gives a certain organisation mix for the development of the project areas as a whole. At that point of time, the strategy is expressed in this combination of enterprises of various kinds, in their various forms of organisation (all summed up in the form of the strategy at that time) and in the rates of development of these enterprises (summed up in the strategy's rate of development at that time).

9. Each enterprise makes certain demands for services and factors. These can be summed together for the combination of enterprises to give the total requirements of that strategy at that time for services and factors. The combination of enterprises at that time yields certain outputs which can be assessed in terms of the set of weighted objectives.

10. Apart from the link between items 1-7 explained in paragraphs 8 and 9, there is another link - items 2-6 can be thought of as levels of choice or decision, becoming, as one goes down, increasingly specific and detailed. One expression of a given strategy may, for example, be a decision at the factor level to appoint certain individuals to staff a 40 ton palm oil plant in a specific location.

11. These various levels can be shown in a modified family-tree diagram. Any one strategy will be expressed in one group of enterprises at one point of time. But, of course, the same enterprises may feature in several different strategies, and all strategies will make use of (more or less) the same categories of factors.

12. The main considerations making for differentiation between strategies will be the different weights attached to the various objectives. At first sight, for any one set of objectives, we should only present one strategy - that strategy which, within the constraints, makes the greatest contribution to that particular set of objectives. But it is possible that the Government may agree on the set of objectives and agree that the proposed strategy is an appropriate one, taking our assumptions about the future, but may disagree with the assumptions themselves. Some may have to present more than one strategy for each set of objectives, allowing for different assumptions about future probabilities.

Section 3. Constraints or Boundary Conditions

13. The development of the project areas takes place within boundaries or limits of various kinds, which can be expressed in boundary conditions. One most important group of boundary conditions relate to the availability and cost of factors and to the saleability of potential products of the areas; but there are many others of different kinds. They include technical conditions (e.g. "soil/terrain unsuitable for crops x, y, z," "no process now available for degumming ramie," "milk production still requires cows") and also policy conditions (e.g. "private estate development to be confined to new crops in remote areas" "income per new settler not less than 3x p.a." "employ not less than some proportion of one ethnic group").

14. At any one time, a set of boundary conditions exists which could affect the development of the areas. Many of the conditions that might be made explicit will be comfortably satisfied by any form and rate of develop-

ment that is likely to be considered at all - development will not approach close to these boundaries and those boundary conditions are "inactive". Others will constrain development - these will be active or effective boundary conditions, which will limit the rate of development and influence development by forcing it in one direction instead of another.

15. Boundary conditions within this set may apply at any of the levels mentioned earlier - e.g. to organisation mix, enterprises, factors. Pictorially, one can think of a pattern of conditions superimposed on the family-tree diagram of choices. This pattern will change through time, partly through deliberate action to cause change.

16. I suggest an initial division of boundary conditions into three classes :

- (i) self-imposed;
- (ii) past-imposed;
- (iii) externally imposed.

17. Brief explanations follow.

18. Self-imposed boundary conditions are the results of more or less deliberate decisions by policy-makers. This category is particularly useful because it can accommodate many policy requirements which might otherwise have to be combined somehow in a complex of objectives. On examination, most policy "objectives" are not things to be "maximised" - they only set minimum standards; provided these standards are met in the process of maximisation of some magnitude, these objectives can be **said** to be satisfied. Many of the specific interpretations of the new economic policy can and should be put in this form - "x should be equal to or greater than a" - not "x should be as large as possible".

19. Self-imposed boundary conditions can be changed by deliberate decision - there is some "give" in them.

20. Past-imposed boundaries conditions: past action or inaction restricts development now in certain directions and makes it possible in others. Absence of a past research effort and existence of strongly entrenched institutions in certain fields with established staff and methods are two of many examples.

21. External boundary conditions: these are, broadly, conditions over which the agencies responsible for development have little or no direct control.

22. The obvious examples of conditions which are remote from control by the agencies developing the project areas are the market conditions for export commodities. Others are less remote, and can be changed to some extent by, say, Government action suggested by the agencies.

23. The most important group of external boundary conditions relate to the supply of factors and services required for the development of the areas. In our first attempts to combine the development of certain enterprises to make up a strategy, we shall derive total requirements for factors and services of various kinds (at one point of time). These requirements need to be fitted to the supplies available. The supplies of some factors/services will be ample; the supplies of others will be deficient to varying degrees - i.e. the boundary conditions relating to the supplies of those factors/services are active. We - and the later planners of ongoing development of the areas - have to consider two kinds of action : (i) cutting requirements to fit the available supply; (ii) acting, or getting some other agency to act, so that larger supplies will become available later.

24. For most purposes it is best to separate conditions of supply of factors into two parts (i) the quantity(ies) available at given price(s) and (ii) the price(s) that have to be paid for given quantity(ies).

25. For example, good experienced farm managers are scarce; this scarcity will limit the rate of development of certain enterprises and of strategies which lay emphasis on, say, the introduction of new crops. We can take some account of the shortage of this factor by attaching a high shadow price to it in project evaluation. For some purposes this should be done, although this treatment has its own problems. But we should also deal with the scarcity in quantity terms (at prices, not adjusted for scarcity, for local or imported managers), note that the quantity supply condition is active and so limits the amount of management—using enterprises that can be established now, and look at the need for and possibility of increasing the supply in the future. The last point is an example of considering action to "push away" an active boundary condition. Action for this purpose is very often different in kind from the actions required for running the enterprise itself. In this case it might involve training schemes and the recruitment of trainee managers in excess of the numbers required for operations on present scales. The costs of these are part of the costs of using a strategy which includes the development of such enterprises.

26. The studies of "enterprises" should identify factors which are likely to be scarce, with sufficient precision to allow requirements to be matched with supplies and training requirements and periods etc. to be assessed.

27. There are many other kinds of external boundary conditions. Another important group are those set by (present) lack of technical knowledge of the agronomy of certain crops and lack of experience of cultivation on a commercial scale. Such conditions may move "outwards" as new information comes from other parts of the world, and they can be moved "outwards" by research and commercial trials in the project areas. This takes time.

Section 4. Time

28. I have suggested that, at any point of time, the hierarchy outlined in Section 2 can be expressed as a modified family-tree diagram. At each of the levels (or generations) boundary conditions of various kinds apply. Within these boundary conditions, various enterprises are being established or are in operation on certain scales.

29. One can think of a series of diagrams of this kind representing the situations at different calendar dates or stages in the process of development of the project areas. The boundary conditions within which a strategy is worked out will change - as a result of new events, changed economic conditions in West Malaysia, new information, changes of policy etc. etc.; some of them can be changed by deliberate action; some of them - the past-imposed conditions-will be altered by previous development.

30. The development of individual enterprises and the boundary conditions within which their development is planned can be traced through time in a similar way. At this stage of project planning, however, it is not worthwhile to examine in great detail the implications of multiplication of individual units of any one enterprise through through time. The evaluation will depend, in part, on the combination of which the enterprise is one component. We first have to aggregate to reduce the number of alternatives.

Section 5. Evaluation

31. At this planning stage, individual enterprises should be evaluated on the assumption of optimum size units (provided that these are not very large in relation to our total areas) and market prices, with alternative organisations. The inputs and outputs should be specified in sufficient detail to allow (a) attachment of various shadow prices if necessary (b) comparison with available supplies of factors or scales of markets. If divergence from the optimum size is thought to have seriously adverse effects, this should be noted, but not now examined in detail unless this can quickly be done.

32. The evaluations in isolation will eliminate some enterprises and provide a list of those that remain respectable, with per unit input requirements and output, NPV (at market prices), IRR, and information about potential rate of build-up (technically fixed gestation periods or lags). There will also be a list of those that may be respectable but about which we know too little at present. These pose rather different problems, and require, in addition to whatever can be said or guessed about the above items, estimates of probabilities, time required before decisions can be taken to abandon or expand commercial production, estimates of loss in the event of failure.

33. These various enterprises have to be combined; this requires aggregation to be able to compare alternatives. I suggest we try to aggregate in two directions - from the bottom up and from the top down.

34. From the bottom up : we compare factor requirements with factor supplies. It will be useful to classify enterprises by their requirements for particular scarce factors. Requirements can be expressed per 000 acres of land of a specific crop-capability (the areas cleared annually and in total are both limited), and per unit of NPV (this leads towards maximisation of NPV per unit of a scarce factor).

35. If the problem of combination in any one "stage" of the project can be treated roughly and simply as a problem of multiplying identical units of enterprises with given output characteristics using various input factors with fixed coefficients, this is a linear programming problem. This approach can be used, introducing, if necessary, constraints requiring a minimum number (or acreage) of "new" agricultural activities etc., or modifications to emphasise, say, the high employment alternative organisations.

36. Treating each "stage" separately, in this way, ignores sequences and assumes fairly definite total scales and supplies of factors. It may also commit areas in early stages of the project to long lasting activities which would not have been selected if the whole 20 years had been examined.

37. The top down approach starts from the objectives and the nature of the strategy. The national objective of reducing economic disparity between ethnic groups might be served by using the development of the project areas to "accelerate the movement of Malay agricultural producers.....into the fast-growing, capital intensive and high productivity areas of the agriculture sector". This requires a different "quality" of the combinations of enterprises chosen (as eventual targets, at least) from that of combinations chosen to meet an objective of "maximising employment at incomes not less than \$x per month". I expect that the Agriculture Division can even now, without further detailed work, indicate the kind of enterprises and organisations which would fit the former objective, and can probably go further, to indicate order of magnitudes of capital, employment, incomes etc. per acre, taking into account potential rates of development of farm management skills.

38. If this can be done, the implications of such an objective and strategy can be compared (again roughly) with those of an alternative objective emphasising employment, say, by a cross between FLDA and subsidised GSA schemes. We need to begin to make broad comparisons of this kind in order to see by how much two apparently different objectives/strategies do differ in fact in their output characteristics, and to analyse the sensitivity of those characteristics to variations in assumptions.

39. Both the "from bottom up" and "from top down" approaches should eliminate less preferred alternatives and make more precise the possible pictures of combined enterprises in 10 or 15 years time. We can then think in more detail about sequences and phasing of the grouped enterprises.

Section 6

Conclusion

40. Lack of time immediately prevents this paper being taken further. The approach adopted in sections 2-4 is a sketchy introduction to the ways of looking at development that might be followed by the planners of the project area development once implementation has begun. They will have to notice, react to and in some cases deliberately cause, changes in active boundary conditions through time.

ASM/RS/20/5/70.

Th. Yesselman

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Confidential

To Planning Committee and
Members of Socio Economic Division.

S.M.P. Guidelines

I have received the following papers from Selvanathan of EPU:

1. SMP memorandum - integrating the employment objective: selection and application of an appropriate 'shadow wage' - by D. Keare, 30th May.
2. "Guidelines and criteria for the evaluation of projects in the SMP submissions" - EPU, 11th June 1970.
3. "Factors conducive to national unity" - EPU, 9th June 1970.
4. "Suggested terminology and practice for budgets and plans" - D. Keare, 12th June 1970.

Paper 1, on the shadow wage, is missing page 6, which is the most important page. The first five pages explain the reasons for using a shadow wage, Appendix A describes Little's calculations of the marginal product, Appendix B adjusts this. The conclusion seems to be a recommended shadow wage of \$40-50, by applying a ratio of 40% to wages in the range 80-120 and a ratio of 33% to wages in the range 90-150.

Paper 2 - guidelines for the evaluation of projects - is a revised version of the paper already received (copies circulated to Planning Committee). In addition to the project evaluation and sectoral summary sheets contained in the original, this version includes a format for "Request for additional information and/or clarifications". The first part of this paper spells out in more detail principles to be borne in mind in examining projects for their proper preparation, with emphasis on the need to question omissions from the explanation of the project (eg. consideration and rejection of alternative sites or scales). On project evaluation, it refers, as before, to the project's expected effects on growth, employment and (re) distribution (reduction of racial economic disparity). On employment,

the "shadow wage" of \$40 per month is to be inserted. Also "particularly for those projects where the employment effect is (or is claimed to be) important, the cost per job created should be calculated. Care should be taken to ensure that not only direct but also "indirect" costs are weighed; that is, if the activity in question requires tariff protection, the increase in consumers' prices should be factored in fully". The ranking of projects is effectively as before.

Paper 3 - factors conducive to national unity - is the most novel and important of these papers. It begins "to begin, it is assumed that projects will not be considered at all unless they are adjudged to be (at least potentially) effective in increasing welfare directly, improving productivity and output and/or creating desirable jobs. Then the question becomes essentially one of who is to participate and/or benefit, and what means are chosen to bring about this result."

The paper goes on to consider various factors to be considered in assessing the project's likely effect on national unity.

1. Location; rural, small town, large town, urban area, KL. Region: ranked northeast, northwest, problem areas (Penang and Malacca), southeast (Pahang and Johor) and central.
2. Population. Information concerning the population of the project area - and if possible those who will be directly involved in the project - is particularly desirable, by income group, but also (more important) by race. "Most important of all, such questions as the following should be asked: Are the poor, the Malays, likely to be able to take advantage of the opportunities afforded by the project, or will the advantage be seized by others - further increasing the disparity of incomes and welfare? What steps can be taken to increase the probability of the poor, the Malays, retaining a significant share of the benefits? - of increasing this share?"
3. "The overall effect on employment can be integrated into the project evaluation approach by the appropriate application of a properly selected "shadow wage". This

section then considers certain groups upon whose employment "society places a higher value relative to other groups". It says that these appear to be at least: a) Malays generally; b) youth (say 25 years and under) of all races. The question of using a lower shadow wage - perhaps even zero - for the groups "urban Malays and youth" is then discussed. The use of a special shadow wage for these groups is rejected. The argument that these groups have a smaller opportunity cost than others among the unemployed is a less important reason for emphasis on their employment than other reasons. Emphasis on employing Malays, because this is a way to reduce economic disparities between races and "in the longer run, this is necessary in order to ensure the continuing socio political viability of the nation". Emphasis on employment of youth, because their "potential social productivity is (given a greater education) presumably higher if they can meaningfully/^{be} employed without undue delay." If they are not "their potential for uneconomic and anti-social behaviour.... is also very great". The paper decides not to treat these factors by reducing the shadow wage **still** further, and rather to treat them on the benefit side and "until further analysis provide some basis for quantification, qualitatively".

4. Productivity: The paper mentions the two ways - increasing productivity in traditional activities and increasing Malay involvement in modern sectoral activities. On the latter, it stresses that the methods must receive careful attention. "For instance, the less coercive the measures employed to affect a given amount of Malay employment in the modern sector, the better the overall result." Therefore great emphasis on improving quality and relevance of education for Malays, specialised training, including on the job, creation of public sector enterprises and joint ventures with the private sector etc. Emphasis must also be placed on Malays attaining high levels in the activities.
5. Design: "As much as possible of the increased Malay penetration of the modern sector should be in new and growing activities. More important the great majority of activities selected for substantial Malay participation should be viable in their own right".

6. Integration: "In all areas of public sector activities where it is possible to do so, projects which actively promote integration and mutual understanding (of others values, aspirations, problems, etc.) between all races should be favoured over those which do not. Such opportunities for more effective integration should be sought wherever they may be found - on the job, in the "habitat" (total living situation), in educational and training institutions, in recreation and sports activities, etc." (Section on integration quoted in full).

Paper 4 on suggested terminology, suggests a planning terminology which fits the present budget terminology and therefore removes the word "programmes" used in the previous paper on guidelines for project and programme evaluations. It suggests, that among homogeneous projects (eg. FLDA schemes) a project over \$5 million should be considered as a separate project, whereas projects below this size should be grouped with other similar projects into a scheme; for non-homogeneous projects, projects over \$1 million each should be considered as separate projects. Below this size they should be grouped with other small projects into a miscellaneous scheme.

This terminology does not affect SEJP at this stage, when the word "enterprise" is more appropriate than "project".

(Prof. A.S. Mackintosh)

23rd June 1970

ASM/BN.

SEJ/3/101/CONFIDENTIAL

TO ALL PROJECT STAFF,

SE JOHOR REGIONAL MASTER PLAN STUDY

PLANNING - INTERNAL REPORT - PART I - FIRST DRAFT

1. INTRODUCTION

"Our plans will have to fulfill the economic and social objectives that are being determined at present by other members of the Team."

- Statement by Resident Planner to Director of National Operations January, 1970

By the end of August the resident planner has to produce an internal report, and, as yet the Project does not at present have any clear economic and social objectives, as a basis for designing regional, town, and settlement development plans.

I can see problems, possibilities, identify physical constraints, and ways either of saving money or putting it to better use in comparison with current building, planning, and engineering practice, but the major questions have still to be answered.

- What pattern of agriculture, industry and commercial development will we propose?
- What types of enterprises?
- What types of land tenure, and settlement patterns?
- What do the people likely to live in the regions want, and what is it possible to give them?
Employment, Incomes, Social Services, Housing, etc.?

In a phrase "What are we planning for and why?" and "What sort of Development plan will result?" This report is therefore in three basic sections.

- 1) A personal view point of what we should be planning.
- 2) Regional Planning and Development.
- 3) Local Planning - Towns, Villages, Tourism, etc.

The later two sections will follow in due course. And this monologue will be altered and adapted. But it seemed worth producing to stimulate anger, reaction, debate, focus or something, at the Team Meeting this week.

2. AIMS OF DEVELOPMENT PLANNING

A. What can a plan for our regions hope to achieve?

- 1) We cannot hope to resolve all the problems of the country by the development of our two regions, but we can hope to produce plans which provide examples for what can be done, in order that the Government can begin to come to terms with the enormous problems facing it.
- 2) Even by maximising the number of settler families working in agriculture we cannot hope to make more than a small contribution to the National Unemployment numbers.
- 3) It is arguable, despite the natural resources of land, water, and labour, whether agricultural land development in itself can either solve the National Employment Problem in the long term, or give incomes in tune with the population's desires. And in general terms, the more people are settled in a given area, the less income per head, and the greater under employment.

B. What do the people want?

The preliminary Sociological Field Studies reports indicate to me:-

- Strong frustrations over low incomes and underemployment in land development schemes.
- A demand for diversification of employment and income opportunities, so that incomes enable settlers to enjoy what may be called the apparent advantages of an urban way of life - choice of how and where those economically active in a family work, and facilities

for education, health and welfare, shopping and markets, recreation, economy of travel, etc.

- A desire to be fully involved and employed in creating a society, which they can see will give these advantages.

- Settlers do not regard themselves as peasants, and wish to progressively enjoy the benefits they think a modern society should be capable of providing.

C. The Johor Dilema

Against a national background of high unemployment and underemployment and low wages, the people of southern Johor are well aware of the dramatic rise in real incomes and employment taking place a few miles to the south. They read Singapore newspapers, listen to Singapore Radio, and watch Singapore T.V. The real achievements and propaganda give a sense of progress, achievement, and a focus of objectives in which every citizen of the island is involved.

The Malaysian Government has no alternative but to attempt to correct unbalances of incomes and employment between the various ethnic groups, and the complexities and difficulties of governing and developing the Federation, mean it is very difficult for the State and Federal Government to give its peoples the same sense of involvement in a programme of total national progress.

However, the establishment and activities of F.I.D.A., MARA, State Development Corporations, Tourist Development Projects, etc., show that the Government is well aware of the need to create a fast growing industrial and commercial economy integrated into the National Development Programme with agricultural development.

D. What should be the aims of our plans?

West Malaysia is a largely rural society, and is gradually becoming a more urban and consumer society. In the long term only by planning, through rising real incomes of the rural population, to increase consumption, will the industrial growth rate be sufficient to create the jobs, wage levels, and amenities the people as a whole will want.

For the southern Johor region, we have to realise the existence of an urban and industrial growth system, which has many parts - an industrial and urban growth centre at Johor Bahru, medium sized towns capable of certain industrial activities - Kluang, Kulai, Kota Tinggi, and the New Towns (master villages) we plan, through to small towns and villages based mainly on agricultural production.

Throughout this system, development investment has to be organised to fully release the energies of the underprivileged, giving full employment and rising real incomes, in those activities which can operate successfully in each sector in the region. Enterprises have to be set up, or if they exist at present, altered and adapted, to use, train, and offer career opportunities to settlers. The development of a modern industrial economy has to be as apparent in the Villages as in the Cities, and the people settled in the villages must be given the advantages they feel an urban way of life offer -

- 1) Choice of how and where, those economically active in the family work.
- 2) A range of job opportunities.
- 3) Vocational Training, and freedom to pursue any skill developed.
- 4) The freedom to set up their own enterprises.
- 5) Freedom to earn money, and spend it how they think best.
- 6) The security of possessing their own home, separate from tied employment.
- 7) Good cheap access to facilities for education, health, welfare, shopping, marketing, recreation, etc.

E. What sort of plans should we produce?

- 1) No plans in which underemployment, and the inefficiency and frustration that goes with it, are involved.

- 2) Plans which attempt to create the maximum employment compatible with high incomes only.
- 3) Plans which involve the maximum employment for settlers again with high wages for all activities relating to the development of our regions, and the areas around it.
- 4) All activities relating to Land Development should be regarded as industries for settler population - Clearance, Planting, Agriculture, Forestry, Road and other infrastructure construction, house building, other building construction, transport, shopping, marketing, primary and secondary processing, services, etc., etc.
- 5) New public, or public/private enterprises should be created for each one, rather than the contractual feeding out that takes place at present. The existing private agencies could provide initial management, know-how and key workers to a minimum percentage, and in return for the access to the market created, would have to use settler labour, provide vocational training, and career opportunities.
- 6) We should concentrate our economic planning thoughts as much on the possible industrial/commercial enterprises, etc., as on agriculture.
- 7) Agriculture should be regarded as an industrial employer, not a family settler enterprise.
- 8) Settlements (Houses, Villages, Towns) should be separated from tied agricultural employment.
- 9) The Urban/Village system should have a sufficient range of employment opportunities and commercial and social facilities, for settlers and their families to relate their own skills, aspirations, and enterprise to the opportunities that occur in their area through time.

some of these must be "rush period" industries

??

related to distance people prepared to travel to work. as employed farmer

- 10) Our organisational plans should include an Agency to attract and settle the incoming population, offering them a Package Deal of Home, and Initial job, and acting as an employment agency for other job opportunities.
- 11) Our phasing plans should allow for the gradual build up and adaption of settlements, and land use, with reserve and redevelopment areas to cater for changing opportunities, natural population growth, and local enterprise,

viability in
case of low
holdings?

(DAVE WALTON)
SHANKLAND COX OVERSEAS
28TH JULY, 1970

DSW/H

assist in deciding the form of settlement pattern applicable. They BETTERMENT SIZE AND FORM side it, when many of the factors concerned in deciding between alternative settlement types and patterns .

1. THE PROBLEM

2. Smallholdings with houses, farms with groups of houses, villages of various sizes? What should we plan? This is perhaps the major outstanding question as far as physical planning within the project areas is concerned.

have prepared the following schedule, with summary notes of the apparent advantages and disadvantages of the three basic alternatives.

The proposals of the Jenaka report were not adopted by the Government and FLDA. The settlement history of rural Malaysia shows no single traditional pattern. large scale migration to new agricultural development regions has so far only been successful in the large FLDA villages; yet there is a constant demand for smallholding type schemes.

but appears sufficient for the consideration of broad alternative concepts:

While certain crops largely dictate that the farm worker lives on or very close to the land, (Diary farming) others do not (Oil Palm). Types of crop, acreages of units, forms of enterprise all condition the form of settlement. These will be taken into account - See Appendix, "Labour Accessibility Constraints by Crop Type", by Frank Sole.

A) SMALL HOLDINGS B) FARMS C) VILLAGES

1. But with the exception of certain small scale land users, that the main questions still stand. And whatever pattern of settlement we suggest might be equally suitable, and possibly should be, for various types of organisations - Co-operatives, Private Estates, FLDA, or other new public or private enterprises. While in certain areas, constraints about settlement size and form will be result from topographical considerations. There will usually be more than one possible settlement pattern.

on Farm.

Also no necessarily clear indications emerge from the Sociological Field Studies, and any sort of infrastructure cost comparison would to a certain extent be meaningless, because of the extent of personal interpretation involved in deciding limits of standards applicable for comparative purposes, and because of various transfer and hidden cost items - eg. self built housing, use of mobile power sources, or fixed networks for physical infrastructure systems, deferred expenditure, etc. However, one can make certain generalised statements about costs, but this can only

SETTLEMENT PLAN AND FORM

THE HOUSES

10) Settlements with houses, towns with groups of houses, villages of various sizes - that should be planned in perhaps the major outstanding question as far as physical planning within the project area is concerned.

The proposals of the Joint Report were not adopted by the Government and P.M.A. The settlement history of rural Rajasthan shows no single traditional pattern. Large scale migration to new agricultural development regions has so far only been successful in the large P.M.A. villages; yet there is a constant demand for meaningful type schemes.

While certain crops largely dictate that the farm worker lives on or very close to the land, (dairy farming) others do not (oil palm). Types of crop, averages of wife, forms of enterprise all condition the form of settlement. These will be taken into account - see Appendix "Labour Accessibility Considerations by Crop Type", by Frank Cole.

But with the exception of certain small scale land users, that the main questions still stand. And whatever pattern of settlement we suggest might be equally suitable, and possibly should be, for various types of organizations - Co-operatives, Private Estates, P.M.A. or other new public or private enterprises. While in certain areas, considerations about settlement also and form will be raised from topographical considerations. There will usually be more than one possible settlement pattern.

DSW/H

Also no necessarily clear indications emerge from the Geological Field Studies, and surveys of infrastructure cost comparison would to a certain extent be meaningless, because of the extent of personal interpretation involved in deciding limits of standards applicable for comparative purposes, and because of various transfer and hidden cost items - eg. self built housing, use of mobile power sources, or fixed networks for physical infrastructure systems, deferred expenditures, etc. However, one can make certain generalized statements about costs, but this can only

assist in deciding the form of settlement pattern applicable. They cannot and should not decide it, when many of the factors concerned in deciding between alternative settlement types and patterns cannot be costed.

3. Access to Poor Poor Good

2. COMPARATIVE ANALYSIS OF ALTERNATIVES

opportunities

Therefore in order to arrive at some order of comparison between as many of the possible considerations as possible, I have prepared the following schedule, with summary notes of the apparent advantages and disadvantages of the three basic alternatives.

industries,

etc. The list below is not exhaustive. I have added notes where they appeared required. I would be grateful if other team members would add any extra points, criticisms, or questions, they think necessary. The ranking system (Poor/Good/Medium) is crude, but appears sufficient for the consideration of broad alternative concepts:-

and industries, identifiable

etc. markets.

ADVANTAGES AND DISADVANTAGES OF THREE BASIC SETTLEMENT TYPES:

6. Community	Poor	Poor/Medium	Good
Organization			
ITEM	A) <u>SMALL HOLDINGS</u>	B) <u>FARMS</u>	C) <u>VILLAGES</u>
1. Assumptions	Smallholder	Farms	Labour Resident in Villages. Manager resident on Enterprise where necessary.
7. Agricultural land.	Home on own	20-1000+ Acres.	Manager, where necessary.
Modernisation	Acreage 6-20	Manager, and	Village independent from enterprise. Villages
Flexibility and Enterprise		Regular Labour	150-500 families.
8. Land	Poor	resident on Farm.	Good
Ownership			
2. Access to	Good	Good	Not so good. For most crops acceptable
9. Regular work	Good	Medium/Poor	criteria can be established, but impossible for certain crops, and the larger the village, the poorer the access. (See Section 4. Size of Village)
Ownership			
10. House Site	Good	Poor	
Settler Ownership			

ITEM	A) SMALL HOLDINGS	B) FARMS	C) VILLAGES
5. Access to other job opportunities	Poor	Poor	Good
4. Freedom of settler to set up own industries, etc.	Good	Poor	Good
5. Opportunities of settler to set up own industries, etc.	Not so good as (C). Poorer access, and less identifiable markets.	Poor	Good <i>Measures however can be taken to overcome problem to some extent, and not applicable to certain crops.</i>
6. Community Organisation and Enterprise.	Poor	Poor/Medium	Good
7. Agricultural Modernization Flexibility and Enterprise	Poor	Good	Good/Medium
8. Land Ownership Flexibility	Poor	Medium	Good
9. Settler	Good	Medium/	Poor, but acceptable
10. Land Ownership	Good	Poor	arrangements possible with certain crops
10. House Site Settler Ownership	Good	Poor	Good <i>depends on quality of site, drainage pattern, etc. Acceptable standards attainable, but generally not attainable.</i>

ITEM	A) SMALL HOLDINGS	B) FARMS	C) VILLAGES
11. Access to Schools, and other Social facilities.	Poor	Poor	Good
12. Cost Return	Poor	Medium	Good
12. Agricultural Training and Management.	Poor	Very Good	Good
13. Security of Crop eg. Journey to markets, schools, etc.	Good	Good Medium	Poor. Measures however can be taken to overcome problem to some extent, and not applicable to certain crops.
14. Quality of Water Supply	Poor	Medium	Good
15. Cost Return of Supply of a given standard	Poor	Medium/ Good	Good
16. Quality of power supply	Poor	Medium/ Good	Medium/Good
17. Cost Return of Power Supply of given standard	Poor	Medium/ Good	Good
18. Health risk due to sewage	Good	Good	Good for low densities and certain soils. Depends on density of village. Drainage pattern, etc. Acceptable standards attainable, but generally Good/Medium.

	A) SMALL BUILDINGS	B) FARMS	C) VILLAGES
19. Cost of treatment to adequate standard	Good	Good	Medium

20. Cost Return on items of Social Infrastructure development	Poor	Medium	Good
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21. Personal Cost Return, eg. Journey to markets, schools, etc.	Poor	Poor/ Medium	Good
-----------------------------------------------------------------	------	--------------	------

22. Agricultural Produce Movement

Medium to Good, in Good terms, as our settlement proposals on a village system. The Movement of Village System is that potentially it offers

23. Road Construction Costs, to give standard of road access	Poor	Medium/ Good	Good
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24. Policing in Emergency	Poor	Poor	Good
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25. Suitability to all types of terrain eg. Flood risks	Poor	Medium/ Good	Good
---------------------------------------------------------	------	--------------	------

The number of workers and workers per family will be decided by income opportunities necessary to work the crop concerned.

ITEM A) SMALL HOLDINGS B) FARMS C) VILLAGES

26. Proven (also Poor) and the Good larger the
 ability to offer the social facilities particularly schooling
 deal with likely to be. (Range 150-500 families). In order
 large scale decisions on the size of village I have
 land settlement the table below.

27. Suitability for Admin- tration and development of Social Services.)	Poor			Poor/ Medium			Good			3
	41	42	43	51	52	53	61	62	63	
150					200				300	500
10	15	20	10	15	20	10	15	20	10,000	4,000
Overall Village	2.5	2.0	1.5	2.5	2.1	12.5	2.00	12.5	18.00	7.2
1.57	2.01	2.5	2.5	2.9	3.5	3.0	2.7	4.2	2.8	
0.9	1.1	1.3	1.5	1.6	1.9	1.7	1.0	2.4	1.5	

Although in certain limited situations, smallholdings

and farms, may be appropriate and necessary, in general terms,
 we should base our settlement proposals on a village system. The
 greatest advantage of Village System is that potentially it offers
 diversity and flexibility, and yet can have many of the charac-
 teristics of the indefinable or multi-definable Kampong, which is
 perhaps the only real Malay Settlement tradition.

4. THE SIZE OF VILLAGE

4.1 THE PROBLEM

The size of any village i.e. number of houses we plan
 will be mainly determined by the size its surrounding agricultural
 catchment area, by the density of workers, and the number of worker
 per family.

4.2 SUMMARY

The Size of the Surrounding Area will have to be decided by
 examination of topographical constraints, considerations arising
 from likely crops, and journey to work limitations.

The Density of Workers and Workers per family will be decided by
 income opportunities necessary to work the crop concerned.

iii) The village of 500 families works at all coverage areas.

From work so far, we know acres per family may vary from 10 to 20. That a maximum journey to work of most crop types is 2.5 miles (absolute maximum 3 miles), and that the larger the village the better the social facilities particularly schooling, within it are likely to be. (Range 150-500 families). In order to attempt to make decisions on the size of village I have therefore prepared the table below:-

4.2 VARIOUS ASSUMPTIONS OF FAMILIES/VILLAGE/ACRES/FAMILY

Item Reference No.	A1	A2	A3	B1	B2	B3	C1	C2	C3	D
FAMILIES per Village	150			300			500			500
Acres per family (Agric.)	10	15	20	10	15	20	10	15	20	9
Cultural Acres Total	1,500	2,250	3,000	3,000	4,500	6,000	5,000	7,500	10,000	4,000
Overall Village (+ 15% for other) in Square Miles.	2.5	4.0	5.3	5.3	8.1	10.8	9.00	13.3	18.00	7.2
Journey to work Range (Assumes Exist. Village Densities)	1.57	2.01	2.3	2.3	2.9	3.3	3.0	3.7	4.2	2.6
(+ 25% for topography) All nodes to extremity of area	0.2	0.2	0.2	0.4	0.4	0.4	0.6	0.6	0.6	0.6
Radius for Crude Location Purposes	1.4	1.8	2.0	2.0	2.5	3.0	2.8	3.4	3.8	2.3
Concept Plan	0.9	1.1	1.3	1.3	1.6	1.9	1.7	2.0	2.4	1.5

Existing FLDA, OIL PALM, EG. AYER TAMAR/MULAI.

4.5 SUMMARY

- i) The Village of 500 families is only practical when, acreages of 10 per family or less, are being considered.
- ii) The village of 400 families at 15 acres per family is the Maximum possible for 15 acres/1 family ratio.
- iii) The village of 300 families works at all acreage assumptions.

- iv) While villages of 150 families may be necessary and appropriate in certain situations (topography and crops) and a minimum level of local social facilities eg. Primary Schooling can be provided; in general the higher unit development and running costs of social and physical infrastructure system makes them less generally applicable than large villages. Eg. Reasons given for FLDA and Government turning down Jangka Village Size Proposals.

4.4 CONCLUSIONS This is close to the traditional Kampung Density.

- 1) Except in areas where special considerations come into play, our basic agricultural settlement pattern should be one of villages of 300-500 families. Using as family size and income increase, using water construction.
- 2) Early decisions on Acreages per family from the Socio-Economic and Agricultural Division is essential for physical planning and water resources planning to go beyond this point in their work.

5. RESIDENTIAL DENSITIES IN VILLAGES are only the amount of development costs, are not sufficiently high to bring water resources

into play Residential density, i.e. dwellings per acre, is usually one of the major variables affecting the cost of new dwellings and settlements. The length of distribution systems for water, electricity, roads, and sewers, are functions of density. values of the prices of the pipe would be very limited, and cost

Conversely, from lower to higher densities, various thresholds of type of system to give the same service come into play; eg. 1) at much more than 4 dwellings per acre, the individual dwelling soak away pit for sewerage usually becomes a health hazard, and more expensive and sophisticated system is required, eg. 2) at much more than 20 dwellings per acre, it usually becomes very difficult to give direct vehicle access and parking space to each dwelling.

5.1 CONCLUSION The density chosen for any development is usually conditioned by the price of land, the cost of infrastructure services, the cost and speed of building construction, and the market - what the people willing to come and live in an area, want and are able to afford.

Although we would spend a considerable time, calculating costs and benefits of a whole series of residential densities,

being in mind local construction costs, etc. I do not believe in this case it is worth the time, because:-

- 1) The sociological field studies are confirming that potential settlers require the security of a plot of ground around the home sufficient to support some subsistence and cash crops. The minimum plot size for this appears to be the area allotted by FIDA at present.
- 2) This is close to the traditional Kampong density.
- 3) It is a density which lends itself well to the traditional Malay detached wooden house, and to the gradual expansion of the dwelling as family size and incomes increase, using wooden construction.
- 4) It is a density at which changes in modes of transport, eg. rising car ownership and use can be accommodated.
- 5) Land Values, which here are only the product of development costs, are not sufficiently high to bring major economies into play by increasing the density.
- 6) At an increased density of 6-10 dwellings an acre: a detached expendable wooden house would still be possible, but the value of the produce of the plot would be very limited, and each group of dwellings would require a sewerage system.
- 7) At 10+ dwellings per acre, semi-detached and terrace houses would be necessary. This would probably increase initial construction costs in sound proof/fire proof/cross walls etc. and call for greater design control and ingenuity to allow dwellings to expand. There would be insufficient land for produce from the plot to assist family income to any extent.

5.1 CONCLUSION

Within the Village Areas, a residential density of 4 dwelling per acre should be used.

...10/-

(DAVID S. WELTON)

6. PHASING AND GROWTH

12th November, 1970

We have discussed the phased build up of villages, catering for natural growth, the need for an urban system previously (Progress Report No.4). As time passes, so will certain of the constraints used above to decide village size change, eg. as people own cars or motor-cycles, or earn greater incomes, they will have a capacity to travel further to work and social facilities in the same time and for the same proportion of their income as they walk or cycle at present. And as the desire for greater incomes increases, rural depopulation at least for work purposes may be expected, allowing greater per capita incomes from a given unit of agricultural land.

1. MMA

How, if at all, do we plan for and allow this to happen in land, which has yet to be settled, when it is impossible for forecast accurately the extent and timing of such developments. Like most road think all we can do is take certain principles into account, so that, within the total State and National Economy, the project areas will be capable of naturally adjusting to such changes. These principles are:- because MMA buses are now allowed to pick up or set down passengers along the stretches of well established routes operated by 1) Land Ownership Flexible for major land owners. Having experienced this sort of Vested in State, or State Controlled serving new areas and the problem Enterprises if possible. Avoidance period, we should recommend in cases far as possible of major unfair, militates against competition Fragmentary land ownership system. socially necessary services, and should be dropped.

2) Acres per Family. Should be based on maximum

1.2. The following costs (Public per capita productivity both in the short and long term.

1) Operation - 67 cents a mile

3) Diversification of types of enterprise, both at the industrial (agricultural) and village level need to be fully encouraged.

1.3. Methods of Operation - Project Areas - The Principles Agreed

4) Urban/Village developments should be separate from

1) Local Services - to Master Vill Agricultural/Industrial Circuits, etc enterprises.

2) Regional Services 1) JR/Kulai Complex/Nov Iman/Kluang.
2) JR/Kota Tinggi/Pasirpang.

(DAVID S. WALTON) ...2/-

1.4. Other facilities

12th November, 1970

Small workshops for repairs, maintenance, garaging will be required in the master villages; such workshops could serve both local bus and busloop fleets.

ALL MEMBERS OF PLANNING COMMITTEE

1.5. Ownership of Busloop Fleets, Workshops, Bus fleets

MARA would make a review of contacts for these with Malay individuals, probably in the form of small coops. MARA would supply

Meetings in Kuala Lumpur/J. Kirke/D. Walton

4th and 5th November: MARA/TOURISM/FLDA/P.W.D./TOWN PLANNING/EPU(Sidek)

1. MARA

We suggested that two types of fleet were necessary:-

1.1. Transport (Public)

1) Local Collection and Distribution (eg. Oil Palm Larries)

MARA have first option on all new routes serving land development schemes, and run a JB/Kota Tinggi/FLDA Kulai/Kulai/JB circuit at present. Like most routes serving new developments, they are experiencing difficulty in operating economically, especially as compared with existing companies running well established routes, eg. JB/Kulai/Kluang. This situation is exasperated because MARA buses are now allowed to pick up or set down passengers along the stretches of well established routes operated by other companies, that MARA necessarily have to run along. Having experienced this sort of restriction elsewhere on companies serving new areas and the problems it creates in the difficult establishment period, we should recommend in our main report that this restriction is unfair, militates against competition and the economic operation of socially necessary services, and should be dropped.

1.2. The following costs (Public Transport) were supplied.

i) Operating - 67 cents a mile all in. (Av. all types)

ii) Capital - 16 seater bus - \$15,000 on the road

30 seater bus - \$27,000

42 seater bus - \$33,000

1.3. Methods of Operation - Project Areas - The Principles Agreed

that two levels of service required for example,

1) Local Services - to Master Villages, New Towns, Village Circuits, etc.

2) Regional Services 1) JB/Kulai Complex/New Town/Kluang.
2) JB/Kota Tinggi/Pengerang.

MARA over the extent to which they should get involved in the housing field.

1.4. Other facilities

Small workshops for repairs, maintenance, garaging will be required in the master villages; such workshops could serve both local bus and haulage fleets. The housing is self build using pre cut tannolised timbers. Getting Boyong and local skilled

1.5. Ownership of Haulage Fleets, Workshops, Bus fleets

MARA would make a series of contacts for these with Malay individuals, or groups preferably in the form of small coops. MARA would supply initial management and control, and handover once working well to the cooperatives. Perhaps 5 years.

1.6. Haulage

We suggested that two types of fleet were necessary:-
i) Local Collection and Distribution (eg. Oil Palm Lorries)
ii) Regional Import/Export of produce.

This was agreed, and the MARA Transportation Director said they were interested in moving more and more into this field.

From their present experience, operating costs per mile all in, were approximately :-
10 - 12 c.p.m. good roads
20 c.p.m. non-all weather roads

Write off periods : Logging : 5 years.
Regional/National Route Traffic : 10 years.

1.7. Taxis

Local: for every 2,000 people in any area one taxi license will be granted. (National Policy)

1.8. MARA Housing

Plans, costs, of self built housing with photos and permission to produce in our report were supplied by the Director of the Rural Housing section. There are two types, costing \$2,500 - 2,800 type A, \$2,200 type B. Both are larger and better houses than FLDA.

Paid for by down payment of \$350, and mortgage of house site or other land.

Twelve years repayment at present. Demand has for exceeded supply of funds, and therefore mortgage period to be reduced to 6 years to limit demand. If this type of housing is to be made available, more funds would appear necessary. There appeared to be some disagreement within

MARA over the extent to which they should get involved in the housing field. The housing director wants more money to do more; other directors feel it has gone to far too quickly, and will therefore take large inputs of capital support to sustain, and will take a long time to become a self-financing operation. The housing is self build using pre cut tannelised timbers; Gotong Royong and local skilled experience if necessary are used and paid for separately. The house can be changed and extended as and when the owner wishes.

1.9. MARA Industry: Othman bin Ahmad
 Iahak who is a friend of this director had arranged this meeting. I gather Chris Smith saw him some time ago. The following is a summary of what he said to us, viz rural industries.

- i) Widespread interest in stimulating good co-operatives.
- ii) No preferences between states.
- iii) Have gone into Batek in a big way; trying to get going with handcrafts - but great problems of quality control, and repetitive produce for marketing.
- iv) MARA's potential was restricted by Government type budget procedures and financial freedom of directors was therefore limited, and this meant, that all opportunities were not taken.
- v) In Johor, in discussion with Radin Soedarmo, they are interested in tapioca (10,000 acres) for a group cooperative - but have agreed to wait until our study is complete.
- vi) The budget for rural industry was 150 M\$ for five years.

* Interested in any small business, eg. loans for shops will provide advisory service. Will loan as long as a convincing approach is made, and enough land can be mortgaged to provide 30% collateral.

4. WATER PLANNING - Iahak bin Arifin/Robert Sam (Traffic Planner) Plants.

1.10. PERNAS ("National Trading Corporation") - What do we know about this? Othman suggested that this new Government Sponsored Agency with great financial resources for basic

Industry in a big way, big style. - Mining/Logging/other
 etc. major raw material
 extraction and
 processing (Limestone?).

3. FLDA (Civil Engineer)

General discussion on our work, and FLDA problems with infra-
 2. TOURISM The engineer is basically responsible for getting the roads,

We met the National Director of Tourism, and informed him,
 and his American Advisor, of our outline plans. He seems to see the
 industry solely as bus loads of Americans, doing figures of eight,
 over three to ten day trips from Kuala Lumpur, Penang, Malacca, Kuantan,
 and Johor Bahru. Johor should not, he said get more than its share,
 and Mersing was doing quite nicely.

We explained that we thought our suggested resort had on the
 basis of Singapore Tourism the promise of being a very good business
 investment for the State and Federal Governments, and one which could
 not necessarily be substituted elsewhere.

After a rather boring and repetitive debate from fixed positions,
 I think we had the American Advisor on our side, and the Director agreed
 to study our report when submitted to E.P.U.

He supplied the papers of the recent Seminar on Tourism for
 our one aid referred as to "Tourist Statistics" West Malaysia, 1969 by
 the Department of Statistics, which we already have, and which does not
 cover entry via Johor Bahru.

3. Costs and Standards: Roads

3. E.P.U. - SIDEK 70000 per mile, rolled Caterite.

We paid a courtesy call on Sidek, E.P.U.'s infrastructure
 economist, as we had promised at Steering Committee. We informed him
 of the problems of P.W.D. capacity. He told us, E.P.U. were going for
 British Aid for the Penggerang Highway, and possibly the Tengah Roads,
 and that the two berth Port facility had been given the green light by
 the cabinet. We then gave a general run down of the work we had been
 doing, and asked him to come and see our work in the office, either
 before or after the next Steering Committee in JB. He agreed to use
 P.W.D. cost for infrastructure. (Type of Win. Air) FLDA Malai road and
 extent plans for Ayer Tawar.

4. TOWN PLANNING - Ishak bin Arifin/Robert Gaun (Traffic Planner)

1) General description of work done to keep them informed, and
 debate vis a vis, road design standards, to clarify proposals would be
 acceptable. Total Agreement. Robert Gaun reemphasised our own worries
 that whatever we recommend may not be implemented, or capable of

implementation, through lack of wualified staff in planning, engineering etc.

5. FLDA (Civil Engineer)

General discussion on our work, and FLDA problems with infra-structure. The engineer is basically responsible for getting the roads, water supplies, and schools in, plus the secondary infrastructure - Mosques, Clinics, Padang.

One matter of policy was highlighted. He suggested that the only electricity provided in any village should be for a 9.5 KV. generator, supplying only the public buildings and staff quarters. No light for settlers!

Agreed with State Engineer and Head of Roads Division. Nathan Report revised costs to be used, construction by international contractors.

A. Costs: Electricity.

Capacity	Capital	Running	Notes
9.5 KW	10,000\$	25%	(includes networks)
15.0 KW	15,000\$	3,820\$	Village Network,
60.0 KW)	300\$)		Oil Palm
120.0 KW)	per KW.)		Rubber Factory
500.0 KW)	+ 30%)	25%	

B. Costs and Standards: Roads

i. Harvesting: 7000\$ per mile, rolled Caterite.

Standards. Oil Palm. 1.5 chains per acre
Rubber. 0.8 chains per acre

ii. Villages: Agreed different village, i.e. housing road standards advisable, i.e. improved harvesting roads, at approximately 15,000\$ per mile. (Jengka 22,000\$ per mile for housing access, say 15,000\$ in flat, 22,000 in hilly and 18' All weather village collector roads @ 200,000\$ flat - @ 250,000\$ hilly. He promised to supply exact route of Ulu Tiram FLDA Kulai road and extent plans for Ayer Tawar.

C. The Civil Engineer also contributed two reasonable statements:-

i) We are really quite good at getting development underway, and we could get better if we were allowed to exercise P.W.D. functions in the areas we develop, but we are not very good with people.

MINUTES OF THE SEVENTH MEETING OF THE STEERING COMMITTEE FOR THE SOUTH-EAST JOHORE REGIONAL MASTER PLAN STUDY (TANJONG PENGEERANG AND

ii) We have had too many knowledgeable advisors, and too few sensible ones.

D. Surveys

Date : 1st August, 1970
Time : 10.15 a.m.

To increase survey capacity and reduce design time, serial surveys of decreased areas are to be tried by the Surveying Department, if these do not succeed, the job will be fed out to private consultants, eg. Huntings.

PRESENT:

6. P.N.D.¹ Inche Abdul Hamid bin Ahmad, Chairman
Jurutera Negeri Johore.

1. Roads Costs - Agreed with State Engineer and Head of Roads Bahagian Perancang Ekonomi, Division. Nathan Report revised costs to be used,

3. Inche Clement Y. M. Hoo, Bahagian Pentadbiran, Jabatan Perdana Menteri, construction by international contractors.

2. Quarrying - each stretch of road of 50+ miles will now have to open its own quarry, or use soil stabilisation.

4. Inche ... Bahagian Perangkaan, Jabatan Perdana Menteri,

3. Soil Stabilisation - (Limestone) Promised to provide all research

5. Y.M. Tunku Zuhri by Dr. Ting into this, Kementerian Hal Ehwal Tanah dan Geilan.

4. Rate of Development - 7-8 months per annum at 6 miles a month

6. Tuan Syed Sarwat Nasim, Merinyu Galian Jis really blistering over easy country,

7. Radin Soenarno Alhaj, 6 scrapers/1 roller. Would supply Kementerian Pembinaan, full limit of equipment.

8. Inche W.P. Pantan, Bahagian Perancang Ekonomi. Plant would need to shift.

9. Inche Abu Hassan bin Haji Omar, Bahagian Perancang Ekonomi.

Slope	Cubic Yards per mile
0 - 10%	100 - 200,000
11 - 25%	500 - 600,000
+ 25%	600 - 1,000,000

and should be written off over 6 years. Inche ... Jabatan Kajibumi, Ipoh.

Inche Osman bin Mohammed, Setia Usaha Rendah, Kerajaan.

Inche Mok Sian Tuan, Jabatan Perhutanan.

Inche T. Suntharalingam, (D.S. WALTON) Jabatan Penyiasatan Kajibumi.

Inche Abdul Ghani bin Mohd. Noor, Kementerian Pertanian dan Sharikat Kerjasama.

Inche G.E.R. Abraham, Kementerian Kebajikan 'Am.

MINUTES OF THE SEVENTH MEETING OF THE STEERING COMMITTEE FOR THE SOUTH-EAST JOHORE REGIONAL MASTER PLAN STUDY (TANJONG PENGGERANG AND JOHORE TENGAH REGIONS)

Date : 1st August, 1970
Time : 10.15 a.m.
Venue : Ibu Pejabat Kerajaan Negeri, Johore Bahru.

PRESENT:

- 1. Inche Abdul Hamid bin Ahmad, Chairman
2. Inche Thong Yaw Hong, Bahagian Peranchang Ekonomi,
3. Inche Clement Y.M. Hon, Bahagian Pentadbiran, Jabatan Perdana Menteri.
4. Inche Khoo Teik Huat, Jabatan Perangkaan,
5. Y.M. Tunku Zubir, Kementerian Hal Ehwal Tanah dan Galian.
6. Tuan Syed Saruat Nasim, Merinyu Galian Johore.
7. Radin Soenarno Alhaj, Kementerian Pembangunan Negara dan Luar Bandar.
8. Inche W.P. Panton, Bahagian Peranchang Ekonomi.
9. Inche Abu Hassan bin Haji Omar, Bahagian Peranchang Ekonomi.
10. Inche Ani Arope, MARDI.
11. Inche Jamaluddin, Pegawai Kemajuan Negeri Johore.
12. Inche D. Santokh Singh, Jabatan Kajibumi, Ipoh.
13. Inche Osman bin Mohammed, Setia Usaha Rendah, Kerajaan.
14. Inche Mok Sian Tuan, Jabatan Perhutanan.
15. Inche T. Suntharalingam, Jabatan Penyiasatan Kajibumi.
16. Inche Abdul Ghani bin Mohd. Noor, Kementerian Pertanian dan Sharikat Kerjasama.
17. Inche C.E.R. Abraham, Kementerian Kebajikan 'Am.

18. Inche K. Kanapathy,
Jabatan Pertanian.
19. Inche Law Wei Min,
Jabatan Pertanian.
20. Inche F. Chand,
Jabatan Penyiasatan Kajibumi.
21. Inche S. Nesadurai,
Jabatan Parit dan Taliayer.
22. Inche Mohd. Rosli bin Buyong,
Peranchang Bandar dan Kampong.
23. Inche Tay Lang Seng,
Jabatan Parit dan Taliayer, Negeri Johore.
24. Inche Sulaiman Noor,
Penolong Pesuruhjaya Tanah dan Galian, Johore.
25. Inche Mohd. Ghazali Yusoff,
Pegawai Pertanian Negeri Johore.
26. Inche C.F. Herbert,
Bahagian Pentadbiran,
Jabatan Perdana Menteri.
27. Inche W. Swinson,
Project Manager.
28. Inche K. Harbord,
Project Agronomist.
29. Inche A.J. Fairley,
Project Engineer.
30. Inche A. Rancom,
South East Johore Project.
31. Inche I.L.A. Ysselmuiden,
South East Johore Project.
32. Inche J.W. Trevett,
Jabatan Kajibumi,
33. Inche A. Selvanathan,
Bahagian Peranchang Ekonomi

- Secretary