

SOUTH EAST JOHORE PROJECT

WORKING PAPERS.

GENERAL AGRICULTURE II

WOSSAC: 24132

631.47

(595)

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Meeting with Dr. Jack Blencowe, Deputy Director, Rubber Research Institute, 13th February

Cocoa

Two cocoa estates have been established in Perak.

1. United Plantations Limited at Kuala Burnham, Jenderata, Teluk Anson.
2. Kuala Perak Estate, Teluk Anson.

The Kuala Burnham Estate has 1000 acres of cocoa with coconuts as cover of which 300 acres are in bearing. Usual planting intervals are 10' by 5' thinned out to 10' by 10'. Blencowe recommended a density of 435 trees per acre in Perak.

Processing

Processing of cocoa beans by growers is usually confined to fermenting and drying; further processing is carried out by manufacturers of the end product.

The traditional technique in Africa where about 80% cocoa output is from smallholders is to remove the pericarp (usually used as a fertilizer), stack the beans into a pile of at least $\frac{1}{2}$ ton and ferment for 6 days stirring every 2 days. Fermented beans are then sun-dried for 4 or 5 days to about 6-7% moisture content.

Factory System

1. Staircase of sweat boxes - Fermentation is carried out in a system of sweat boxes about 1 yard square holding 1 ton of beans. From time to time the beans are turned from one sweat box to the next lower on the staircase. At the end of fermentation, beans are turned on to trays and put out to dry.
2. Ferment and dry on the same tray - Using this method 4" deep trays give good results since it looks as though most fermentation takes place in the outside level of a pile of beans. The tray is half-filled for fermentation and for drying the beans are spread over the whole surface of the tray.

Problems have been experienced with fermentation in Malayan conditions but they have been overcome and the sweat box technique is now considered satisfactory here.

Drying

It is desirable to sun-dry cocoa beans as much as possible. At the drying stage beans are picked over to maintain quality. Kuala Burnham estate will not be able to cope with sun-drying of the peak crop and will need a deep bed mechanical drier. Kuala Perak Estate has 6 sweat boxes and the beans are then dried by hot air.

Woods of Colchester, a GEC subsidiary, specialise in manufacturing the machinery.

Coconut Products

Dr. Blencowe mentioned that no one in Malaya is producing dessicated coconut. He mentioned the following uses for coconut by-products:-

Powdered coconut shell from Kuala Perak Estate is being used as a plastic filler.

Coconut shell for charcoal for cigarette filters.

Coiled coconut fibre and latex mixture.

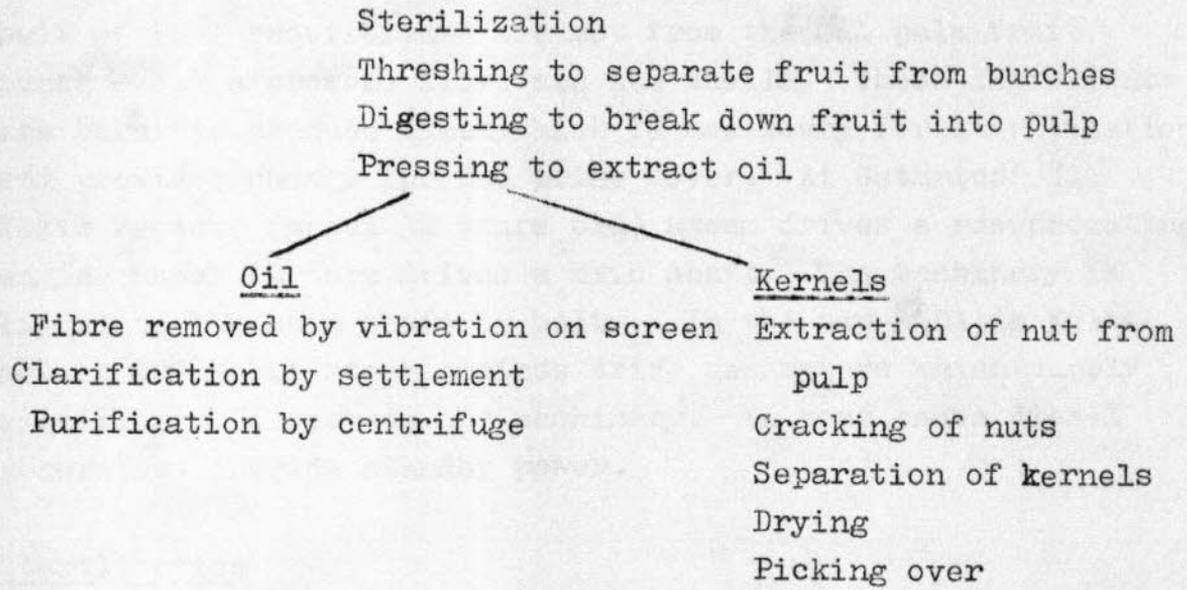
CRS/PW/23/2/70

OIL PALM PROCESSING

Description of the process

The raw material is fresh fruit bunches (ffb). The end products are palm oil and palm kernels. There are possible by-products of potash fertilizer and nut shell which can be used as light duty road surfacing material.

The stages of processing are shown diagrammatically:-



Analysis of FFB

Two types of fruit 1) older ^{uv} ~~Diva~~, d x d fruit, thick shelled
2) new Tenera, t x d fruit, thin shelled

The following percentages were provided by Commonwealth Development Corporation factory at Kulai based on mixture of ^{uv} ~~Diva~~ and Tenera mature fruits, operating so that about 95% of oil in fruit bunch is recovered. Percentages e.g. at FLDA Kulai would differ 1) because more fruit will be Tenera, the average age of tree is probably less and the efficiency is lower (no sludge centrifuge).

% Breakdown by weight of Fresh Fruit Bunch

- 10% Water lost in Sterilization
- 21% Empty bunch in Thresher
- 18% Pure Oil
- 8% Fibre
- 4% Kernels
- 14% Shell
- 25% Sludge { 4% dry matter
 { 21% water

Dura thick shelled would give about 16% pure oil.
Tenera thin shelled would give up to 20 to 22% pure oil
assuming 95% efficiency level.

The major oil loss is in fibre. About 3 1/2% of oil in
f.f.b. is retained in the fibre.

Power

A singular feature of oil palm processing is that the
bulk of fuel requirements are met from the oil palm fruit
bunch - oil expressed fibre and nut shells. These ingredients
are burnt to produce steam which is necessary for sterilization
and provides energy for the prime mover. At Guthries' Ulu
Remis Factory (about 30 years old) steam drives a reprocating
engine which in turn drives a main shaft. The machinery is
linked to the main shaft by belts. In the new FLDA in Kulai
and at CDC Kulai steam engines drive generators which supply
electricity to operate the machinery. In most cases diesel
generators provide standby power.

Sterilization

Required to stop formation of free fatty acid (ffa).
Once the fruit is bruised an enzyme causes the free fatty
acid content to rise. Users of Guthries bulking facilities
in Singapore work to an ffa content of 4.5%. Premia and
penalties are paid for quite small deviations from this
target figure.

Threshing

Removes fruit from bunches. Bunches are burned in an
incinerator. Tried as fuel but unsatisfactory. Ash has high
potash content - useful as fertilizer; FLDA Kulai factory
sold this potash back to settlers.

Digestion

Fruits are mashed to a pulp e.g. at CDC Kulai in 2 minute
cycle.

Pressing

Oil is pressed out by hydraulic press at 4000 lb/sq. in
pressure. Modern presses are usually automatic; older models
have hand assisted operation.

Oil is passed over a vibrating screen to separate out fibre, content which is then recirculated into digester.

Clarification and Purification

Oil is pumped in a continuous flow into a tank in which the oil separates from the sludge. Clarified oil is then centrifuged to remove air. At CDC Kulai the average ratio of dirt to oil is 0.56% before centrifuging and 0.005% afterwards, The oil is heated to remove water and then pumped into storage tanks. In most factories (but not FLDA Kulai) sludge is passed through a centrifuge to extract more oil. The CDC Kulai engineer thought between 5 and 10% of oil produced was recovered from the sludge centrifuge.

Kernels

After the oil has been expressed the residual cake of fibre and nuts is broken up and fibre extracted to the furnace by air current. Nuts are cracked by forcing them against the side of a rotary drum and kernels separated from shell either by hydro cyclone or by clay bath. Kernels are dried, picked over and bagged. Nut shells can either be burnt or used for road making. Kernels are usually sent in sacks either to local processors (e.g. FLDA Kulai to Muar) or for export.

Employment

The FLDA factory at Kulai with a capacity of 10 tons per hour employs 12 staff and 17 daily paid men shift.

The CDC factory at Kulai with a capacity of 14 tons ffb per hour (built about 15 years ago) employs about 7 staff and 22 process workers per shift.

The older Guthries factory at Ulu Remis with a capacity of 40 tons ffb per hour employs about 90 process workers per shift.

Cooper and Bevan's (Oil Palm Development in Malaysia) figures gave 9 staff and 21 process workers for a 20 ton per hour factory and 9 staff and 27 process workers for a 40 ton per hour factory.

Oil Palm yields and planting density

A recent visit to Chemara Research Station, Layang Layang, brought out the following information.

1. Yield variation between soil types most probably due to variations in water holding capacity and water table. Ideal water table probably around 2 feet provided it is moving and aeration is adequate. *Last v. important A.W.C. likely to be v. important: aeration other than in connection with W.T.*

2. Most suitable soils will probably give 10-12 tons FFB/acre. Less suitable soils will give 8-10 tons per acre.

3. On water table criteria, yields will probably be lower on undulating and hilly land than on low lying flat land. Fine phase Rengams better than coarse Rengams.

4. For future yields, use 12 tons yield on good soils reached in third year after first yield and sustained for 8 years or so. Notes from JVH will elaborate on this.

5. Some very interesting planting density trials are in progress. Caution should be exercised in projecting the results as they have only two years yield record. The trials were planted in 1964 and contain information on castration (excision of all flowers, male and female for 36 months).

	Planting Density	Current Practice	6 monthly yields
	45 palms per acre.		
	59 " " "	Current practice.	
45	74 " " "		2.4 2.55
59	92 " " "		3.72 3.92
74	135 " " "		4.34 4.61
92	149 " " "	Hexagonal planting - Now discarded.	
135			5.43 4.52

Fertiliser application is based on foliar analysis and is applied at a rate per palm so higher densities receive higher application per acre.

74 Some plots were castrated for 36 months. Others were uncastrated and allowed to start bearing 6 months earlier at 30 months.

In each case, the castrated palms caught up the 6 months loss of yield within the first year. This unfortunately is followed by quite marked six-monthly yield fluctuations which may or may not turn out to be a problem later. It does have implications for factory construction and commissioning.

The yields are quoted in 6 month periods for the four periods harvested to date.

a) Uncastrated - tons FFB/acre - Cumulative yields.

Palms/acre	Period	1	2	3	4
45		1.80	3.29	5.69	8.44
59		2.87	5.37	9.09	13.01
74		3.66	6.81	11.15	15.76
92		4.91	8.15	13.74	18.94
135		6.28	10.52	15.95	20.47

b) Castrated to 36 months - tons FFB/acre - Cumulative yields

45	-	3.7	5.83	9.55
59		5.8	9.07	14.27
74		7.54	11.31	17.86
92		9.29	12.81	19.31
135		10.54	13.52	19.07

c) Uncastrated - tons FFB/acre - 6 monthly yields

	1	2	3	4
45	1.8	1.49	2.4	2.55
59	2.87	2.50	3.72	3.92
74	3.66	3.15	4.34	4.61
92	4.91	3.24	5.59	5.20
135	6.28	4.24	5.43	4.52

d) Castrated - tons FFB/acre - 6 monthly yields.

45	-	3.7	2.13	3.72
59	-	5.8	3.27	5.20
74	-	7.54	3.77	6.25
92	-	9.29	3.52	6.50
135	-	10.84	2.98	5.55

~~THE PROFITABILITY OF OIL PALM IN THE~~
~~STATE OF JOHORE~~
 Chemara has decided on the basis of these figures that a planting density of 92 palms per acre looks promising and it is proposed that the higher density of 135 palms/acre is thinned to 90 or so. The major deciding factor is the yield drop of the densest palms is the fourth period.

3. Appendices

- Ground cover was non-existent at the two highest densities and this could lead to erosion problems although terracing may be feasible. The lowest planting density was examined to assess the possibility of intercropping. We felt that while intercropping was possible at 45 palms per acre, it would be difficult as the palm canopies had compensated for the extra space by spreading rather widely. Grass particularly will compete strongly for moisture and nitrogen in the rooting zone of the palm.
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STATE OF JOHORE

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1. OBJECTIVES OF THE PAPER

The objectives of this paper are to:-

- (i) calculate the profitability of an oil palm scheme located in Johor State on various assumptions and especially to:-
 - (ii) examine the sensitivity of the oil palm profitability to:-
 - (a) variations in F.F.B. yields per acre and extraction rates;
 - (b) various palm oil and palm kernel prices (FOB Singapore);
 - (c) delays in clearing and planting;
- and - (d) to see which other factors might be sensitive (i.e. might change the profitability significantly when altered slightly)

The sensitivity of oil palm profitability to variations in FFB yields is examined in order to serve as some guide to the classification of soil suitabilities and as an attempt in assessing the benefits from improved management.

The profitability is examined with reference to price variations to try to assess the risks faced by Malaysia in continuing to plant oil palm and rubber on a large scale, and as a guide to future planting and replanting programmes.

The profitability is examined with respect to delays in harvesting to again assess the possible benefits from better management, removal of bottlenecks, etc.

2. SUMMARY

2.1. "Private Financial" profitability

The profitability of oil palm to the private sector (e.g. Dunlops, Guthries, etc.) in W. Malaysia is probably, relative to most other economic activities⁽¹⁾, high. The internal rate of return to the private sector from oil palm is about 18% p.a. (the net present value - surplus - using a discount - interest - rate of 15% p.a. is about \$300 per acre.). This rate of return is calculated on the following fairly pessimistic assumptions:-

- A scheme with a total area of 20,000 acres, 83% of which is planted with oil palm:

- A life for the scheme of 20 years from clearing in 1972, and therefore a yielding life of 17 years;

- a price for palm oil of \$420 per ton (F.O.B. Singapore) in 1975 falling to about \$340 per ton by 1991 (compared to the price in June 1970 of well over \$700 per ton);

- a fresh fruit bunch (ffb) yield in the peak year - 9 or 10 years after clearing - of about 10 tons per acre with a peak extraction rate of 22% for oil and 5% for kernels; (these yields seem to have actually been achieved for most of the recently-planted oil palm by both FLDA and the private sector, though the evidence on this is scanty.).

- development and operating costs actually incurred by F.L.D.A. and the private sector. For a summary of the rates of return from oil palm on various assumptions, see page 6.

(1) Very little information is available on the rates of return from various major economic activities in W. Malaysia. In the private sector, the logging and sawmilling industries almost certainly give returns of above 20% p.a. (see "Forestry and Timber Utilisation in Johor State" - Dec. '69 - C.B. Edwards, S.E.J.P.) but rubber estates are likely to give returns, if planted now, of considerably less than 15% p.a. Some industrial activities in the private sector almost certainly give high profits to the individual companies but, since many of these industries seem to be heavily protected by tariffs on imported goods or "subsidised" by tax holidays, etc., the return to the nation is almost certainly very much reduced to below 15% p.a. For investments by the public sector, EPU assumes a return on the worst investment (a "cut-off rate") of 10% p.a. Therefore all public sector investments should give returns of above 10% p.a. but they are unlikely to be giving returns of much above 20% p.a. And since these returns are in real terms, they are considerably lower than the return to Government from oil palm of something like 20%-30% p.a. (see later sections of this paper.). Since the returns to Government from oil palms are so high, it is thought that the S.E.J.P. should use a rate of discount ("cut-off rate") of 15% p.a. This is the principal yardstick used in this paper, although the effects of using discount rates of 10% p.a. and 20% p.a. have been looked at.

2.2. "Government Financial" profitability

The above rate of return of 18% p.a. is of course received by the private companies after they have paid rents on land, taxes on petrol and machinery and other taxes, of which the most important is the export duty on the palm oil and kernels. F.L.D.A. also has to pay these taxes, but in the case of development by such a public sector agency, they do of course represent a transfer payment from one Government "department" to another. If the payment of these taxes is assumed to be part of the profits (return), and are added back, the rate of return rises from 18% p.a. to 21% p.a. - the NPV at 15% p.a. rises from about \$300 per acre to \$600 per acre.

If, furthermore, the cost of housing workers is assumed to bring equivalent benefits to the country (or that, without the oil palm scheme, the cost of the housing would have had to have been incurred anyway), this can be deducted from the development costs of the oil palm scheme. If this is done, then the return rises still further from 21% p.a. to just over 22% p.a. - (the NPV at 15% p.a. rises from about \$600 to about \$740 per acre).

This rate of return of 22% p.a. is referred to in this paper as the "Government financial" rate of return. "Government" because all transfer payments are added back (i.e. not assumed to be a cost) and "financial" because all costs are included at their market prices.

2.3 The effect of using a "shadow wage"

A paper⁽¹⁾ by the E.P.U. has however suggested that the real cost of "unskilled labour" to the nation is considerably below the market wage. With high unemployment and under-employment the sacrifice to the nation in taking a man from one place and employing him in another is believed to be far below the wage paid to him. The paper⁽¹⁾ by E.P.U. suggests that the production lost through this transfer of an unskilled worker is less than \$50 per month, and it is suggested that, in the appraisal of projects for the Second Malaysian Plan (SMP), a "shadow" price of \$40 per month is used for all labour being paid between \$90 and \$150 per month. In this paper, the present value (at 15% p.a.) of the cost of labour which is directly employed on the scheme at a wage of below \$150 per month is about \$850 per acre.

The return from oil palm using the market wage of unskilled labour of about 22% p.a. rises to **well over 30% p.a.**, when the whole of the unskilled labour cost is deducted. If the E.P.U.'s valuation of unskilled labour (the "shadow wage") of about $\frac{1}{3}$ rd of the market wage is used, the rate of return is about 30% p.a. (this is referred to as the "resource" rate of return).

The rate of return is therefore very sensitive to variations in the shadow price of unskilled labour but whether

(1) SMP Memorandum - "Integrating the Employment Objective: Selection and Application of an Appropriate 'Shadow Wage' " - E.P.U. - 30/5/70.

the effect on oil palm is significantly greater or smaller than the effect on other crops or "enterprises" remains to be seen.

The summary table on page 7 shows the present values at various discount rates of the "private financial", export duty and land rent, housing and unskilled labour cash flows.

2.4 The importance of yield variations

As expected, variations in the physical yields obtained have a significant effect on the rate of return. The "resource" rate of return of about 30% p.a. - equivalent to the "private financial" rate of return of 18% p.a. - is raised by over 5% p.a. with a rise in yield (measured in the peak year) of about 20% (from a peak oil yield of 2.2 tons per acre to about 2.64 tons per acre). A fall in the peak oil yield from 2.2 tons per acre to about 1.94 tons per acre (a drop of 13%) reduces the resource rate of return by almost exactly 5% p.a. (see page 6)

A more dramatic and possibly more meaningful way of describing the effects of variations in yield is to say that an "additional" \$125 per acre can be spent on fertiliser or "management" each and every year if the effect is to raise the oil yield by only about 20% over the F.L.D.A. "standard" yield - equivalent to a rise in the oil yield in the peak year of 0.4 tons per acre. That is, the fertiliser input assumed in this paper - \$90 per acre from year 6 to year 20 - can be more than doubled or the expenditure on "estate management" can be more than trebled if the effect is to raise oil yields by, on average, 20%.

Since variations in management and fertiliser inputs are likely to have a significant effect on the yield per acre, should we not possibly produce a paper discussing the optimisation of these inputs? Furthermore is it possible to get any idea of the variations in yields from oil palm on various soil types given management and fertiliser inputs?

2.5 The significance of price variations

The "resource" rate of return of 30% p.a. was, as stated above, based on the following prices (F.O.B. Singapore) for palm oil and kernels:-

	<u>\$ per ton (F.O.B. Singapore) in:-</u>		
	<u>1975</u>	<u>1980</u>	<u>1991</u>
Palm oil	420	380	340
Palm kernels	370	360	340

These are considered to be fairly realistic assessments of the future prices of these commodities⁽¹⁾. But since we cannot be certain of the future price trends in palm oil, the sensitivity of the returns from oil palm to more optimistic and pessimistic prices was examined.

(1) See Appendices 3 and 4 of this paper.

The table below shows that with a more optimistic price, the rate of return rises by about 5% p.a. and with a more pessimistic price, the return falls by 5% p.a.

	Palm Oil Price (\$ per ton F.O.B. Singapore)			Rate of return (% p.a.)
	1975	1980	1991	
Optimistic	490	450	400	35
Most likely	420	380	340	30
Pessimistic	360	325	300	25

Since these price variations are considerable (in 1975 for example about 15% above or below the "most likely" price) and since, more importantly, the "pessimistic" price in 1975 represents a drop of more than 50% from the May 1970 price of about \$750 per ton (though only an 18% drop compared with the average price in 1968), palm oil is highly likely to give a resource rate of return of over 25% p.a. provided that the oil yield (in the peak year) is above 2.2 tons per acre.

2.6 The effects of delays in harvesting

If, after clearing, harvesting is delayed for one year (because of slowness in, for example, planting) the resource rate of return falls by about 4% p.a. from about 30% p.a. to 26% p.a. More significantly there is a "loss" (at a discount rate of 15% p.a.) of about \$250 per acre from such a delay. This is more than the total cost per acre of planting.

2.7 Summary Tables

Summary table 1 on page 6 shows the rates of return and N.P.V's at 15% for oil palm based on various assumptions. An attempt has been made to define (for purposes of comparison with other crops or "enterprises") the "labour" and "capital" intensity of oil palm.

The wages payable to unskilled labour have been discounted at 15% p.a. to arrive at a present value of the unskilled labour "cost" of about \$836 per acre. "Capital" has been defined as the sacrifice in consumption made by the Government as a result of this scheme. The cash payments ("negative cash flows") made by the Government have therefore been discounted back to a present value in 1972 at a discount rate of 15% p.a.

The "capital" item has then been divided by the "unskilled labour" item to arrive at a "capital-intensity ratio" (for oil palm of about 1.5) which can then be compared with other crops or enterprises. Presumably in a situation of under- or unemployment, the lower this ratio the better.

Summary table 2 on page 7 shows the present values (at 15% p.a.) of the various cost items. Some interesting points emerge from this analysis. The total processing cost per acre is less than the cost of fertilisers per acre - amounts paid in the form of land rent and export duty represent almost 40% of the payments to unskilled labour - at a lower rate of discount this proportion is slightly higher - e.g. at a rate of discount of 10% p.a. the proportion rises to about 44%.

OIL PALM PROFITABILITY - SUMMARY TABLE 1

<u>PROFITABILITY</u>	<u>Rate of return (% p.a.)</u>	<u>P.V. or N.P.V. (\$ per acre at 15% p.a.)</u>
1. - <u>PRIVATE FINANCIAL RETURN*</u> (to the private sector) - add back taxes - and housing costs	18	280 330 132
2. - <u>GOVERNMENT FINANCIAL RETURN*</u> (to the Government paying market wages)	22	742
3. - <u>RESOURCE RETURN*</u> (to the Government with a shadow wage for unskilled labour of \$40 p.m.)	30	1298
4. - 20% <u>increase in yield</u> over 3	35	2110
5. - 13% <u>decrease in yield</u> from 3	25	995
6. - <u>Optimistic price</u> (\$490 per ton of oil in 1975 and \$400 per ton in 1991) - cf. 3	35	1764
7. - <u>Pessimistic price</u> (\$360 per ton of oil in 1975 and \$300 per ton in 1991) - cf. 3	25	943
8. - 1 year delay in <u>harvesting</u>	26	1032

LABOUR/CAPITAL INTENSITY

9. Present value of <u>unskilled labour cost</u>	-	836
10. Present value of <u>capital</u> (the negative "financial" cash flows - less taxes - see text)	-	1250
11. "Capital" required for every \$ of unskilled labour cost	\$1.5	

*ASSUMPTIONS FOR 1, 2, AND 3

- 20 year life - year 1 = 1972, year 20 = 1991
- Palm oil price (F.O.B. Singapore) = \$420 per ton in 1975,
\$340 per ton in 1991.
- Oil yield in peak year (1981) = 2.2 tons per acre.
- Development and Operating Costs as actually incurred by
F.L.D.A. and the private sector. (See Appendices
3-12).

SECTION 3 - APPENDICES

APPENDIX 1. SUMMARY OF THE CASH FLOWS AND ASSUMPTIONS

The cash flows for the "basic scheme" are shown in private financial terms in Table A1. The costs and benefits set out in Table A1 were calculated on the following main assumptions⁽¹⁾:

1. Gross acreage of the scheme - 20,000
 Land unsuitable for development or used for roads, housing etc. - 3,400
 Planted acreage 16,600
 (see p. 172, ref 8; p. 184, ref. 9; p. 8, ref. 10).
2. The scheme is assumed to consist of 4 "settlement units" each having a gross acreage of 5,000 acres.
3. The timing of the scheme is assumed to be as follows:-

<u>Year (Oct-Sept)</u>	<u>Activity</u>
1	Clearing, silt-pitting, platforming, terracing, temporary road construction, establishment of cover crops.
2	Planting seedlings in the field, construction of permanent roads and infrastructure. Palm oil mill construction begins.
3	Construction of housing, offices and palm oil mill continues.
4 (Jan-Sept)	Harvesting begins
4. All those costs and benefits shown in financial terms (see table A.1.) are calculated on a commercial basis - using, for the most part, FLDA costs although many other sources have also been used. For details of adjustments to reflect the "real" value of resources to the economy, see Appendices 3 to 13, and Table A3.
5. The scheme is assumed to have one central palm oil mill and is assumed to be located about 60 miles from Singapore Port - i.e. about 40 miles from Johor Baharu.

It is useful to see how the cash flows assumed for the basic version in this paper compare with the oil palm cash flows given in the Bevan and Goering analysis (ref. 1).

(1) More detailed assumptions are contained in Appendices 3 to 13.

TABLE A.1

PALM OIL - SUMMARISED YIELDS, PRICES AND COSTS - "PRIVATE FINANCIAL" PAPER

BASED ON A SCHEME OF 20,000 GROSS ACRES

YEAR	UNIT	1 (1972)	2 (1973)	3 (1974)	4 (1975)	5 (1976)	5 (1977)	7 (1978)	8 (1979)	9 (1980)	10 (1981)	20 (1991)
1. PALM OIL REVENUE EX FACTORY												
PRICE (FOB SINGAPORE)	\$ PER TON OF OIL				420	410	400	390	385	380	376	FALLING BY 1% P.A. COMPOUND ABOUT 340
DISTRIBUTION (EX FACTORY- AYER TAWAR - TO S'PORE)	\$ PER TON				(18)	(CONSTANT)						(18)
EXTRACTION RATE (% OIL PER TON FFB)	% OF F.F.B.				16	18	19	21	22			22
PRICE AT FACTORY	\$ PER TON OF F.F.B.				64.3	70.6	72.6	78.1	80.7	79.6	78.8	FALLING BY 1% P.A. COMPOUND ABOUT 71
YIELD PER ACRE	TONS (FFB) PER ACRE				0.5	3.6	6.3	8.5	9.3	9.7	9.9	(FALLING BY 1.3% ARITHMETIC TO 1991) 8.6
REVENUE EX FACTORY	\$ PER ACRE	-	-	-	32	254	457	664	751	772	780	SEE COMPUTER PRINT - OUT 614
2. PALM KERNEL REVENUE EX FACTORY												
PRICE (FOB SINGAPORE)	\$ PER TON				370	368	366	364	362	360	358	FALLING BY 0.5% P.A. COMPOUND ABOUT 340
DISTRIBUTION EX FACTORY	\$ PER TON				(22)	(CONSTANT)						22
EXTRACTION RATE	% OF F.F.B.				4.0	4.4	4.5	4.8	5.0		CONSTANT	5.0
PRICE AT FACTORY	\$ PER TON (FFB)				13.9	15.2	15.5	16.4	17.0	16.9	16.8	FALLING BY 0.5% P.A. COMPOUND ABOUT 340
REVENUE EX FACTORY	\$ PER ACRE	-	-	-	7	55	98	139	158	164	166	SEE COMPUTER PRINT - OUT - 138
3. EXPORT DUTY												
- 7.5% OF F.O.B. REVENUE	\$ PER ACRE	-	-	-	(3)	(23)	(42)	(60)	(68)	(70)	(72)	FALLING BY 2% P.A. COMPOUND ABOUT (59)
4. PROCESSING COST												
TOTAL "PRIVATE FINANCIAL"	\$ PER ACRE	-	(86)	(86)	(78)	(19)	(52)	(44)	(47)	(49)	(50)	CONSTANT (50)
5. CLEARING, PLANTING, SURVEY	\$ PER ACRE	(397)	-	-	-	-	-	-	-	-	-	-
6. ROADS, ETC CAPITAL COST	"	(14)	(182)	-	-	-	-	-	-	-	-	-
7. FERTILISER	"	-	(40)	(55)	(60)	(72)	(50)					CONSTANT (90)
8. WEEDING, MAINTENANCE	"	-	(85)	(78)	(68)	(59)	(37)					CONSTANT (37)
9. HARVESTING, COLLECTION	\$ PER TON FFB	-	-	-	21.3	10.0	9.4	8.5			CONSTANT	8.5
	\$ PER ACRE	-	-	-	(11)	(38)	(59)	(72)	(79)	(82)	(84)	FALLING BY 1.3% P.A. ARITHMETIC (73)
10. MANAGEMENT (ESTATE, HQ)	"	(15)	(15)	(21)	(46)	(36)	(36)					CONSTANT (36)
11. VILLAGE INFRASTRUCTURE, RENT, PREMIUM	"	(57)	(81)	(81)	(1)	(1)	(14)					CONSTANT (14)
NET CASH FLOW "PRIVATE FINANCIAL"		(483)	(439)	(321)	(228)	63	225	450	538	558	563	TABLE A.2 ON PAGE 10 393

This comparison is set out in table A.2 below.

TABLE A2 - A COMPARISON OF OIL PALM CASH FLOWS (\$ PER ACRE)

<u>YEAR</u>	<u>BEVAN AND GOERING PAPER (p. 161, REF. 1) NET REVENUE</u>	<u>This PAPER ("Private Financial" terms) NET REVENUE</u>
1	(572)	(483)
2	(366)	(489)
3	(444)	(321)
4	(193)	(228)
5	(69)	63
6	182	225
7	399	450
8	511	538
9	600	558
10	567	563
.....	
20	388	393

The Bevan and Goering cash flow gave a rate of return of 17% p.a. compared to a rate of return for the private financial analysis in this report of about 18% p.a.

APPENDIX 2 - SOME OF THE DISCOUNTING CALCULATIONS

Table A3 shows the present values at 10% p.a., 15% p.a., 20% p.a. and 25% p.a. of each of the alternatives.

Table A4 shows the discounting calculations for the net cash flows in alternative 1 (the "private financial" case).

(484)	(372)	1
(484)	(366)	2
(321)	(244)	3
(258)	(177)	4
63	(69)	5
352	182	6
450	339	7
538	511	8
558	600	9
563	561	10
.....
393	388	GS

The Seven and Seven cash flow gave a rate of return of 17% p.a. compared to a rate of return for the private financial analysis in this report of about 13% p.a.

TABLE A.3

PV'S OF ALTERNATIVES AT 15% P.A. - \$ PER ACRE

	1 PRIVATE FINANCIAL	2 GOVT. FINANCIAL	3(a) RESOURCE	3(b) RESOURCE	3(c) RESOURCE	4 HIGH YIELD	5 LOW YIELD	6 OPTIMISTIC PRICE	7 PESSIMISTIC PRICE	8 DELAY
	- Yield = 2.2 tons/ acre Price \$420 in 1975 \$340 in 1991	Yield & Prices as in 1 No Duties, taxes or Housing costs	As in 2 But applying a Shadow wage of one third to unskilled labour	As in 2 But app. a Shadow wage of $\frac{1}{2}$ to unskilled labour	As in 2 But after applying a Shadow wage of ZERO to unskilled labour	Yield of 2.64 tons per acre of oil in peak year an in- crease of 20%-others as in 3(a)	Yield of 1.94 tons per acre of oil in peak year: a de- crease of 15%-others as in 3(a)	Yield as in 3(a) - price of \$490 in 1975 and \$400 in 1991	Yield as in 3(a)-price of \$360 in 1975 and \$300 in 1991.	Delay of 1 year in planting after clear- ing: All others as in 3(a)
P. OIL REVENUE	2,443	2,443	2,443	2,443	2,443	3,196	2,157	2,909	2,088	2,087
PAIM KERNEL REVENUE	524	524	524	524	524	686	462	524	524	447
EXPORT DUTY	(225)	-	-	-	-	-	-	-	-	-
GROSS REVENUE AT MILL	2,742	2,967	2,967	2,967	2,967	3,882	2,619	3,433	2,612	2,534
CLEARING, PLANTING	(397)	(397)	(321)	(340)	(283)	(321)	(321)	(321)	(321)	(300)
ROADS, PATHS	(173)	(173)	(118)	(150)	(87)	(116)	(116)	(116)	(116)	(107)
WEEDING, MAINTENANCE	(335)	(335)	(112)	(168)	-	(112)	(112)	(112)	(112)	(96)
HARVESTING & COLLECTION	(282)	(282)	(145)	(179)	(76)	(193)	(130)	(145)	(145)	(122)
RENT, PREMIUM	(105)	-	-	-	-	-	-	-	-	-
HOUSING	(132)	-	-	-	-	-	-	-	-	-
PROCESSING	(366)	(366)	(303)	(319)	(271)	(358)	(275)	(303)	(303)	(284)
FERTILISER	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(393)
ESTATE AND H.Q. MANAGEMENT	(215)	(215)	(215)	(215)	(215)	(215)	(215)	(215)	(215)	(200)
NPV AT 15% P.A.	280	742	1,298	1,159	1,578	2,110	995	1,764	943	1,032
NPV AT 10% P.A.	1,099	1,717	2,431	2,253	2,788	>3,500	1,953	>3,000	>1,800	>2,000
NPV AT 20% P.A.	(186)	180	635	520	860	>1,400	432	967	406	443
NPV AT 25% P.A.	(453)	(150)	241	144	437	>900	-	>500	-	>20
INTERNAL RATE OF RETURN (%)	18	22	30	28	>30	>35	25	>30	25	26

TABLE A4 - THE DISCOUNTING CALCULATIONS FOR THE "PRIVATE FINANCIAL" PROFITABILITY

Year	Net cash flow (as in table A2) - \$ per acre	Present value factor at 15% p.a.	Present value at 15% p.a. - \$ per acre
1 (1972)	(483)	1.00	(483)
2	(489)	0.87	(425)
3	(321)	0.76	(244)
4	(228)	0.66	(150)
5	63	0.57	36
6	225	0.50	113
7	450	0.43	194
8	538	0.38	204
9	558	0.33	184
10 (1981)	563	0.28	158
11	545	0.25	136
12	527	0.21	111
13	509	0.19	97
14	492	0.16	79
15	475	0.14	67
16	458	0.12	55
17	441	0.11	49
18	425	0.09	38
19	408	0.08	33
20 (1991)	393	0.07	28
			<u>280</u>

FOG installation and other charges
at 4.8% per year installation
charge
(currently higher in Singapore but
likely to be reduced by 1975 to
about \$2 per ton)
plus \$2 per ton sundry charges
Total

... (2) ...
... (3) ...
... (4) ...
... (5) ...
... (6) ...
... (7) ...
... (8) ...
... (9) ...
... (10) ...
... (11) ...
... (12) ...
... (13) ...
... (14) ...
... (15) ...
... (16) ...
... (17) ...
... (18) ...
... (19) ...
... (20) ...

APPENDIX 3 - CASH FLOW DETAILS - PALM OIL REVENUE AT THE
FACTORY

The Price of Palm Oil

The present price (c.i.f. London) is £110 per ton of oil with 5% f.f.a. content. Allowances or penalties are paid for lower or higher f.f.a. values, being calculated at 1% of the contract price for each 1% variation in f.f.a. content from 5%. (See third Oil Palm Conference Paper - p. 233, ref. 3).

The average f.f.a. content of oil from FLDA mills in 1968 and 1969 was about 3% (see Sorca report - ref. 18). Since the freight cost to, for example, Europe is about \$60 per ton the FOB price at Singapore at present is about \$750 per ton.

Past and assumed future f.o.b. prices are shown in Graph A1. (See JCE's paper of 8/11/69 - ref. 4.) The assumed "optimistic" price is about \$400 per ton FOB Singapore in 1990. The assumed "pessimistic" price is \$300 per ton in 1990. The "most likely" price in 1990 is \$340 per ton (FOB).

Export duty is currently 7½% of the f.o.b. value of palm oil. Duty is levied on the basis of a price for palm oil gazetted each quarter and a price for kernels gazetted each month. Adjustments are later made for differences between the prices gazetted⁽¹⁾ by the Palm Oil Selling Pool and the actual prices received.

Distribution Cost

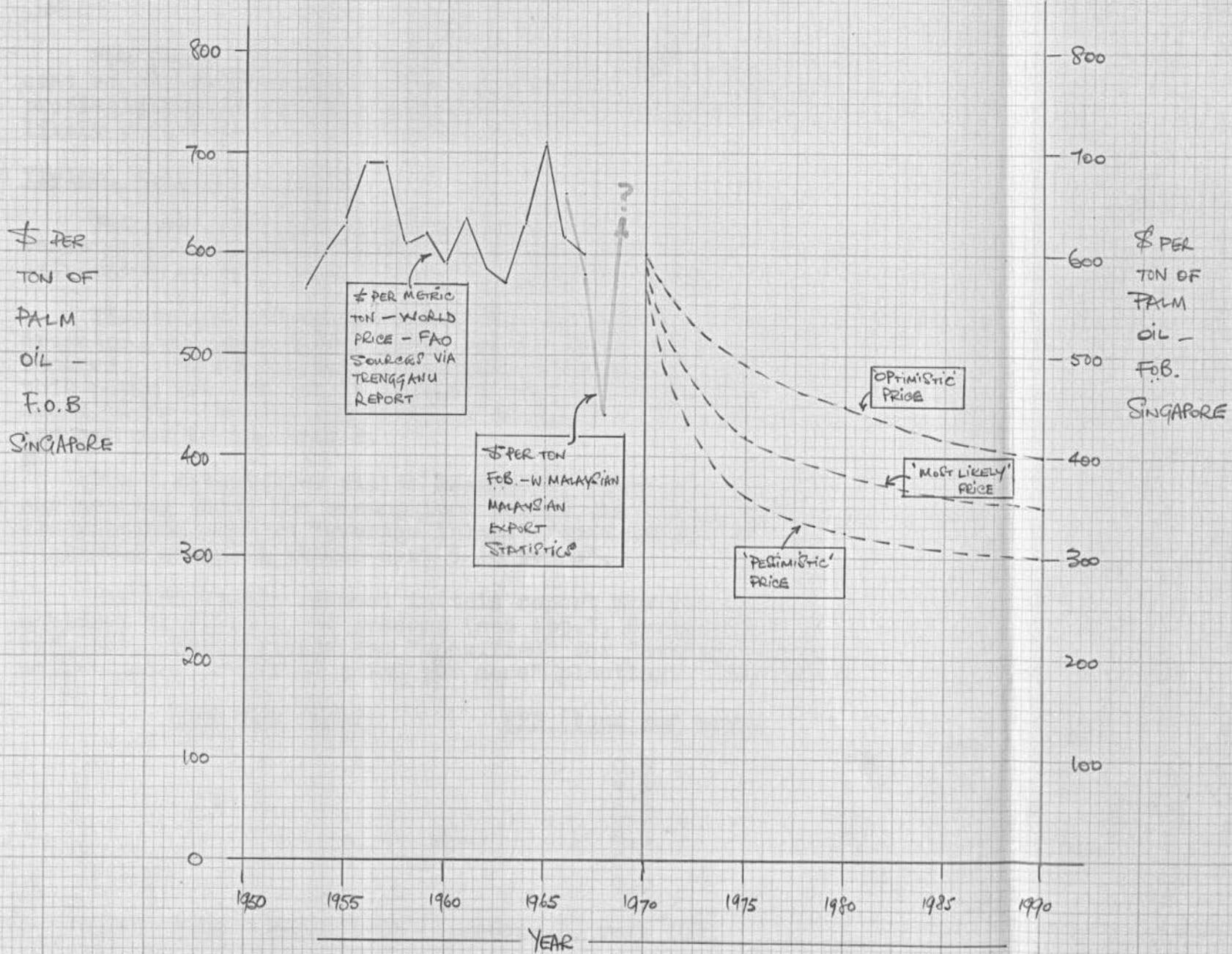
Since the plantation is assumed to be at Ayer Tawar in Tanjong Penggerang, the distribution cost is assumed to be as follows:-

	<u>\$ per ton</u>
Cost by road to Johor Baharu - a distance of about 40 miles (80 ton miles @ 13 cents per ton mile)	10
POBC Installation and other charges at J.B; \$6 per ton installation charge (currently higher in Singapore but likely to be reduced by 1975 to about \$6 per ton) plus \$2 per ton sundry charges	8
Total	<u><u>18</u></u>

(1) See each "Thursday's" edition of the Straits Times.

GRAPH A.1

PRICES OF PALM OIL - ACTUAL AND FORECASTS - 1953 TO 1990



For every extra 5 miles from the port (Johor Baharu), the cost of distribution would rise by about \$1-1½ per ton. The profitability of oil palm is therefore very insensitive to likely variations in distribution cost.

Yields, extraction rates

Palm oil profitability is however very sensitive to variations in yields of fresh fruit branches per acre and oil extraction rates. (See Section 2.4 of this paper).

Yields and extraction rates vary according to soils, slopes, drainage, management/fertiliser input, and no doubt many other factors. The management assumptions - basically F.L.D.A. - in this paper are set out in Appendix 11. The fertiliser assumptions - common applications on F.L.D.A. and private estates - are set out in Appendix 8.

The 7 alternative yields assumed by J. Bevan (see file F04) say nothing about the assumptions behind the yields beyond descriptions such as "average inland" "good management" and "improved material within next 5-10 years".

The FFB yields assumed in this report are (or seem to be) achieved by F.L.D.A. at present (see App.3, Sorca report - ref. 18). These yields are "specified" for "average inland soils" using a "DXP 60 palms per acre" planting. They are:-

<u>Year (in field)</u>	<u>FFB (tons per acre)</u>
3	0.5
4	3.6
5	6.3
6	8.5
10	10.0
25	7.0

- See also Sorca report (Appendix 2, ref. 18).

According to the Sorca Report however, F.L.D.A.'s estimates for extraction rates are on the high side. F.L.D.A.'s estimated extraction rates are as follows:-

<u>Year of Harvesting</u>	<u>Estimated Extraction Rates (%)</u>
1	16
2	18
3	19
4	21
5 and on	22

The Sorca Report data (Appendices 6-9, ref. 18) suggests that the actual rates are about 90% of the estimates. But since the report is not very clear as to how these comparisons were made, the estimated rates are used in this report for the "basic" versions.

It is difficult to assess how yields vary between soil types (with management, fertiliser and other inputs kept constant) or alternatively how management, fertiliser and other costs need to vary between soil types to keep yields constant. The following paragraphs give some of the information on oil palm yields available in published sources.

Yields of oil palm plantings on different soils given in ref.1 are shown in the table below.

Yields of oil palm plantings on different soils
(tons per acre)

Soil Series	Suitability	Material planted	F.f.b. ⁺
Selangor	HS	DXD (post-war)	9-12
		DXT "	
Kongkong	HS	DXT "	8-11
Briah	HS	DXT "	8-10
Munchong	HS	DXD "	7-9
Rengan/Jerangau	HS	DXD "	8-10
Bungor	MS	DXE "	6-8
Serdang	MS	DXD "	6-7
Organic clays	MS	DXD "	6-8
Durian	M	DXD (pre-war)	4-5
Batu Anam	M	DXD (post-war)	4-5
Telok	M	DXT "	4-6
Holyrood	M	DXD "	4-6
Peat (2-5 ft)	M	DXD "	3-5
Malacca	U	DXD (pre-war)	3-4
Linau	U	DXD "	2-4

HS = Highly suitable; MS = Moderately suitable;
M = Marginal; U = Unsuitable. ⁺Fresh fruit bunches.
Source: Table 5, p. 15, ref. 1 - (1st Oil Palm Conference).

The following points were made in the discussion of the paper in which the above table appeared:-

"It would be expected that an even distribution of rainfall would favourably affect the yield of palms grown on poorer soils. Malacca Series soil, if the laterite is overlain by a layer of more fertile soil c.2 feet deep, can yield 6-8 tons of fresh fruit bunches per annum if conditions are favourable as against 2-3 tons in less favourable areas", and:-

"The yield data quoted in the paper were derived from plantings 10-years-old and above. Higher yields can be expected from more recently developed material, and improved knowledge of fertiliser requirements for palms growing on various soil series may also result in increased yields".
(my emphasis)

A paper in the 2nd Oil Palm Conference - ref. 2 included the following table:-

Table Estimated yields of DxT & DxP oil palms in tons of F.F.B. per acre

Yr	Inland Soils			Coastal Soils		
	Low	Mean	High	Low	Mean	High
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	1.0	2.0	1.0	2.0	3.0
4	1.0	4.6	5.6	4.6	5.6	6.7
5	3.5	6.3	8.0	6.3	8.0	9.4
6	4.7	7.6	9.4	7.6	9.4	11.2
7	5.6	8.3	10.3	8.3	10.3	12.2
8	6.0	8.6	10.7	8.6	10.7	12.7
9	6.2	8.7	10.9	8.7	10.9	13.0
10	6.2	8.8	11.0	8.8	11.0	13.0
11	6.1	8.7	10.9	8.7	10.9	12.8
12	5.9	8.6	10.8	8.6	10.8	12.8
13	5.8	8.5	10.6	8.5	10.6	12.5
14	5.7	8.3	10.5	8.3	10.5	12.4
15	5.5	8.2	10.3	8.2	10.3	12.3
16	5.4	8.0	10.2	8.0	10.2	12.1
17	5.3	7.9	10.1	7.9	10.1	12.0
18	5.1	7.8	10.0	7.8	10.0	11.9
19	5.0	7.6	9.8	7.6	9.8	11.7
20	4.9	7.5	9.7	7.5	9.7	11.6
21	4.8	7.3	9.5	7.3	9.5	11.5
22	4.6	7.2	9.4	7.2	9.4	11.3
23	4.5	7.1	9.3	7.1	9.3	11.2
24	4.4	7.0	9.1	7.0	9.1	11.0
25	4.3	6.8	9.0	6.8	9.0	11.0
Total	110.7	170.4	217.1	170.4	217.1	259.4

Note: The yield estimates are based on extensive field experience over many years on a variety of different soils which have been broadly classified into poor, medium and good fertility, inland and coastal.

SOURCE: Appendix A p. 116, Ref. 2.

For the major criteria used in assessing soil suitability for oil palms, a soil classification based on the criteria of suitability, and common Malayan soil series classified according to their suitability for oil palm planting, see p. 13 and 14 of ref. 1.

One object of this paper was to look at the sensitivity of the profitability of oil palm to variations in the F.F.B. yield per acre. The following yields were taken in order to test the sensitivity of the profit to variations in yields - (management and fertiliser costs were assumed to be the same for all three cases - that is, the yield variations were assumed to be result of differences in soil fertility). [the

F.F.B. tons per acre⁽¹⁾

Year after clearing	"Low" Yield	F.L.D.A. "Standard"	"High" Yield
4	0.5	0.5	1.0
5	3.5	3.6	6.0
6	5.5	6.3	10.0
7.....	7.2	8.5	11.0
10.....	8.8	9.9	11.9
20	7.5	8.6	10.7

(1) The same extraction rates were taken for all three yields.

The table below compares the yields assumed in the Jengka Triangle Report (p.109, ref.8) with those assumed in the DTAM report (p.3, ref.7) and in this paper;

Oil Palm Yields - Tons (F.F.B.) Per Acre

Year after clearing ⁽¹⁾	Jengka Triangle Report	DTAM Report (2)	This Paper
4	0.5	2.8	0.5
5	3.6	4.6	3.6
6	6.3	6.5	6.3
7	7.6	7.8	8.5
8	8.0	8.5	9.3
9	8.5	9.0	9.7
10.....	8.8	9.0	9.9
20	9.0	9.0	8.6

(1) Planting year is end Year 1/beginning Year 2.

(2) Yields probably on basis of full years after clearing.

In the DTAM report, the yield was based on D x P material planted at a density of 60 palms per acre on Rengam soils with slopes of (generally) less than 12°.

APPENDIX 4 - CASH FLOW DETAILS - PALM KERNEL REVENUE AT FACTORY

The price of Palm Kernels

Ref. 5 (JCE's paper) suggested the following prices for palm kernels:-

Assumed palm kernel prices

\$ per ton (F.O.B. Singapore)

1968 (actual)		443
1970	(400)	400
1975	(333)	370
1980	(300)	Falling by
1985	(300)	0.5% p.a.
1990	(270)	compound
1995		330

The Bevan and Goering paper assumed kernel prices which were 60% of the oil price (see page 161, ref.1) - these assumed prices are shown in brackets in the above table. In this paper however, I have used John's prices for all alternatives.

Distribution costs - based on the Jengka Report (ref.17) and costs obtained from a private estate in Johor State; these are;

	<u>\$ per ton of Kernels</u>
- Transport to Singapore 80 ton-miles @ 13 cts per ton-mile	10
- Handling charges at estate and port	2
- Forwarding (shipping) and port (PSA) and other charges	<u>4</u>
Total	<u>16</u>

Packing costs are included in processing costs (see Appendix 6).

(2) for peak working hours see p.126, ref.1; p.12, ref.7; p.137, ref.8; p.307, ref.2.

Extraction rate:

The extraction rates assumed for palm kernels in various sources are:-

Year of Harvesting	<u>Kernel yield as %age of F.F.B. yield</u>			
	<u>"Private estate" estimate (1)</u>	<u>Jengka Triangle Report (2)</u>	<u>F.L.D.A. (3)</u>	<u>DTAM Report (4)</u>
	%	%	%	%
1	3.7	4.5	4.0	4
2	4.1	4.5	4.4	4
3	4.5	4.5	4.5	4
4	4.8	4.5	4.8	4
5 and on	5.1	4.5	5.0	4

(1) Information gathered in course of interview on 22.10.69

(2) See page 109, ref.8.

(3) F.L.D.A.'s currently assumed yields.

(4) See page 3, ref.7.

The Sorca Report (p.11 ref.18) suggests that F.L.D.A.'s actual palm kernel yields are below the estimated yields but again the report does not indicate the basis of comparison. Clarification should be sought from F.L.D.A. on the actual yields obtained. In this report, for the analysis of profitability, the F.L.D.A. estimates are taken.

Revenue ex factory

The ex-factory revenue from palm kernels is about one-fifth of that from palm oil when the "most likely" prices are used. Export duty on palm kernels is 7½% (see Appendix 3).

(see Appendix 3)

APPENDIX 5 - PROCESSING COSTCapital Cost

Contrary to most impressions, the profitability of oil palm is not very sensitive to likely variations in the capital cost of the palm oil mill. This Appendix estimates the processing cost for various sizes of mill.

F.L.D.A.'s policy is to establish its own palm oil mills (pp. 13/14, of 1968 Annual Report - ref.16) and this paper assumes that the 20,000 "gross" acre scheme would have one central mill. (For the economics of larger centralised mills of smaller decentralised mills, see p. 118, ref. 1 and p. 186, Jengka Report - ref. 8).

The peak hourly capacity of the mill for years 4-10 for the F.L.D.A. "standard" yield is calculated in the table below:

PEAK HOURLY CAPACITY OF THE PALM OIL MILL

Year	4	5	6	7	8	9	10
Tons (f.f.b. per acre)	0.5	3.6	6.3	8.5	9.3	9.7	9.9
Planted acres	16,600	→					
Total (000 tons per scheme p.a.)	8	60	120	141	154	161	165
Peak Monthly throughput - '000 tons (12½% of annual total (1))	1	8	15	18	19	20	21
Monthly Mill peak working hours (2)	400	450	500	→			
Peak Capacity required (ffb tons per hour)	3	18	30	36	38	40	42

With yields rising to a peak of about 10 tons ffb per acre, a 40 tons per hour mill is assumed to be required for the scheme.

(1) The peak month may be as high as 15% but some subcontracting to "out-of-phase" mills is assumed. For peaking, see p.307, ref.2; p.186, ref.8; p.126, ref.1; p.12, ref.7.

(2) For peak working hours, see p.126, ref.1; p.12, ref.7; p.187, ref.8; p.307, ref.2.

The assumed phasing of capital expenditure is shown in the table below.

PHASING OF MILL EXPENDITURE

<u>Year</u>	<u>Cost (\$m)</u>	<u>Cost per acre planted (\$)</u>
2	1.34(1)	81
3	1.34(1)	81
4	1.19(2)	71
5	-	-
6	<u>0.28(3)</u>	<u>17</u>
Total	<u>4.15(4)</u>	<u>250</u>

(1) Capital expenditure on the central mill to cater for 20 tons per hour peak throughput at the beginning of year 5 (p.132, ref.1).

(2) This would bring the central mill capacity up to 30 tons per hour by 1976 with the addition of the second line of machinery less 2 presses. (p.132, ref.1).

(3) This would bring the central mill capacity up to 40 tons per hour by year 7 with the addition of 2 presses.

(4) An analysis of this is contained on p.128, ref.1 - extracts below:-

Capital cost (in \$m) of a palm oil mill ultimately expanded to
40 tons p.h.

Site preparation and foundations	- 0.24
Mill buildings (inc. staff quarters)	- 0.62
Equipment for offices, laboratory, workshop, etc. including electrical equipment	- 0.20
Supervision and labour during construction	- 0.24
Machinery and installation (inc. presses and sterilisers)	<u>- 2.85</u>
	<u>\$4.15 m.</u>

Source: from table 3, p.128, ref.1.

With a peak yield of say 13 tons ffb. per acre, a mill with a peak hourly capacity of about 55 tons ffb. per hour would be needed. The capital cost of this is assumed to be about \$5m. or about \$300 per acre.

About 10% of the "private financial" cost of the mill is assumed to consist of unskilled labour costs.

Operating Costs

The processing costs incurred in 1969 for a 15 tons f.f.b. p.h. mill on a private estate in Johor State are shown

in the table below.

A PRIVATE ESTATE'S PROCESSING COSTS (2969)

F.F.B. tons throughput	-			63,431
Oil Output (tons)	-			12,251
Kernel Output (tons)	-			2,504
Operating hours p.a.	-			4,000
"Fixed"(1)	\$ per ton	\$ per ton	\$ per ton	Total
	:of oil	:of kernels	of FFB	(\$000)
			input	- 1969
Supervision	7.3	-	1.4	89
Rent, rates	9.2	-	1.8	114
Office expenses	1.3	-	0.3	16
Maintenance of offices	3.7	-	0.7	45
General Transport				
Water and Light	0.5	-	0.1	6
Labour Welfare	0.8	-	0.2	10
Medical	0.2	-	-	2
				<u>282</u>

"Variable"(1)

Production labour	9.5	7.7	2.1	135
Fuel & Sundries	1.5	-	0.3	18
Maintenance of factory	6.7	3.5	1.4	91
Storage & Packing	-	7.1	0.3	18
			<u>4.1</u>	

(1) My classifications.

The paper in ref. 1 on "Some factors to be considered when planning the organisation of processing oil palm products" stated that:-

"The same number of staff would be required if the mill is of 20 or 40 tons per hour capacity, and would include one Engineer, an Assistant Engineer, Chief Clerk, Junior Clerk, Factory Conductor, Store Clerk, Laboratory Analyst, Fitter Foreman, and an Electrical Chargeman, the total cost in salaries being approximately \$100,000 per annum. Adding a further \$60,000 per annum to cover allowances, provident fund, leave pay, insurances, office expenses, water supply and lighting, watchmen, gardeners, upkeep of bungalows, quarters, workshops, store-room and office, etc. the total general overheads for one mill can be estimated at \$160,000 per annum for a 20 tons per hour and/or a 40 tons per hour mill". (see p.130, ref.1).

If the rent and rates element is deducted from the processing costs shown in the table above, the table more or less agrees with the above statement, namely that the overheads would be about \$160,000 p.a. In this paper, the fixed operating costs shown in the following table are assumed for an input of between 100,000 and 200,000 f.f.b. tons p.a.:-

PROCESSING COSTS (FIXED)

<u>STAFF(1)/items</u>	<u>\$ per month(2)</u>	<u>\$000 p.a.</u>
Engineer	1,500	18.0
Asst. Engineer	850	10.0
Chief Clerk	600	7.2
Junior Clerk	400	4.8
Factory Conductor	500	6.0
Store Clerk	350	4.0
Laboratory Analyst	300	3.6
Fitter Foreman	300	3.6
Electrical Chargeman	400	4.8
15 others at an average of:-	200	<u>36.0</u>
Sub-total		<u>98.2</u>

say 100

Medical; Welfare, allowances (15% of salaries)	15.0
Insurance and office expenses	7.0
Water & light - office and staff quarters	6.0
Maintenance of offices, workshops, quarters, etc. and other expenses	<u>32.0</u>
	<u>160</u>

(1) from p.130, ref.1.

(2) from ref.17.

In the first 4 years of the mill (years 2-5 in the scheme), the "fixed" operating costs are assumed to be \$80,000 p.a. or \$5 per acre. About 30% of the fixed expenses are assumed to consist of unskilled labour. Variable processing costs are assumed to be \$4 per ton f.f.b. from the first year of harvesting. About half of this is assumed to consist of unskilled labour costs.

Processing Costs - A Summary

The processing costs (in "financial" terms) are summarised in the table below;

PROCESSING COSTS: (\$ PER ACRE FOR THE
F.L.D.A. "STANDARD" YIELD)

Year	Tons ffb per acre	<u>Capital Cost</u>		<u>Operating Cost</u>		<u>Total Cost</u>	
		Finan- cial	of which unskilled labour	Finan- cial(1)	of which unskilled labour	Finan- cial	of which unskilled labour
1	-	-	-	-	-	-	-
2	-	81	8	5	2	86	10
3	-	81	8	5	2	86	10
4	0.5	71	6	7	2	78	8
5	3.6	-	-	19	8	19	8
6	6.3	17	2	35	14	52	16
7	8.5	-	-	44	20	44	20
8	9.3	-	-	47	21	47	21
9	9.7	-	-	49	21	49	21
10.....	9.9	-	-	50*	21*	50	21
25	7.9	-	-				

*(Assumed to be constant at \$50 and \$21 per acre)

(1) Fixed costs in years 2-5 of \$80,000 p.a. (\$5 per acre) and of \$160,000 p.a. (\$10 per acre) in year 6 onwards
Variable costs of \$4 per ton f.f.b.

APPENDIX 6 - CLEARING, PLANTING AND SURVEY COSTS

The survey costs are assumed to be about \$1 per planted acre incurred in Year 1. (see p.161, ref.1).

The costs of clearing given in various sources are reproduced in Table A5. For a general description of clearing, see p.19, ref.1. The clearing cost (including the destumping and clearing of village area) per planted acre is assumed in this paper to be \$170 (in "financial terms"). This is equivalent to a cost per gross acre of about \$140.

Planting costs given in various sources are set out in table A6. For a general description of planting oil palms, see pp. 140/41, ref.1 and p.106, ref.8. Platforming is assumed to be required for about 15% of the cultivated area. This works out at about 8 platforms for every acre (60 palms per acre) giving a cost of about $8 \times \$1.5 = \12 per planted acre. The silt pitting required is estimated to cost about \$6 per acre pitted. The cost of the platforming, terracing, and silt pitting is assumed to be about \$25 per acre "treated".

Lining and holing costs are assumed to cost \$19 per planted acre; planting materials are assumed to cost \$1.5 per plant, (excluding management and administration costs) or \$90 per planted acre (see p.9, ref.7 and p.13, ref.11); and the costs of putting plants in the ground to be about \$0.55 per plant or $60 \times \$0.55 = \33 per planted acre.

The cost of cover crops has been taken from the DTAM report (p.9, ref.7) and FLDA (ref.15) in which the cost was taken as \$59 per net acre planted, including the costs of seeds (pueraria 1.25 lbs, centrosema 2 lbs and calapagonium 3 lbs) and maintenance for the first 3 months.

The total "financial" cost of clearing, planting and surveying is therefore as follows:-

	<u>\$ per planted acre</u>
Clearing and survey	171
Planting	<u>226</u>
	<u>397</u>

All these costs are assumed to be incurred in Year 1. About 30% of this "financial" cost consists of payments to unskilled labour.

TABLE A.5 CLEARING COSTS - (\$ PER GROSS' ACRE) UNLESS OTHERWISE STATED - NO TIMBER REVENUE INCLUDED)

SOURCE DATE	FIDA (ref. 15) 1969	PRIVATE ESTATE, KULAI (1960 - 63)	(1964-67)	FIDA P.23, ref. 1 1967 (?)	FIDA P.13, ref. 11 1968	JENGA DP.144/186/305 1966	DTAN P.6, ref. 7 1966/67	FIDA EXPERIMENT P.297 ref. 14 1969?
FELLING	75			55		84	74	
BURNING	5.5			5	134.4		3.5	162
PRUNING, STACKING, RE-BURNING	70.5			55		83	63	
DESTUMPING OF PLANTED AREA (WHERE NECESSARY) AND CLEARING OF VILLAGE AREA	9.0*			20	10 (1)	10	12	9.7
TOTAL (\$ PER GROSS' ACRE)	160.0	158.3*	95.0*	135	144.4	177*	152.5	171.7*

NOTES:-

* cost of de-stumping planted area only.

Secondary jungle Destumping probably not included

* cost per acre planted.

Cost of de-stumping village area = \$10 per acre.

Included \$40 for ploughing and harrowing

*cost per acre planted.

(1) See p.5 ref. 11-\$12 per acre planted.

Probably includes de-stumping

*This is the cost per acre planted.

*Seems to be the cost per acre planted - giving a cost per "gross" acre of \$143

East Coast 137.5 155.9
West Coast 115.7 134.4*
(*in above table).

TABLE A.C

PLANTING COSTS - \$ PER PLANTED ACRE

SOURCE	FIDA ref. 15	JENGA (pp.144/186/305 ref.9;p.124 ref.8)	DTAM (p.19.ref.7)	FIDA (p.23.ref.1)	KUIAI (pp. 30/31.ref.1)		ASSUMED IN THIS PAPER
					steep slopes	moderately un- dulating land	
PLATFORMING/TERRACING/SILT PITTING	23.5 (1)	40	12	15	80	40	25
LINING	7		6	6			19
HOLING		120	13	?	40	29	
PLANTING	33.8 (2)		33	30	78	35	33
PLANTING MATERIALS	98		120	?	72	90	90
COVER CROPS	59 (3)	40	59	47	188 (1)	162 (1)	59
TOTAL	221	200	243	-	-	-	226

NOTES:-

(1) Silt-pitting at \$60 per acre for 10% of planted area; terraced construction at \$110 per acre for 5% of planted area; platform construction at \$80 per acre for 15% of planted area.

(2) Including holing and supplying.

(3) Including maintenance in first 3 months.

Platforms are required where there is a slope of about 15°. (1) includes fertiliser

(3) Including maintenance in first 3 months.

APPENDIX 7 - CAPITAL COSTS OF ROADS AND PATHS

The cost of the primary road running alongside or through the 20,000 acre scheme is not attributed to the scheme.

The Jengka Report compared the costs of various systems for transporting fresh fruit bunches from the field to the mill. The use of lorries was found to be the cheapest system (see p. 216, ref. 8) and the use of lorries has been assumed in this paper. The road capital costs that need to be considered in association with this method are the costs of:-

1. a temporary access road;
 2. secondary roads from the village to the primary road (The primary road being assumed to be in existence regardless of this scheme);
 3. the roads within the village;
 4. the tertiary roads for transporting the F.F.Bs from the field to the mill;
- and 5. the harvesting paths.

The costs and the standards of the roads required are set out in Table A7 on p. 30. The total road capital cost per net acre planted is about \$190, compared with the total cost of \$263 assumed by the DTAM report (ref. 7).

The capital cost of drains is assumed to be \$6 per net acre planted (see p. 124, ref. 8). This cost figure (taken from Jengka) compares with a figure of \$15 per net acre planted assumed in the DTAM report (p. 8, ref. 7) - but the \$6 figure agrees with ref. 15.

The capital costs of roads, paths and drains are therefore assumed to be as follows:-

<u>Year</u>	<u>\$ per acre "Financial" Cost</u>
1	14
2	182
Total	196 ⁽¹⁾

(1) 50% unskilled labour component assumed.

TABLE A.7

OIL PALM SCHEME - 5,000 'GROSS' ACRES - INTERNAL ROAD SYSTEM

ROAD TYPE	COST PER MILE (\$)	MILES PER SCHEME	COST PER SCHEME \$000	COST PER ACRE PLANTED (1)	YEAR OF COST	STANDARD OF ROAD OR PATH	SOURCES OF INFORMATION
1. TEMPORARY ACCESS ROAD	640	52	33.3	8	1	12' WIDTH (EXCLUDING SHOULDERS)	P.7, REF.7
2. PERMANENT ACCESS ROAD (SECONDARY ROAD) TO VILLAGE	89,000	1.5	135	33	2	16' WIDTH 12" BASE COURSE, BITUMINOUS COVER	P.8, REF.7 P.7, REF.11 P.230, REF.8 P.241, REF.9
3. ROADS WITHIN THE VILLAGE	36,750	5	184	45	2	SOME SECONDARY SOME TERTIARY	P.8, REF.11 SEE ALSO P.186 REF.9
4. TERTIARY ROADS OUTSIDE VILLAGE	22,000	2	44	11	2	14' WIDTH, 6" BASE COURSE, LATERITE SURFACE	P.230, REF.8 P.186, REF.9
5. "TERTIARY" (HARVEST) ROADS	7,650	50	380	91	2	12' WIDTH, 3" BASE COURSE, LATERITE SURFACE	P.186, REF.9 P.8, REF.7 P.230 REF.8
TOTAL				188			

(1) ON THE BASIS OF 4,150 PLANTED ACRES

say, 190

APPENDIX 8 - FERTILIZER COST

This is a very large item in the total cost; and the profitability of oil palm is quite sensitive to anything but small variations in this cost.

A paper entitled "The Economics of Manuring Oil Palms" (p. 105, ref. 2) gave the following information on fertilizer costs in the mature period (year 5 onwards). These costs were based on fertilizer applications necessary for inland soils, applications which are probably higher than those required for coastal marine clays (p. 125, ref. 2) but which have been taken as the "standard application" in this paper;

	Nutrients removed per ton of FFB (at 60 palms per acre)			
	N	P ₂ O ₅ (lb per ton)	K ₂ O	MgO
Bunches	6.5	2.4	10.0	3.1
Net vegetative growth	3.7	0.6	6.0	1.7
Total	10.2	3.0	16.0	4.8

What this represents in terms of commonly used fertilizers⁽¹⁾, is shown in the table below:

	Fertilizer (lb) removed per ton of FFB	Cost per ton of fertilizer (\$)	Cost per ton of FFB (\$)
Nitro - 26	39	275	4.8
C.I. rock phosphate	8	121	0.4
Muriate of potash	27	205	2.5
Kieserite	18	165	1.3
Total	92		9.0

Therefore the cost per acre in the mature period on the basis of a peak yield of about 10 tons F.F.B. would be about \$90-92 per planted acre (including application costs of about \$2 per acre). For coastal soils, the cost (to give the same yield) would probably be up to \$20 per acre lower.

(1) see also p. 107, ref. 8.

The assumed costs of fertilizer in years 2-5 (1) are set out in the table below:-

THE COST OF FERTILIZERS
IN YEARS 2-5

<u>Year</u>	<u>₹ per acre</u>
2	40
3	55
4	60
5	72

There is little or no tax or unskilled labour component in the "financial" cost.

Other maintenance costs included under the heading of working and maintenance in this paper are:-

₹ per planted acre

<u>Year</u>	<u>Maintenance of roads and drains (₹)</u>	<u>Post and control (₹)</u>	<u>Total</u>
2	2	2	4
3	2	3	5
4 and on	3	3	6

(1) including fertilizer cost for cover crops in years 2 and 3. The cost of fertilizer for cover crops in year 1 is included in planting costs.

APPENDIX 9 - WEEDING AND MAINTENANCE COSTS

Ref. 15 gives the following costs of weeding which have been used in this paper:-

Weeding Costs (\$ per acre planted)

<u>Year</u>	
2	78
3	71
4	55
5	46
6	24
7 and on	24

Almost the whole of this cost consists of wages to unskilled labour. For comparison, weeding costs given in other sources are:-

	<u>Man-days per acre</u>	<u>\$ per acre</u>
1st Oil Palm Conference - Ref. 1, page 104	?	28
Jengka Report - Ref. 9, page 143		
Year 2	24	72 (at \$3/ per day)
" 3	24	72
" 4	12	36
Years 5-25	7	21

Other maintenance costs included under the heading of weeding and maintenance in this paper are:-

<u>Year</u>	<u>\$ per planted acre</u>		<u>Total</u>
	<u>Maintenance of roads and drains(1)</u>	<u>Pest and disease control(2)</u>	
2	2	5	7
3	2	5	7
4 and on	8	5	13

(1) see p. 92, ref. 1; ref. 7; and ref. 15

(2) see refs. 11 and 15

Total costs (in "financial" terms) under this heading are therefore:-

Year	Cost	Year	Cost
1	0.00	1	-
2	0.15	2	85
3	0.00	3	78
4	0.00	4	68
5	0.00	5	59
6 and on	0.00	6 and on	37

These are in "financial" terms. Capitalized figures represent an estimate of about 1% of total cost.

The Jagan Report compared the costs of various systems for transporting 10,000 T.R. from the field to the mill. The costs of 10,000 T.R. of the various systems are shown in the table below:-

Cost per ton (TR) to mill

System	Cost per ton (TR)
Tractor with trailer to mill	0.4
Tractor with trailer to mill	0.8
Tractor with trailer to mill	0.8
Tractor with trailer to mill	0.8

But on the basis of "actual" utilization, the cost of tractor was found to be the most economical and the use of tractor was recommended for this and a few other cases (see p. 216, vol. 8). This method has been assumed in this report.

A system of diesel-powered 5 ton capacity tractor is assumed, operating direct from field to mill. Various of this also would require tractor power round 100 (see also) in the district areas with grades not exceeding 10% (see p. 214, vol. 8 and Appendix 7 of this report). On the basis of a best loading rate of capacity of 1,000 T.R. per hour per tractor, the best monthly yield is assumed to be 100,000 T.R. per month. The capital cost of the tractor for transporting the 100,000 T.R. to mill is

APPENDIX 10 - HARVESTING AND COLLECTION COSTS

Direct harvesting, collection and internal transport costs are assumed to be:-

Year	Cutting and collecting ⁽¹⁾ (\$ per ton FFB)	Internal transport (\$ per ton FFB)	Total (\$ per ton FFB)
4	17.3	4	21.3
5	6.0	4	10.0
6	5.4	4	9.4
7 and on	4.5	4	8.5

(1) see p. 114, ref. 1

These are in "financial" terms. Unskilled labour content is estimated at about 80% of total cost.

The Jengka Report compared the costs of various systems for transporting F.F.B.'s from the field to the mill. The costs to F.L.D.A. of the various systems on the basis of no outside utilisation were as set out in the table below:-

Cost [\$/ Per Ton (FFB)] to FLDA

	Vehicle	Tertiary road	Total
Lorry	4.2	2.0	6.2
Tractor/Trailer	3.4	0.8	4.2
Tractor with transfer to lorry	5.4	0.8	6.2

But on the basis of "high" outside utilisation, the use of lorries was found to be the cheapest method and the use of lorries was recommended for this and a few other reasons (see p. 216, ref. 8). This method has been assumed in this paper.

A system of diesel-powered 5 ton payload tipping lorries is assumed, operating direct from field to mill. Lorries of this size would require laterite harvest roads (\$67,650 per mile) in the planted areas with grades not exceeding 10% (see p. 214, ref. 8 and Appendix 7 of this paper). On the basis of (1) a peak loading rate or capacity of 4,000 F.F.B. tons per lorry p.a. (the peak monthly yield is assumed to be $12\frac{1}{2}\% \times 9.9$ tons FFB = 1.25 tons FFB per acre) and a capital cost per vehicle of about \$13,000, the capital cost of the lorries for transporting the FFBS from field to mill is:

(1) see p. 213, ref. 9

$13,000 \times 0.33^{(1)} = \text{about } \1 per ton ffb

4,000

- on the basis of a lorry life of about 8 years.

On the basis of \$3 per ton FFB for other operating costs (see the table below) the internal transport costs total about \$4 per ton FFB.

INTERNAL TRANSPORT COSTS (\$ 000 p.a.)

Wages of drivers and loaders	4.9
Insurance, road tax and licence	4.4
Maintenance and repairs	1.3
Running Costs (\$0.14 per mile for 12,000 miles p.a.)	1.7
<u>TOTAL</u>	<u>12.3</u>

Tons carried p.a. (FFB)	4,000
Cost per FFB ton carried	3.1

Source: Jengka Triangle Report.

Other vehicle requirements are included under management costs (see Appendix 11).

(1) The capital recovery factor for 8 years @ 15% p.a.

APPENDIX 11 - ESTATE AND HEADQUARTER MANAGEMENT COSTSManagement Salaries and General Overheads - Plantation

The following assumptions for the management of a 5,000 gross acre scheme are made:-

- 1 Manager
- 1 Assistant Manager
- 1 Senior Supervisor
- 6 Field Assistants
- 1 Clerk
- 2 Drivers

The salary, medical, EPF, housing and office maintenance and landrover and tractor operating and maintenance costs have been taken from p.302. ref.9 - see the table below:-

Management Salaries and Overheads: Plantation -
 (\$000 per 5,000 acre scheme p.a.)

	<u>Salary</u>	<u>Other expenses</u>	<u>Total</u>
1. <u>Staff</u>			
Manager	15.6	3.6	19.2
Asst. Manager	6.5	1.6	8.1
Senior Supervisor	4.8	1.3	6.1
Field Assistant	2.4	0.6 (x 6)	18.0
1 Clerk	4.2	1.0	5.2
Driver	1.7	0.5 (4.4
Sub Total			<u>61</u>
2. <u>Office maintenance</u> (exc.office for palm oil mill)			3
3. <u>Landrover and tractor, capital and maintenance costs</u> (1)			<u>25</u>
Total			<u>89</u>

or say \$90,000 p.a. or about \$20 per planted acre p.a.

(1) Other vehicle requirements are taken from p.12,ref.111 in which it was stated:-

"Whilst in estates of between 3,000 and 5,000 acres, the standard practice is to provide 3 landrovers, 1 lorry and 3 tractors FLDA schemes of comparable size are provided with 1 landrover and 1 agricultural tractor and a second utility vehicle is only provided after assessment of the needs of individual schemes."

2 landrovers and 1 tractor per 5,000 gross acres would mean a capital cost of about \$10 per planted acre incurred every 8 years

The total cost of transport equipment for internal use (including workshops) is assumed to be about \$5 per planted acre p.a.

In addition to this, there are the costs of foliar analysis (about \$2 per acre from year 3 see ref.15) and the castration, palm sanitation, and assisted pollination costs (see below) to be considered:-

	<u>Castration, etc. costs</u>			<u>(\$ per acre)</u>
<u>Year</u>	<u>3</u>	<u>4</u>	<u>5 and on</u>	
Castration	3.5	4.0	-	
Palm sanitation		6.2	-	
Assisted pollination		9.0	9.0	
Total	4	19	9	

From ref.15 (see also ref.7; p.92, ref.1; p.108, ref.8)

Total estate management costs are therefore:-

<u>Year</u>	<u>Mgt. Costs</u>	<u>\$ per acre</u> <u>Foliar analysis etc</u>	<u>Total</u>
1	10	-	10
2	10	-	10
3	10	6	16
4	20	21	41
5 and on	20	11	31

Management Costs - at headquarters

In addition, the additional headquarters staff needed as a result of the scheme should be included as a cost to the scheme.

In 1967, the staff at FLDA HQ⁽¹⁾ was about 25% of the total staff on schemes. The marginal cost of a scheme in terms of HQ staff is unlikely despite higher HQ salaries, to exceed 25% of the estate management costs. This additional cost is therefore assumed to be about \$5 per planted acre.

(1) see 1967 Annual Report, FLDA.

APPENDIX 12 - VILLAGE INFRASTRUCTURE COSTS, LAND RENT AND LAND PREMIUM

No costs under this heading are included in the "resource" costs. In the "financial" analysis, only those costs are included which would have to be provided by a "private" or "public commercial" estate. The costs of some facilities on the scheme (e.g. public telephones, police posts) are therefore excluded, even from the "financial" analysis.

Land clearing (including destumping) of the village area has already been included in the clearing costs, and the capital costs of roads and drains, have already been discussed in Appendix 7.

The costs included under "village infrastructure" in the "financial" analysis are set out in the Table below:-

Village Infrastructure Capital Cost

<u>Buildings</u>	<u>\$ per planted acre</u>	
Settlers' houses (\$1,400 per house with 10 acres per settler)		140 ⁽¹⁾
Houses for a Manager, Assistant Manager, Senior Supervisor, 6 Field Assistants, 1 Clerk, and 2 drivers ⁽²⁾ for a 5,000 gross acre scheme		17 ⁽³⁾
Other buildings ⁽⁴⁾ per 5,000 acres (gross) - 4,150 (net) - scheme:-	<u>\$</u>	
Offices, shops, market shed	15,000	
Community and religious buildings	4,000	
	<u>19,000</u>	5
TOTAL		<u>162⁽⁵⁾</u>

(1) See p.15 of ref.11 and p.187, ref.9

(2) See Appendix 11.

(3) See p.10/11 of ref.11 - total cost of \$72,000 for 5,000 gross acres (4150 net acres).

(4) See p.187, ref.9.

(5) Cf \$164 per planted acre on p.6, ref.11

The following village costs have been excluded from the "financial" profitability calculations;

	<u>\$ per planted acre</u> ⁽¹⁾
Water supply: (self-financing)	84
School (Primary)	79
Midwife's clinic	4
Total	<u>167</u>

(1) See p.5, ref.11; and p.249, ref.9

Neither are the costs of secondary schools, police posts or public telephones included.

In addition to the cost of \$162 per planted acre incurred in years 2 and 3, a land premium of about \$50 per gross acre (\$57 per planted acre) would be payable in year 1, and a quit rent of \$12 per gross acre (\$14 per planted acre) would be payable from year 6 onwards.

C. B. Edwards
14th July, 1970.

- 1. "The Market for Oil Palm Products" - J.M. - 1969
- 2. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 3. "The Market for Oil Palm Products" - J.M. - 1969
- 4. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 5. "The Market for Oil Palm Products" - J.M. - 1969
- 6. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 7. "The Market for Oil Palm Products" - J.M. - 1969
- 8. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 9. "The Market for Oil Palm Products" - J.M. - 1969
- 10. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 11. "The Market for Oil Palm Products" - J.M. - 1969
- 12. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 13. "The Market for Oil Palm Products" - J.M. - 1969
- 14. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 15. "The Market for Oil Palm Products" - J.M. - 1969
- 16. "Commodity and Price Statistics for Malaysia" - J.M. - 1970
- 17. "The Market for Oil Palm Products" - J.M. - 1969
- 18. "Commodity and Price Statistics for Malaysia" - J.M. - 1970

REFERENCES

1. "Oil Palm Developments in Malaysia" - 1st ISP Conference - Nov. 1967.
2. "Progress in Oil Palm" - 2nd ISP Conference Nov. 1968.
3. "The Quality and Marketing of Oil Palm Products" Nov. 1969 3rd ISP Symposium.
4. "The Market for Oil Palm Products" - JCE - 8/11/69.
5. "Coconuts and Palm Kernels in W. Malaysia" - JCE - 25/1/70
6. The Malayan Economic Review, October 1969.
7. "Interim Report of a Feasibility Study on the Oil Palm Scheme of the S.E.D.C. Trengganu" - DTAM - October '67 - see file F.04
8. Jengka Triangle Report - Resources and Development Planning - TAMS/Hunting Technical Services Ltd - 1967.
9. Jengka Report - Appendices.
10. "Land Settlement in Malaysia under the FLDA" - FLDA 1968 - (see file D.2C).
11. "A Review of the F.L.D.A. - its policies and operations" - FLDA, August 1969.
12. "Some considerations regarding optimum ages for replanting rubber trees in Malaya" - A. Halim Ismail - Malayan Economic Review - October 1969.
13. DTAM - "Report on the financial requirements of the S.E.D.C. oil palm scheme for the Year 1968" - October 1967.
14. "Mechanical Landclearing in Malaysia" - The Malayan Forester, July 1969.
15. "Estimates of Development Costs" - FLDA Planning Section (19.7.69) - see file F.02
16. Draft Annual Report, 1966. F.L.D.A.
17. From "Jengka Stage 2 - Palm Oil Mill Capital and Operational Expenses" - working papers in file F.04
18. "Oil Palm Products Marketing Study (Malaysia) - an Interim Report" SORCA and INDACOM, Brussels - for F.L.D.A. and Asian Devt. Bank, February '70.

MH + FAS

12 12 69

Visits to padi and rubber smallholders
at Kampong Lukut, near Kota Tinggi,
by F Sole, R Harrison, M Holmström & P Choong (interpreter)
on 27 November & 1 December 1969

We made these visits to find out why farmers on Block B and C of this pre-war wet padi scheme had taken up double-cropping and new varieties of rice, while farmers in Block A will not do so (see Harrison's note 'Meeting of consultants with Ang Jim Soon, Assistant District Agricultural Officer', on 4 November).

On 27 November we visited the Assistant District Agricultural Officer, Ang Jim Soon at Kota Tinggi District Office. Here, we were given some details of the scheme. The total extent is 377 acres of which 315 acres is situated at Kg. Lukut, the remainder about 2 miles away. At Lukut there are 3 blocks.

Block A - 215 acres
Block B - 20 acres
Block C - 80 acres

These are irrigated from water stored behind a small dam and carried by a few field channels to the padi fields. The field channel layout was not available at the District Office. When examined on the ground channels appeared well kept but there could be some inefficiencies in layout as much of the area was irrigated indirectly by water which flowed through other padi fields.

The A.A.O. and his assistant went with us to the scheme at Kampong Lukut, a village strung out along a tarred road and a lane, on a plain below wooded hills. To get there from Kota Tinggi, turn right three miles before Lombong and continue for a couple of miles. We walked around some of the padi fields of Block A, where some women and children were cultivating the fields prior to transplanting. This was being done entirely by hand with changkols and hoes and puddling was carried out by foot in the process of changkelling.

A little planting was in progress with possibly half the area having just been transplanted with this anaemic poor looking plants.

Mr Ang said the village was already growing padi when the DID initiated this wet padi scheme before the war. Most farmers work their padi part-time, or their wives do most of the work, while the men work on their own rubber holdings, or as estate tappers, road labourers &c. The whole family works in the padi fields as harvesting and transplanting times. There are huts in the fields for them to live in at these times. Each family has 1-3 acres of padi, and perhaps 4 acres of rubber. Although one 'family' (= several households?) has a total of 40 acres of rubber. Farmers in Block C (the most forward-looking) tend to co-operate in planting. Officers from Kota Tinggi visit the village at least once a week to inspect the crops, visit some farmers and give advice to those who ask for it.

Occasionally the villagers are shown films and photos of farming methods. A few farmers go to the office in KT to ask for advice and insecticides, particularly when some problem crops up and the Dept. of Ag. staff have not been seen for a week or two. FAS spoke to ex penghulu, Abu Nawas, who said he had 2 acres of padi and about 4 acres of rubber. He normally got about 300 gantangs of padi per acre, a total of 600 gantangs padi. Milling percentage was said to be 70% but much of the rice was broken. At this rate 600 gantangs of padi is 2,226 lbs of rice which is almost entirely consumed in the house by the family of 7. Some is sold if there is a surplus at the end of the year but a proportion is always kept back for guests and special occasions.

The rubber land constitutes about 3 acres of very old rubber and 1 acre that was replanted about 2 years previously. The rubber is tapped daily and yields 8-10 katies per day, which is manufactured into sheet and sold to a Kota Tinggi dealer. The current price was 58¢ per kati.

Cash income from rubber is thus currently about 4.60-5.80 and imported value of rice is about \$600/year. (2,226 lbs @ 30¢/lb. retail for broken rice).

This farmer had planted his 2 acres of padi land with the new variety Padi Bahagia and this was growing well. Some fertilise had been applied after transplanting. The land had been prepared by Kubota at \$15 per acre and some spraying had been done. He was confidently expecting 400 gantangs/acre from the new crop and was intending to put in a second crop in common with the other Block B and C farmers. However, he did foresee problems with water supply and conflicting demands with Block A.

The farmers of Block B and C had previously erected a concrete dam downstream of the main dam to gain more water control. This was constructed by "gotong royong" and even designed by the son of one farmer who worked for the Singapore P.U.B. The dam was destroyed by undermining due to faulty design after only one year and desultory efforts by the PWD/DID to help have had no effect. A total of \$1500 for materials was collected by the farmers and the work was their own.

We then split into two groups, to visit villagers we met through the officials or through other villagers, or who seemed willing to talk to us. We asked about their experience with padi and their attitude to the new varieties and methods.

Tauhid bin Ghani, the schoolmaster, said the village was founded 50 years ago by a man from Negri Sembilan. Since then, half the villagers have been immigrants from Negri Sembilan or their descendants, the other half from Sumatra or Java, like himself. The two groups are still distinct (in dialect &c.), and live in different parts of the village; however Islam is a bond between them, they are all 'Malays', and they now intermarry freely. All or most of the farmers in Blocks B and C (the innovating blocks) are of Indonesian origin, but only 10% of the farmers on Block A. There is (or was until now) no difference in the two groups' farming practices, except that the Indonesians work much harder. This is because they came from a very poor country with a different (and harsher?) system of administration: they put everything into their farms, whereas the people of Negri Sembilan origins were never so hard pressed and regard farming as a part-time occupation. If people do not ask for or follow agricultural advice, it is because conservative old people influence them.

Abdul Rahman lives in the same cluster of houses, inhabited by people of Indonesian origin. He has 2½ acres of padi in block C, but did not have any rubber left. This had been sold sometime in the past and only the processing mangles remained, used free by friends.

A yield of between 200-300 gantangs padi/acre had been obtained in the past. All was used for home consumption. This farmer had also planted Padi Bahagia and Padi Ria (new varieties) and was expecting higher yields in future. Padi surplus would be sold and the money used for childrens education. Past yields indicate revenue imputed at between \$560 and \$840 from padi. Income from casual labouring was not known to any certainty but with a 4 day week at \$4 per day this might have been in the region of \$830 per year. In addition, a few vegetables were being grown in rather haphazard manner around the homestead and a few quite good chickens were observed on free range.

The whole family harvest the padi. To support his family (8 children, 3 in school) he does odd jobs for others: tapping, cutting coconuts, planting fruit-trees &c. This work is irregular, and it is becoming hard to get anything except heavy unskilled labour at \$4 a day (apparently there is plenty of this and he could find work on most days.) The eldest son works in a tin mine, for \$4 a day, and usually lives away from home; he contributes \$20-30 a month. The other son will have to look for work on estates; there is no point in trying to get land here, because there is none left.

His family came from Sumatra when he was 16 (in 1933), he does not know why; and his mother applied for government land. He follows the farming methods he learned from his parents, and has learned no new methods. By 'new methods' he appeared to mean the use of machinery: only those farmers who can afford it use the government's two-wheeled tractor (\$15 an acre). He needs advice and gets it from one of the Agricultural Officers, who visits the village weekly or fortnightly and sometimes comes to his house. On one occasion he and 3 friends went to Kota Tinggi to ask advice about insect pests.

Block C, like block B, decided unanimously to adopt double-cropping and the new seeds at a meeting called in the Balai Raya by the DO. They will not know whether this was the right decision until the harvest. Only Block A refused.

MH saw him on our first visit, in the company of Abu Nawas, the ex-penghulu. The two men asked for advice on rats (which learn to avoid the poison supplied by the government) and on a disease which makes the top of the rice plant drop off. The Agricultural Officers had done their best to success, but the problem was not solved. On the second visit, MH returned with FAS, who advised a different poison (Warfarin), explained that the rice disease was caused by the stink bug, and showed how to deal with it by spraying.

It is possible that the schoolmaster and Inche Mahmud introduced us to Abdul Rahman because he is, if not a model farmer, at least a forward-looking one. But it is our impression that he is not too untypical.

Abdul Rahman II (as we shall have to call him, since we do not know his patronymic) was sitting in a shop, in the village centre, where we asked our way. He has 1½ acres in block A, and no other land. He does not know where his family came from (probably Negri Sembilan), but they have had land here for 'almost 100 years'. He knows of no new methods which might be useful, though there has been some discussion of these in the Balai Raya. He spends much of his time watching over a rice-husking machine in a shed, which he shares with his friend Hashim.

Mogah bin Agon has quite a large house in the village centre. He farms 3 acres of padi, in blocks B and C, 6½ acres of rubber. The family came from Sumatra in 1914 (i.e. around the time the village was founded), because it was so hard to make a living there. When we asked about new farming methods, he too mentioned the 'machine' or tractor, which he cannot afford. He has started using the new seeds, and will know whether they are successful at harvest. He says he planted them because his friends had done so, with good results; but this seems to be a justification of a collective decision rather than his own.

Each block leader called the farmers in his block to a meeting, where officials explained the advantages of the new seeds and of double cropping. There were heated arguments; each block voted by show of hands, unanimously following its leader when he had declared for (in blocks B and C) or against (block A). Abu Nawas (see above) is the leader of block B. The leader is 'elected' by a unanimous vote, and should be an experienced man who knows farmers' problems. When Inche Mogah has farming problems, he asks his group leader or his relatives who work in the fields. While we were on the subject, he asked me (MH) what made the young plants die: I advised him to ask the Agricultural Officer.

FAS, IH and PC returned on 1 December. After visiting Abdul Rahman (see above), we saw Hashim Sani, with 2 acres of padi in block A. His mother, who lives nearby, has rubber. He also does odd jobs like cutting firewood. He has trouble with rats and small birds on his padi land: he brought a bird in a cage and discussed methods of trapping them with FAS. He has 6 children. Some people take their farming problems to the District Office in Kota Tinggi, because it usually happens that nothing is wrong at times when Agricultural Officers visit the village (it seems clear that the Officers do not visit every house, but probably only the houses of those who know and welcome them). When we asked about changes in padi-growing methods, he said he would watch what his neighbours did and might then decide to follow them (this may have been what he thought we wanted to hear). The question of double cropping has still to be decided in a meeting (others say it has been, block A deciding against). One farmer could not do it by himself. The Block Leader is his uncle.

There would in fact be serious problems with individuals attempting to double crop on their own. The bird problem in particular would tend to be very severe on small isolated patches and there would also be problems of arranging water supply through other peoples land with the inefficient distribution system. New varieties were also not being used, this farmer planting a variety "Duyong". Yields were said to vary between 200 and 300 gantangs per acre. Planting was normally done during November and December and the padi was ready to harvest in March.

This in fact sounds as if rain is important in the growing cycle. Perhaps a reflection on irrigation water availability?

Mohamed Nur bin Ali has 3 acres of padi in block A, and 3-4 acres of rubber. He can manage the land with the help of his 7 children, but he does not grow enough rice for them and has to buy from others. (Several schoolbooks, including an English reader and introductions to science, were in a bookcase and on the table). It is true that the new seeds are good, and quick to harvest; but he gets better yields with the old ones, he could not grow the new ones using only a changkol. The new varieties will not grow well with this type of cultivation. The government's small tractor is convenient only if a group of 6 or more hire it. The price is reasonable, though some of his friends find it too high. He consults Mahmud, the Agricultural Assistant about his farming problems, it is not clear how often. His rubber is old (like most people's), and he taps daily. He will not use the new processing centre to be opened $1\frac{1}{2}$ -2 miles away next week, because it is too far.

His brother is the block leader, and several of his relatives have land in block A. There are other groups of related farmers in the block. Most marriages are arranged (meaning first marriages, probably), but the partners have a veto. Parents try to arrange a marriage with someone else in the village, but it does not matter in which block (note: farmers in other blocks are mostly ex-Indonesian), nor do they always try to marry into a family with land. Love does not consider these things (nor do parents?). Sons inherit the land: unless brothers live together and farm jointly (which does not seem to be common), the sons over 18 will share it. If the plots are too small, the youngest sons takes all (compensating the others?).

In answer to our question, he said most people would prefer to live here if they have just enough to manage, rather than going to a town, an FLIDA scheme &c.

39

People want more land, but they want it here: they applied for uncleared land around the village in 1952; but the 'government' refuses to give it to them, although they have asked several times. He asked whether we could help to get the application through. (Inche Abdullah, the Assistant Commissioner of Lands & Mines, says they could have had land on a nearby GSA scheme which, however, had to be abandoned because the land was too steep: see my note of 18 12 69 on a meeting with him).

Daily production of rubber was 12 katices and this was currently sold at 58¢ per kati. Daily income is thus \$6.96 (\$2,540/year). Rice milling cost 20¢ for 10 katices padi and 70% rice which was much broken was obtained from padi. Yields were said to be 300 gantangs per acre (against the average from crop cutting tests of 269 gantangs/acre on the scheme). If this is so, then his total yield is about 900 gantangs - 3358 lbs rice costing \$96 to mill. This is 9.2 lbs rice per day to feed a family of 9 persons, some of them children.

Other people fell into conversation with us as we passed by, (an old woman drawing water, who has 1 acre of padi; one Hussein, who was very proud of his orchids), but we could not visit them because they were waiting for the radio signal to break their fast.

We did not find out the answer to the question we started with (why are two blocks apparently more progressive than the others?), unless the (ex-Indonesian) schoolmaster's explanation is the right one: immigrants from Indonesia work harder because they came from a poor country and had to make good here. Or it may be a matter of personal accident: everyone follows his block leader, and each block leader decided for reasons of his own. We do not think this explanation will do.

There appear to be several alternative sources of income, besides padi and rubber which are largely complementary because women can do most of the padi cultivation. There are many buffaloes, which are not but could be milked. It is our impression (from what we heard, from the appearance of children and houses, and from the number of appliances like motor-cycles and battery TV) that people are materially no worse off than FLDA settlers who are tapping.

This could change if FLDA achieves high incomes while Kampong Lukut remains static: however, a certain built-in social and mental flexibility may compensate for the lack of FLDA-style management. The rubber will soon need replanting, and padi income will help to bridge the gap. Is it possible to combine some advantages of Kampong Lukut (superb physical environment and layout, good self-help housing, independence, diversification of crops and activities) with those of FLDA (constantly available agricultural advice, strong incentives to adopt new methods of cultivation, collective marketing, adaptation to the task of settling inexperienced farmers on new land quickly)?

Mark Holmström
 Frank Sole
 12 12 69

MH/ZA

14.4.4.

SES 3/12/03 42/1

PROFITABILITY OF RUBBER

Following my earlier paper and the note on yields by JVH of 20/7/70 I am in the process of doing some more work on rubber profitability using higher yield assumptions and testing the effect of Ethrel.

This is a progress report to be supplemented by a further note on my return from ~~Davao~~ *Ki*.

I have so far tested 3 yield assumptions.

1. (Yield Assumption 1) **A** series rising to 1800 lbs per acre in the 8th year of tapping and to 2000 lbs per acre in the 14th year with conventional stimulation.
2. (Yield Assumption 2) The basic yield series in assumption 1 but with yield raised by 45% on renewed bark (11th year of tapping onwards) as a result of Ethrel stimulation.
3. (Yield Assumption 5) Ethrel is applied in 8th year of tapping as soon as yield peaks and therefore presumably the tree stops growing. On the other hand yield falls off markedly after the 16th year of tapping to a level 500 lbs per acre below Assumption 2 in 20th year of tapping.

- Assuming
1. JCE's price forecast
 2. Constant cost levels at present day rates.
 3. Social price of labour about \$40-\$50 per month.

I have the following results:-

Internal Rates of Return

	Private Financial	Government Financial	Social Prices
Yield Assumption			
1	11%	14%	> 20%
2	13%	15%	> 20%
5	13%	15%	> 20%
Basic model in previous paper	9%	12%	20%

Present Values at 15% per acre

MEETING IN K.L. ON MONDAY

Meeting with Basic Yield Assumption	Private Financial	Government Financial	Social Prices	Monday 4 p.m.
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1	-499	-198	+ 563	
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I had 2	-398	Mr. Vining - 94	+1248	visit
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to Malaysia 5	Mr. Gail - 360	breeder - 52	+1312	cattle
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and Basic model in previous paper	-695	be worth while having picture with	+ 423	project.
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Mr. Vining, being from Wis, has a natural affinity for beef rather than dairy cattle. He appears to feel that beef cattle

The results so far achieved suggest

(1) Rates of return on rubber are still well below in oil palm. He feels that this potential will not be realized if a good basic stock of imported animals is established in

the first (2) The effect of ethrel stimulation on rates of return is not startling because it cannot be used until

some 15 to 20 years after the beginning of the project. and Japan besides of course meeting local needs. There is

apparent (3) Bringing forward the commencement of Ethrel stimulation by a few years can compensate a later rapid

decline in yield. enterprises to start near KL. There could

both be of interest to us in beef development in this area.

More on my return.

He said that Costa Rica exports normally have yields of about 70 to 80 lbs. feeding is usually at 6 to 7 months when the animal weighs about 500 lbs. From that point, he feels that there should be an average rate gain, giving a 1,000 to 1,200 lb animal in a period of 15-18 months. Given the average which can be produced

Christopher Smith

CRS/NHB

per acre in this area and the available feeds which are available he feels that beef from these animals could be produced

extremely cheaply in Malaysia. He has considered the debts about the wisdom of attempting to establish a dairy industry

in this country on the basis of dairy rather than beef enterprises. He feels that at the moment there is no satisfactory

tropical dairy animal and that some years of cross-breeding and experimentation are needed before a satisfactory animal

can be produced. Before that time it is best to get in attempting to produce dairy products from available

from the cheapest source in the world at the moment, New Zealand.

MEETING IN K.L. ON MONDAY 19TH JANUARY 1970

Meeting with Dale Vining, US Agricultural Attache - Monday
4 p.m.

I had corresponded with Mr. Vining briefly on the visit to Malaysia of Mr. Callan, a breeder of Santa Gertrudis cattle and I felt it might be worth while having a brief meeting with Mr. Vining to put him in the picture with regard to our project. Mr. Vining, being from Utah, has a natural affinity for beef rather than dairy cattle. He appears to feel that beef cattle particularly Santa Gertrudis type have a considerable potential in Malaysia. He feels that this potential will only be realised if a good basic stock of imported animals is established in the first place. Attempting to upgrade local cattle would be too slow and laborious a process. He feels that the market potential is considerable particularly in Singapore, Hong Kong and Japan besides of course meeting local needs. There is apparently a large new abattoir in Singapore which could perhaps take live animals from Johor, and he also mentioned a new Danish enterprise which is planning to start near KL. These could both be of interest to us in beef development in this area.

He said that Santa Gertrudis animals normally have calves of about 70 to 80 lbs. Weaning is normally at 6 to 7 months when the animal weighs almost 600 lbs. From that point, he feels that there should be no difficulty in obtaining a 2 lb/day rate gain, giving a 1,000 to 1,200 lb animal in a period of 15-18 months. Given the forage dry matter which can be produced per acre in this area and the by-product feeds which are available he feels that beef from such animals could be produced extremely cheaply in Malaysia. He has considerable doubts about the wisdom of attempting to establish a cattle industry in this country on the basis of dairy rather than beef enterprises. He feels that at the moment there is no satisfactory tropical dairy animal and that some years of cross-breeding and experimentation are necessary before a satisfactory animal can be produced. Before that time he sees little point in attempting to produce dairy products when milk is available from the cheapest source in the world already i.e. New Zealand.

After a general discussion on Malaysian agriculture, I asked his views on the potential for sweet corn. He mentioned an individual named David Barnes who has apparently been doing a bit of hobby work on this crop. Mr. Vining did not have his address at hand but will supply it to us later. Apparently Barnes has developed a variety of sweet corn suitable for Malaysian conditions and according to Vining, the product is very good. Barnes' corn on fairly small plots has apparently been able to produce 6 crops per year. He is now apparently thinking of producing 4 or 5 acres of the crop and hopes to obtain at least 5 crops per year. He may be an interesting fellow to talk to about this.

I also asked Vining whether the Department of Defence Nutrition Survey 1954 was available in the office. Apparently they have just one copy at present but Vining will send for an additional copy for us which should arrive in a couple of months.

JCE/ZA/BN/26/1/70.

DATE: 23rd January, 1970

VISIT TO: Sheng Hoe Enterprises Ltd.,
Van Houten Chocolate Factory Singapore.

PRESENT: R.A.J.H., F.A.S., Mr. Clifford (Sales Manager)
Mr. Shang (Director)

After initial introduction and explanations about the project and our interest in the cocoa industry, Mr. Clifford told us about the range of products produced by the Van Houten organisation in S.E. Asia and some general topics about cocoa.

Mr. Clifford predicted the market of cocoa powder would continue to increase at a rate 10 - 17 percent per annum. Cocoa powder is the basic raw material for cocoa based industries. Many small mills buy beans manufacture cocoa powder which is sold to chocolate and confectionery producers. The surplus cocoa butter which can bring very high prices goes to the cosmetic and pharmaceutical industries. Van Houten both manufacture finished chocolate products but also process beans and supply other manufacturers with raw powder and butter. Forty percent of Singapore's production is for export. Mr. Clifford told us that sales of beverage cocoa were falling steadily and in five years would be finished. This was because health drinks had been making more rapid progress, Malaysia for the past twenty years has taken 1000 - 1500 20lb cartons of cocoa beverage whereas Milo and Ovaltine produces over 9000 cartons.

Cocoa beans are obtained from Ghana, Indonesia and Malaysia. A mixture of several kinds of beans is preferred as the final aroma is very much better. The bean sample from Ghana is very superior to Malaysian beans. The Ghana beans have a more uniform large size, less mucilage and less waste in the winnowing machine. The Malaysian beans require larger alkalysing to remove the bitter taste. One big advantage of the Malaysian bean is very

high (57 percent) cocoa butter fat content, the Ghana beans usually not more than 50 percent. The reason for this difference is not known. Cocoa butter has fetched up to \$6.30/kilo.

Mr. Clifford did not consider Singapore to be the major future market for their products (i.e. too small). Because of tariff difficulties they were opening new factories in Kuala Lumpur and Indonesia.

We then talked to Mr. Shang a director of the Company. He told us that they were negotiating a licence to manufacture Huntley & Palmers and Peek Freans biscuits, using Van Houten chocolate on them. Mr. Shang was very interested in our project and its business possibilities with sugar, cocoa and milk powder products, all raw materials for the confectionary industry. The Singapore factory at present grinds 1,800 tons of beans a year but could expand to 2300 tons per year. The Kuala Lumpur factory will begin at 100 tons per year and could expand to 300 tons. The Indonesian factory will grind about 200 tons beans. At present the total Indonesian production is 1500 tons of beans. The price paid for beans from Ghana is £360 per ton including brokerage freight etc., Malaysian beans cost 10 - 15 percent less because of the higher wastage due to small size (22 - 25 percent as against 14 - 17 per cent for others) lower freight charges and no brokerage fees.

The only substitute for cocoa butter oil is Illipe oil from the Illipe nut. This comes from jungle trees in Borneo which are erratic in their prouction. However, there is a stabilising effect on the cocoa butter price. If other oils such as coconut oil are substituted an unpleasant flavour is imported to the chocolate and its keeping qualities greatly impaired.

Other raw materials are sugar which can often constitute fourty-five percent of the final product. Last year the factory used three hundred

tons of sugar and five hundred tons of New Zealand milk powder. With increasing demand for milk chocolate the demand for milk powder will also increase.

We were then joined by Mr. Wong who showed us round the factory. A general impression of the factory was a marked contrast with the offices. The offices are luxuriously appointed and appear efficient. The factory seemed very poorly laid out with much hand carrying required often with difficult access. There was some attempt at employment creation and automatic machine although available were not generally used. Because some processes require airconditioning there are many small rooms, which adds to the chaotic atmosphere. Strict cleanliness was maintained, the female workers wearing masks and gloves. If bacterial counts become too high, production was stopped and cleaning undertaken.

RAJH/RI/FM
25/1/1970.

GROUP SETTLEMENT SCHEMES: VISIT TO KLUANG DISTRICT -
25 OCTOBER 1969

1. Kluang Assistant District Officer Inche Ahmad bin Berek is responsible for both subsidised and unsubsidised Group Settlement Schemes in the District. His duty is additional to his other duties of registration, small estate distribution etc.
2. In Kluang district there are 91 unsubsidised schemes and two partly subsidised schemes. The only fully subsidised schemes are the FLDA Schemes. The total acreage in Kluang district under settlement schemes is 54,620; 8 new schemes, totalling a maximum of 6,000 acres, are in the pipeline.
3. On a partly subsidised schemes clearing is done by a contractor, paid by the State Government, and seedlings, fertilizers, weedicides are supplied to the cultivators. The cultivators pay \$12 per acre per annum on a subsidised scheme and \$10 per acre on an unsubsidised scheme C.A.C. (consolidated annual charge). The charge starts 9 years after the date of alienation and continues for 15 years. After that the land 'belongs' to the individual. But it is not yet known (according to Ahmad) whether it will be leasehold for 99, 60, or 21 years. According to the Scheme's Supervisor, the land will be freehold.
4. On subsidised schemes, the State provides supervision. The two subsidised schemes in the district have one supervisor, looking after both schemes, and one field assistant and one store keeper on each scheme.
5. On unsubsidised schemes, the State merely provides the land.
6. The stages of creation of a Group Settlement Scheme were explained by Inche Ahmad as follows (with the qualification that he had only been in charge of these schemes for four months and was not entirely sure of their previous history):
 1. Suppose there is an area of state land of 500 to a 1,000 acres.
 2. The applicant applies for a place on a Group Settlement Scheme. In the past, the application has been sent by a 'leader' supported by a group of up to 300 people who also want lots on the scheme.
 3. On receipt of their application, an S.O. (survey order) is sent to the Survey Department, which confirms that the area is state land, not forest reserves, already alienated etc.
 4. Reports on the area are sent by the district to six State Departments in Johor Baharu - Survey, D.I.D., Agriculture, Forests and ? The various departments report on the suitability of the land for a settlement scheme. For example the Agricultural Department reports that the land is suitable for pineapple but not for rubber. (Kluang district has three schemes which are suitable for pineapple, totalling 5,052 acres - started in 1964-1965).

5. Once the scheme is approved a committee, consisting of the Agricultural officers and Councillors (members of the legislative assembly in Kluang district), interview applicants and selects some of them. The rest are put on the waiting list.
6. The list is forwarded to the CLM in Johor Baharu, who brings it to the notice of the executive committee.
7. The selected applicants are informed, pay the C.A.C. and start work.
8. The process takes at least 3 to 4 years, and in some cases has taken 8 to 10. The delay is due to the delay in consulting departments and delays in survey. Also the timber clearance, - the Forest Department, after approval of the scheme, will arrange the concessions for clearing available timber.
9. A monthly report is sent to the officer responsible for GSA Schemes in Johor Baharu. (Inche Abdul Mohamad); report on progress, diseases etc. Following periodic inspections, the recommendation ~~may/made~~ that certain land holders be evicted. / be

7. Once an unsubsidised scheme is started, the settlers appear to receive very little advice and help. They are advised to 'plant the best seedlings', frequently from the neighbouring estates. The Assistant District Officer makes periodic inspections, particularly in response to complaints of neighbours; about one of the lot holders who is failing to cultivate his land, keep down weeds etc.

8. (In addition to reserving the area for unsubsidised schemes, the State builds roads, but none are built yet.) The initiative for the establishment of a Group Settlement Scheme, at present, is obscure. In the past it has come from the 'leader', who with a group of villagers from a nearby kampong makes the application. The 'leader' system is not now encouraged.

9. Settlers Selection: Preference is given to villagers within 3 miles of the scheme. The communal composition is determined by the composition in the local village.

10. Applicants are awarded points, up to certain maxima, stated on the application forms. From discussions it appeared that applicants with more than 10 acres, or living some distance away from the scheme would be rejected. It seemed necessary to get 30 points out of a maximum of 45 to stand a chance, with 10 children gaining the greatest points.

11. Inche Ahmad said at one point that there is no land hunger. But there was also a long waiting list of applicants for existing schemes - the number seemed to be 2,000 outstanding.

12. The population of Kluang district, he estimated, is about 120,000, including 50,000 in towns.

13. Most applicants for lots in Group Settlement Scheme would have some other jobs - estate labourers, saw-mill workers etc. Some (many ?) would have land elsewhere.

14. If the Scheme 'fails', the NLCRA might, on the initiative of the D.O. be called in to 'rehabilitate' the land. This it does using outside labour, and the settlers, when they return, are charged with the cost of 'rehabilitation'.

SUBSIDISED GROUPS SETTLEMENT SCHEME: 29 BATU PINGGIR KAHANG

1. The scheme is 527 acres, divided into 96 lots of 4 and 6 acres each. The scheme is divided into 4 blocks (total planted acreage amounts to 476). Half the scheme is under 6 year old rubber. The remainder in the east was partly destroyed by elephants and part is subject to flooding from a stream).

2. The organization

P.H.T. Kluang

Penyelia (Supervisor)

Pembantu Luar (Field Assistant)

Store Keeper

4 blocks each with Ketua Blok

and

Ketua Gotong-Royong

3. So far \$200,000 has been spent on the scheme, from 'State funds'. \$60,000 has been spent on planting material. The remainder (\$318 per acre) has to be paid back by the settlers. The Scheme was cleared in 1963 and budding took place in 1965. Budding was by contract on the recommendation of the RRI. The cloves used were 603 and 605.

4. This being a subsidised scheme, the state provides for burning, clearing etc. for planting material and for fertilizers throughout (except for planting material, on loan to the settlers).

5. The scheme's supervisor told us that there were monthly block meetings with an RRI officer in attendance. The progress of each land in each block was recorded on charts as satisfactory or unsatisfactory. These charts appeared to be an indicator of the presence of lalang, - block A was better than the other 3 blocks. Various reasons were suggested, including poverty - little employment near the kampong. One reason suggested was that block A is nearer to the village than the other three blocks.

6. The supervisor said that 30 or 40 lot holders out of the 96 have land elsewhere. About 20 women-holders.

7. Processing: A MARA grant through the RRI was being made to establish three processing centres in the scheme (for sheet production and smoking).

8. The village (at mile stone 28) has a credit cooperative society. The supervisor was encouraging settlers to join it, in order to make it an MPCS, which requires over a 100 members.

- 9. For health, a mobile dispensary visits Kahang village. Once a fortnight the supervisor thought 'there was little incidence of ill health'. 4 or 5 cases of Malaria in 1968.
- 10. The majority of the settlers have houses outside the scheme, but there are now 30 living in the scheme itself.
- 11. There is a scheme fund of 20¢ per lot per month which supplements the State Fund (to e.g. provide Death Benefits).
- 12. The Supervisor (Mohd. Rofli, alias Zulkifli bin Sulaiman) is paid by the State Government. Salary = \$400 per month plus a mileage allowance of \$16 per 100 miles. The Field Assistants are paid \$160 per month and, the store keeper \$170 per month. The Supervisor was with the RRI for 5 years (as an Assistant Rubber Instructor), and has been with the scheme since its inception (6 years).

1 NOVEMBER 1969

ASM/CBE

ZA

GROUP SETTLEMENT SCHEME: KAHANG: ADDENDUM (JCE)

1. A monthly meeting is held for each block in the scheme. At these meetings the condition of the block is discussed. The Supervisor has reports on each plot prepared by the Field Assistant indicating whether weeding etc. is being carried out. Tenants of unsatisfactory plots are upbraided by the Supervisor and asked to account for their "slackness". Reasons vary from "lame" eg. "every time I was going to go to the plot it rained" to "reasobable" eg. sickness.

2. Fairly strict rules appear to have been laid down as to what should be done with the holding. Eg. settlers can obtain fertiliser from the store but this must be applied to rubber and not to tapioca or any other intercrop. Ahmad indicated that the settlers would not be allowed to intercrop with tapioca after the 5th year since "such a practice is undesirable " They were also not allowed to buy fertilizer for tapioca from the store even though it might be profitable to do so since tapioca chips are being sold for 8 cents/kati.

3. Administration also takes a dim view of settlers having outside employment which might interfere with the cultivation of plots - "If one got away with it they would all be trying it."

4. Part of the scheme had been subject to severe losses by flooding and had to be replanted. The drainage problem has not been solved and the D.I.D. (Mersing) has been approached to deepen and widen the stream running through that part of the scheme. Those settlers unlucky enough to have drawn lots in the area have not received any compensation except in that their annual charge has been deferred for the time being.

JCE/ZA

Mr. Ysselmuider

NOTES ON VISIT TO E.C. GUYATT, ULU TIRAM ESTATE - A.S.M.

1. His group of estates has about 13,000 acres under oil palm and 1,400 acres under rubber. Rubber land was sold in the construction of palm oil factories. They are now again in the money-making stage and wished to "buy in" again, preferably on adjacent jungle land. He stressed the advantages of expanding, by development of new land, around an established complex, including the administrative advantages. (His first palm oil factory of 15 tons per hour, and a new one of 20 tons rising to 40 tons is under construction, for first stage operation at the end of this year. Both factories will be under the same factory manager, who now runs the first factory alone.)
2. Great stress on facilities provided for personnel, the organised activities after school, club etc. - "team work" "all same people."
3. Visit to one estate with 4,800 acres oil palm and 1,400 acres rubber. Total labour force about 600; 480 in oil palm and 150 (?) on rubber. (Labour ratios were given as 1:10 on oil palm and 1:5 or 6 acres on rubber.)
4. On this estate of about 6,000 acres, the estate manager is an Australian. There are three assistant managers, each with a division of 2,000 acres. 13 (?) conductors and, below them, mandores (foremen). The greatest difficulty of manpower, according to Chapple was getting mandores (foremen). Labourers are paid \$3.30 per day, with foremen getting between \$5 and \$6 per day. The foremen have little possibility of promotion to "subordinate staff" levels on an estate with English speaking executives - unless they speak English themselves.
5. In addition to the labourer's wage, he has a brick built house of 270 square feet, water, light, medical services, malaria control, education. The law requires 1/16 acre per family for vegetables etc., except where suitable areas are already under rubber.
6. An oil palm harvester will earn up to \$9 per day. It is possible for a man to earn \$180 or more per month on oil palm, while his wife earns \$130 to \$150 on rubber - this is an argument for a mixture of oil palm and rubber.
7. Women working in the rubber factory on piece work take home up to \$180-\$200 a month.
8. In the rubber factory, under the manager of the factory section (with the company 10 years, aged about 50), three grades of kerani (clerk), earning between \$450 and \$800 per month.
9. Oil palm factory manager expatriate, earning probably more than \$4,000 per month - or 2½ times F.L.D.A. rates. Assistant manager - Chinese - paid twice F.L.D.A. salaries.
10. Profit on oil palm at present roughly \$600 per acre. A good yield 11 or 12 tons per acre, with 2½ tons of oil. Good yield for rubber 2,000 lbs. per acre.
11. Stress on de-centralisation, with decision maker located on an area of about 20,000-25,000 acres, with control not only over productive activities, but also teach and medical officer etc.

...../2..

NOTES ON VISIT TO ULU TIRAM ESTATE 17TH OCTOBER 1969 - CBE

12. The main meeting was with Eric Guyatt - Chairman and Managing Director of Eastern Plantation Agency Ltd.; on the Board of Directors of Kulim Rubber Plantations Ltd.; and Managing Director of Ulu Tiram Rubber Manufacturing Ltd. (?)

Also met:

- Brian Chapple (Manager of Ulu Tiram Estate (rubber) and Ulu Tiram Division (oil palm)).
- Norman Green (Manager of the Oil Palm factory - Eastern Oil Palms Ltd.).
- Frank Bennet (Chief Accountant for the Agency House - Eastern Plantation Agency).

Meetings attended by ASM, JCE, LNH and CBE.

13. The Main Purpose of the Visit - familiarisation with rubber and oil palm estates and processing facilities.

14. Organisation - Agency House is Eastern Plantation Agency Ltd., - the agency operates a number of estates and processing facilities for a management fee - Guyatt wears two hats - represents Agency House and Kulim Rubber Plantations Ltd.

Kulim Rubber Plantations Ltd., an umbrella organisation covering:

Kulim Rubber Plantations Ltd. - Ulu Tiram Estate - manager, Brian Chapple - 1400 acres of rubber - 430 people on the estate (about 150 employees).

Ulu Tiram Estate - Eastern Oil Palms Ltd. - manager Brian Chapple - about 4700 acres of oil palm - 1130 people on the estate (500 employees?) - 3 assistant managers, each controlling about 1500 acres of land.

Rubber Estates of Malaya Ltd. - manager, R. Allcorn - 2300 acres of rubber - 1600 acres of oil palm - estate population of 951.

Sungei Tukong Estate - Kulim Rubber Plantations Ltd. - manager (acting), Hodgson.

Tong Hing Estate - Kulim Rubber Plantations Ltd. - manager (acting) Hodgson - 4100 acres of rubber.

The latter two are managed by Eastern Rubber Plantation Agency - acreages are according to Johore Planters' Association, Annual Report for the year ending, December 1968 - according to Guyatt, Anglo Asian also belongs to the Kulim group. Anglo-Asian could be the latter two, (unlikely) but Guyatt said that they were 13000 acres of oil palm under (or processed by?) his group (see ASM 1).

15. Land -- (see ASM 1) cash flow weak in the early 60's partly because of the introduction of Corporation Tax in the U.K. cutting down the group's cash flow (implies small proportion of profits distributed as dividends by the Kulim group) -- therefore land sold off to prevent local take-over and fragmentation (at one time 50,000 acres under his group -- some land in northern states) -- now with higher profits, Guyatt is looking for land again. Heavy investment costs for oil palm -- about 12,000 acres planted since 1962 at something like \$1,500 per acre -- that is about \$18,000,000. Investment costs of planting about \$1,000 per acre: capital cost of factory about 400 per acre (contradicted later by cost details?).

16. Oil Palm Costs, Yields, Staffing -- (see ASM 4,5, 6, 9,10) -- heavy peaking in oil palm harvesting -- real reasons not known according to Chapple -- means less than full capacity working for oil palm factory.

Training: on-the-job for foremen (mandores) -- difficult to get -- cadet training schemes lasting for about one year organised by the group for assistant managers (usually from Serdang).

Ethnic Composition -- one consideration is spreading holidays -- heavy paternalist emphasis by Guyatt on "team spirit" etc.

Research -- little or none done by Kulim on oil palm (too small) -- would like RRII to take over research responsibility rather than HARDI. Most research at present done by H & C and Guthries -- Oil Palm Growers Association is actively considering research.

Housing, etc. -- (see ASM 5) -- housing has to be provided by law -- individuals pay a cess for education (?). Estate makes payment to State on per capita basis (?)

Pay (see ASM 6) -- harvesters on piece work: per bunch -- rate varies according to the maturity of the fields -- labourers on daily rate. Conductors (?) paid about \$250 to \$350 per month.

Oil Palm Processing -- shown around the processing facilities by Norman Green -- all by-products used -- fibre for potash fertiliser, shells for boiler fuel. -- FLDA thinking of putting in turbines -- do not utilise by-product shells and balancing problems. -- Processing charge levied by oil palm factory -- Green (manager) under Group Manager not under estate manager -- formerly dissatisfaction with CDC where he was under estate manager -- Ulu Tiram arrangement the usual.

17. Rubber Costs, Yields -- yield on Ulu Tiram about 1200 pounds per acre compared with national average of about 1000 and a top figure of about 2000. Rubber factory processing about 3,000,000 pounds of rubber per month -- (i.e. about 1300 tons per month) -- mixture between products as flexible as possible -- about 150 tons per month of premium grades especially P.A. 80 (?) -- some of

(4)

the premium grades sell for as much as \$1 per pound - new gravitational centrifuge latex installation has just been installed (avoids deterioration caused by pumping and losses due to frothing).

Most of the factory labourers (laminators, cutters, packers) earn between \$60 and \$140 per month.

CBE/PW/22/10/69

NR/V/S

DATE: 17th 18th November, 1969.

Visit to Kuala Lumpur and three organisations to make initial contacts and explore areas of common interest and possible future co-operation.

1. Kompulan Guthries

Consultants F.A.S./J.C.E./R.A.J.H. met Miles Saker and Jimmy Baines, Manager of Management Services. The project consultants explained in general terms the Johore project and what they felt at this early stage might be the kinds of development possibilities. Mr. Baines, a perceptive talker, was very anxious to pick their brains before they could have a go at his. It seemed Guthries were showing only marginal interest in crop diversification but were prepared to consider a new crop only if they did not have to enter a highly competitive situation, in fact a similar situation to that in which rubber was planted at the beginning of the century. They did not disclose any of their lines of thought although it seemed as though they had studied the market potential for drugs. They showed considerable interest in our suggestion that interest should be made in natural products to replace synthetic food additives. Our request to have access to their estate input and output costings was very skillfully shelved, by Baines who said that such information was highly specific and could not be applied to other situations. However, if we put up a specific situation they would consider what aid they could give with costings. The outcome of this meeting was somewhat negative for future co-operation with Guthries.

2. I.C.I. Berhad

Consultants F.A.S./R.A.J.H. met Mr. Mitchelson, I.C.I. Agronomist.

Mr. Mitchelson had just returned from long leave and although he is the Agronomist he is principally engaged in administration. He welcomed contact with the project and offered all assistance where possible, in particular costs of herbicides and fertilizer. I.C.I. do not run an experimental station in Malaya and at the moment are carrying out trials only with herbicides. All these trials are carried out on estates. He said our most useful local contact would be Albert Mok Kum Ming I.C.I. representative (phone J.B. 3797) who knows Johore well. Eric Paterson of I.C.I.

was not present but would also be extremely useful. He is in charge of forecasting demand prices and production for I.C.I.

A list of current I.C.I. agricultural product prices has already arrived in this office since this meeting.

3. R.R.I.M.

Consultants F.A.S./R.A.J.H. met Dr. Wycherley, Head of Botany Division and Dr. Pushparajah, Agronomy Division.

Dr. Wycherley was visited to make initial contacts with the Project, his particular interest will be as local expert on conservation matters. Much general discussion took place concerning conservation in Malaysia in general. Dr. Wycherley agreed to undertake a literature search for data specific to our area and also he will make some reconnaissance field trips with us at a future date. There followed a discussion on meteorological data and Dr. Wycherley said that R.R.I. could provide both data and help on this. Mr. Yoon in the Botany Department was the collector of all available data which could be made available to the project.

Dr. Pushparajah had made contact with project staff previously. On this occasion the brief discussion took the form of comments on the recent Crop Diversification Conference especially in relation to S.E.J. project. In view of the prevailing climatic conditions he considered that pest and especially fungal diseases would be the main problems. The main advantage in the area would be the continuous growing season. For this reason he considered it wise to regard leguminous and graminaceous crops as vegetative fodder crops rather than for any grain they might produce. In this connection Dr. Pushparajah suggested that Stylosanthes gracilis should be seriously considered as a forage crop or raw material for the pelletizing foodstuffs industry. Stylosanthes can be cut every 40 day and yields 40 - 50 tons per annum at 13 per cent crude protein. This protein content is being improved by selection of varieties and inoculation of Rhizobium bacteria. Trials are being carried out on an estate near Seremban by the R.R.I. and a visit will be arranged. At Kluang animal husbandry station, Stylosanthes is being cut and dried and then fed to livestock. Dr. Pushparajah

suggested that we might join him on one of this field trips to Sri Gading Estate at Batu Pahat where in conjunction with Ko Rubber, the owners, he is running some trials on annual crops. A visit to Sungei Buloh, the R.R.I. experiment station is planned for December to see the work going on there and to pick up the latest information on other crops.

RAJH/RI/29/11/69

NR/M/10

DATE: 4th November 1969

TIME: A.M.

Meeting of Consultants with Ang Jim Soon Assistant
District Agricultural Officer.

HELD AT: District Office, Kota Tinggi.

PRESENT: Harrison, Sole, Ang, Ng (Field Officer R.R.I.)

After explaining that we were after basic agricultural data from the project areas, Mr. Ang introduced us to the 'Yearly Report 1968 Kota Tinggi District.' This contained many valuable statistics on acreage of all crops, mukim by mukim in the district. A copy of this will be obtained from the headquarters in J.B. It gave the following crop acreages for Penggerang peninsula including Kota Tinggi Tinggi:-

Rubber	104,912
Coconuts	3,000
Oil Palm	7,288
Padi	375
Pineapples	71
Bananas	146
Other fruit	900

However, as each statistic was discussed, it turned out that the R.R.I. figures differed, sometimes considerably, from the State figures.

We went out by car with Ang and Ng to see something of the range of agriculture in the district. The state department of agriculture has for the past few years taken a close interest in promoting a small wet padi scheme. This scheme, 375 acres in all is divided for administrative purposes into several blocks. Individual farmers work 1 or 2 acres each as a part-time occupation with a few farmers operating more than 2 acres. One crop per year is taken, inadequate control over the water supply being given as the main reason. The crop is planted out in September and harvested in the dry period end of January or beginning of February. All cultivations are done either by hand or by a Japanese two-wheeled tractor for which the farmer pays \$15 per acre on the spot. Buffaloes do occur in the area

but are kept purely for meat as there is no tradition for their use as labour. The padi crop is fertilized but rather low rates are used. Pests are checked by spraying on some farms with machines borrowed from the Department of Agriculture and chemicals bought by the farmer. We could see many plants attacked by leaf roller moth and a large number of rice stunk bugs were present which will attack the rice ear if not controlled. It was interesting to see that there were marked differences in performances and planting progress between adjacent farmers when all received the same advice from the extension officers.

The scheme, which has been in existence since before 1940, is divided into 3 blocks, A, B, and C. Block A is still using traditional varieties of rice, planted slowly over the period October - December, unfertilised and generally unsprayed. Yields are said to be in the region of 250 - 270 gantangs. (1 gantang padi = 5.33 lbs). Blocks B and C, adjoining block A but with a separating road, has taken up new varieties - Ria, Masuri, Bahagia - completely together with fertilised nurseries, fertiliser or transplanting and top-dressing and spraying. They have also asked for water to be made available for double cropping next season.

All the rice is used for home consumption at present but the more progressive farmers are expecting to have a surplus next year with yields in excess of 400 gantangs per acre per crop.

Several explanations were given for the difference between the two areas on the same scheme. Some of these were:

- i) The people in Block A followed a respected but very conservative ex-penghulu.
- ii) The people in Block A were generally the older members of the community and thus more conservative.
- iii) The more conservative elements did not like the taste of the new varieties.
- iv) Block A consisted of people from Negri Sembilan, Blocks B and C of people from Indonesia - Indonesians said to work harder?

Most farmers also have other jobs, either on their own rubber holdings 4 - 6 acres (30 acres largest), work as tappers on estates or for J.K.R. as labourers.

An interview was made with a Malay who was tending some fine looking buffaloes. He revealed that he had one bull running with 20 over females and a good number of calves and young animals. He also looked after other people animals in return for goods or labour or sometimes cash. He felt the maximum number of animals he could manage was 20 over this was determined by the fact that he had to cut grass for the animals at certain times, he freely admitted to giving his own animals first go at the cut grass. Each week one animal was sent from the Kampong herd to Kota Tinggi market for slaughter and it fetched about \$300. He said he could get about 2 calves every three years per cow and he was raising two young bulls to take over when the old bull become infertile.

We passed a Malay smallholder's plot which was very neatly kept and fenced with an elaborate barbed wire and chicken wire fence, as much to keep out humans as goats we thought. In one enclosure of about $\frac{1}{2}$ acre in size he was growing rubber seedlings which he would later bud with good clones and then sell them to small holders at 20¢ each. In his adjacent plot he was growing coconuts intercropped with egg plants, sweet potatoes, chillies, chekor manis, ladies fingers and a few groundnuts all looked very well. This small holder is the local religious teacher and did not himself work on his plots but employed other people.

Further on we passed a Chinese small holder with some good looking 2 - 3 years old rubber trees. These trees were intercropped with very good looking crops of groundnuts and chillies.

Heavy rain terminated the tour.

RAJH/RI/29/11/69

SEJ/3/D 04

28th April, 1970

SEJ/3/D 03 & D 04

1. Costs to maturity.

- a) First costs, separating out felling and clearing.
- b) Upkeep.

28th April, 1970.

On an average scheme, costs to be given on a year by year basis for a period of up to 40 years after planting as appropriate to transfer the last 10 months' revenue costs and receipts. Because revenue costs always are likely to fluctuate between fields depending on the stage of maturity an average estimate figure may be misleading. You will attempt to provide this information on a field by field basis specifying the Dear Mr. Bennett, maturity and the rough distance to factory.

3. At our meeting on Monday 27th April you very kindly agreed to attempt to provide a great deal of information which will be very useful to the South East Johor Project in assessing the profitability of oil palm and rubber.

I enclose a list of the information which I think we agreed it would be possible for you to provide; I hope that the list corresponds with your expectations!

I look forward to receiving the data from you in due course when your staff has had time to prepare.

- b) Vehicles.
- c) Any recent information of electrical generators and water supplies.

We agreed that data relating to old installations (say over 7 or 8 years) would not be very useful because of likely price changes.

- 4. Factory capital expenditure.
- 5. Factory revenue expenditure and receipts and through-put on a year by year basis separately for oil and kernels.
- 6. Labour.

(Christopher R. Smith)
Associate Development Economist
SOUTH EAST JOHOR PROJECT

CRS/PK

c.c. Heads of Divisions

- e) Building installation costs.
- d) The rest (excluding depreciation).
- e) If possible, the manager's forecast of repairs year by year.

CRS/PK

OIL PALM

1. Costs to maturity.
 - a) First costs, separating out felling and clearing.
 - b) Upkeep.

On an average scheme. Costs to be given on a year by year basis for a period of up to 4½ years after planting. It may be appropriate to transfer the last 18 months' figures to 2 below.

2. Estate revenue costs and receipts. Because revenue costs and receipts are likely to fluctuate between fields depending on the stage of maturity an average estate figure may be misleading. You will attempt to provide this information on a field by field basis specifying the period to maturity and the rough distance to factory.

3. The element in revenue costs "General Charges" to be shown as a separate item.

You will investigate the item "Payroll Taxes" to see if any conclusion can be drawn on labour as a proportion on total costs.

4. Capital expenditure on estate.

- a) Buildings; Lines, bungalows associated with the construction of the oil palm mill.

- b) Vehicles.

- c) Any recent information on installations of electrical generators and water supplies.

We agreed that data relating to old installations (say over 7 or 8 years) would not be very useful because of likely price changes.

5. Factory capital expenditure by stages.

6. Factory revenue expenditure and receipts and through-put on a year by year basis separately for oil and kernels.

- a) Labour.

- b) Transport to Singapore.

- c) Bulking installation costs.

- d) The rest (excluding depreciation).

- e) If possible, the manager's forecast of repairs year by year.

CRS/PW/

CRS/PW/13

SEJ/S/D 03

28th April 1970

RUBBER

... planting has been mainly carried out on the ... At the moment there are about 250

1. Costs to maturity. Because Eastern Plantation Agency Estates have not invested in rubber recently it is better for us to get this information elsewhere e.g. FIDA.

Planting under coconuts has been quite successful but the density of Estate revenue costs and receipts. These will be an average figure for an estate. We agreed it is unlikely that there are significant year to year variations in revenue costs on a particular field so that an average figure will be satisfactory.

2. Estate revenue costs and receipts. These will be an average figure for an estate. We agreed it is unlikely that there are significant year to year variations in revenue costs on a particular field so that an average figure will be satisfactory.

3. However, because this item includes transport to the mill the average distance latex is hauled will be specified.

Problems were arising with interplanting coconuts particularly in "General Charges" to be shown as a separate item.

4. Estate capital expenditure. Vehicles only.

5. Capital expenditure and capacity of centrifuge plant with oil palm in the early years of oil palm establishment, but it was difficult to obtain cost control and prevent loss of the year of the oil palm crop with shade trees planted to take account of light intensity requirements over the life of the coconuts.

6. Revenue expenditure and receipts. If possible both on the per acre and per lb. rubber basis.

a) Latex concentrate and skins crops. The planting pattern is shown on the figure attached to this report.

b) Nevecrush, whole latex, RS20. The coconuts and on each side of the coconuts is planted in a short 4 foot hedge. This is planted normally in a 10' x 10' interval.

Showing operating costs and fixed costs (excluding depreciation) separately. This data to include cost of transport of product to Singapore.

shade needs of the coconuts. The intervals between the coconuts plants are taken to be 10' x 10' and after a year to 15' x 15' is expected to take over from the coconuts which will either die out or will be slashed down. At 10' intervals *Albizia* is planted. This is a very fast growing tall tree and shrub provide the right shade conditions after 5 or 6 years.

GNS/PN/RI

Each of the *Albizia* was then slashed out. A cover crop of *Echinochloa* was sown at 1 lb. per acre and *Albizia* at 1 lb. per acre.

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Report on visit to Dunlop Estates Ltd.

On 4th May JVH and FAS paid a visit to Sagil Estate at Tangkak to see the work done on cocoa by Dunlop Estates Ltd. We were shown around by the Manager Torry Webb and Estates Director, Peter Duffield.

Cocoa planting has been mainly carried out on the estate for the past 2 years. At the moment there are about 250 acres in the ground. Much of it is not more than a year old. Varieties used are mainly Upper Amazon Hybrids and these have been planted in trials under rubber, coconuts and oil palms. Planting under coconuts has been quite successful but the density of planting at 5' x 5' is considered much too high. They have now standardized at 10' x 10' planting giving 435 trees per acre. The cocoa tree planted under coconuts had earlier suffered from an attack of thrips, from which they were recovering, following spraying with rogor.

Problems were arising with interplanting cocoa particularly in rubber where the competition for available nutrients, water and light is severe. With hedge planted rubber in 50' rows the cocoa planted nearest the rubber was invariably smaller than planted in intervals. Plants under rubber in general were showing about $\frac{1}{2}$ the growth shown by plants of the same age under coconuts. Good growth were shown by cocoa interplanted with oil palm in the early years of oil palm establishment, but it was difficult to obtain weed control and movement down the rows as the oil palm rows began to close up. All new plants are now done as a direct mono crop with shade trees planted to take account of light intensity requirements over the life of the cocoa. The planting pattern is shown on the figure attached to this report. Basically this is cocoa planted at 10' x 10', 18 inches away from the cocoa and on each side Sesbania is planted in a short 4 feet hedge. This is planted north and south and will cater for the early shade needs of the cocoa plant. The intervals between the cocoa plants are taken by Gliricidia which is also planted 10' x 10' and after a year to 15 months is expected to take over from the Sesbania which will either die out or will be slashed down. At 60' intervals Albizia chinensis is planted. This is a very fast growing tall tree and should provide the right shade conditions after 5 or 6 years.

Much of the Gliricidia may then have died out. A cover crop of Flemingia Congesta at 2 lbs. per acre and Centrosema at

5 lbs. per acre is drilled on the bare earth. This work has been carried out in the last 2 months and visits over the next year will demonstrate the success or otherwise of this method. A trial of 20 acres has been planted on a Munchong series soil and a similar one on a S.C.L. Rengam soil. The pH of soils of the estate ranges between 4.8 to 5.8 with Rengam at about 5.5 and Munchong at about 5.6. The following fertiliser programme is carried out after planting :-

Month No:

- 1,3,5,7 1 oz. per tree of Nitrophos yellow
- 9,11,13,15 2 oz. per tree of CCM 25 (14N:13P₂O₅:9K₂O:2½MgO)
- 18 4 oz. per tree of CCM 22 (18N:11P₂O₅:5K₂O:2½MgO)
- 21 8 oz. per tree of CCM 25.
- 24 12 oz. per tree of CCM 22.
- 27 12 oz. per tree of CCM25
- 30 12 oz. per tree of CCM 22
- 33 12 oz. per tree of CCM 25
- etc. Every 3 months alternately 12 oz. per tree of CCM 22 and CCM 25

Costs of planting have not been worked out yet but will be obtained later. Dunlops estimate that it will cost \$350 to cut down old rubber and raise cocoa to maturity. The seeds cost 2 ¢ each delivered from Sabah.

Seeds are grown in poly bags in a nursery fenced all round the sides with green mosquito netting which appears to give just the right amount of lateral shade. An ingenious system of attaps is erected over the top of the nursery. These are positioned horizontally to provide shade whilst raising seeds. A month before seedlings are due for field planting, alternate rows of attap are dropped vertically to allow more light into the nursery, followed by the remaining rows of attap being dropped a fortnight later thus hardening the seedlings off for field planting. In this way very little loss is incurred during planting which is best done at 4 months old. Other estates have had mortality problems with planting out straight from a shaded nursery to open conditions of the field. Seed raising is done in a potting mixture of ½ red clay, ½ black earth and ½ cow manure in poly bags. The seedlings are mulched with tree scrap from which the rubber has been extracted. On opening of new leaf ½ of Nitrophos yellow in 4 gallons of water is given per 300 plants. A week later 1 oz. of calcium ammonium nitrate is given similarly. Many varieties are being tried at the present time and it will be some years before results are known. The first part of the factory will be constructed in 1972.

From Sagil estate we went to the Dunlops research centre at Regent Estate near Tampin where we met the Assistant Research Officer Mr. Tan Kyap Seang. Much research has been going on into the variability of cocoa growth and this research has led to the recommendation that cocoa is better grown as a mono crop on mechanically cleared land. We were shown slides on cocoa growth variation and the results of competition for nutrients. Some cocoa was also being attacked by fomes lianosus picked up from infected rubber trees. Better growth is obtained in clay loam soils which may be a result of better water holding capacity and/or CEC. Some discussion was held on the effect of yields of land and soil types. Dunlops has done very little work in this but suggest that Dr. Guha of the R.R.I. may help. Water holding capacity would appear to be a more critical factor than nutrient capacity and we may be able to work something out using this material. Dunlops have regular leaf analysis done on all their crops and adjust their manuring programmes according to this. We may be able to do a rough calculation using fertiliser recommendations, water holding capacity and climate with costs of erosion control in order to judge the effect on either yields or costs of different land types. It is certainly, however, a very complicated production function that has to be sorted out. (I hope JVH will be able to supplement these research notes).

Total FOB costs of BMS - Dunlops - 49.34 4/12

Ex estate costs of lower grades

Dunlop Estates Bhd.

35.34 4/12

Concentrate residues

35.47

F.A.S. visited Suleiman the Asst. Accountant at Dunlop with a view to extracting cost information from the accounts on rubber and oil palm. These very sketchy figures will be expanded in the next week or so.

The accounting system has been mechanised within the past 3 years and the only information available is in terms of cost per lb. rubber or per ton FFB and oil. It is practically impossible to break down costs in head office to their component parts of labour and materials. It was thought that the managers' estimates would prove a better guide, especially as the estimates of costs and output appear to agree closely with actual costs and outputs. It has been agreed with Dunlops, therefore, that a visit is made to one of their estates in order to extract costs of production with the manager's help in breaking down these costs to labour and materials.

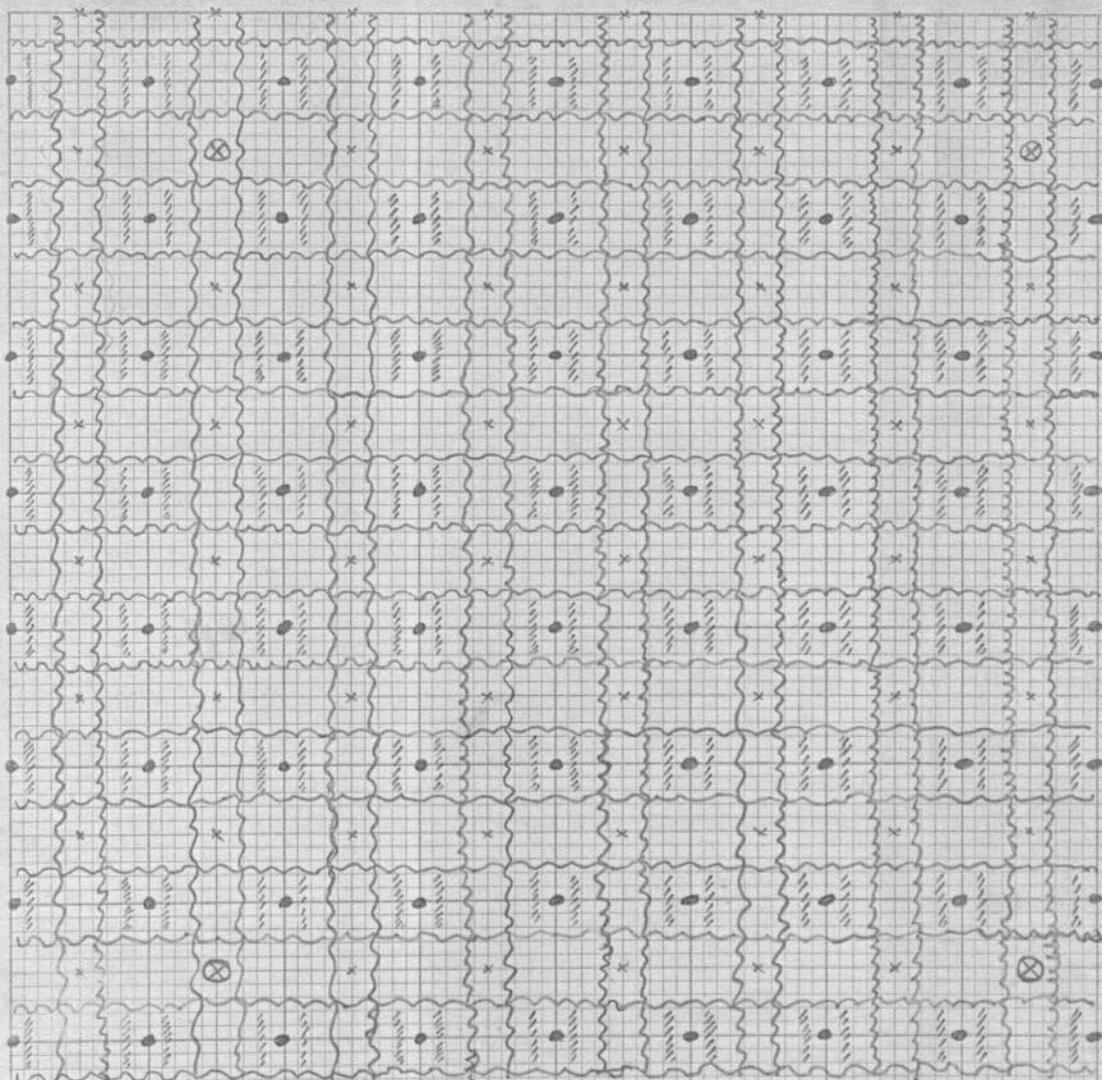
For the record, some total costs of rubber are shown below :

Variable costs of concentrate latex manufacture	-	2.95¢/lb d.r.c.
Forwarding		1.5
Duty & Cess - less replanting		5.5
Charges on S'pore installation		.41
Insurance/Freight - U.K.		5.75
Some variable manufacturing costs		.33
P.C.E		.64
Upkeep of idle plant		.01
Research		.51
Development		.18
Bank interest		1.61
Head office and other mix expenses		<u>3.73</u>
Total costs of concentrated latex	49.71	- (Includes cost to factory)

The variable costs of manufacturing CV rubbers - 4.90 ¢ / lb.
 Total FOB costs 45.96 ¢/lb.
 Total FOB costs of SMRS - Dunlocumb - 49.34 ¢/lb.

Ex estate costs of lower grades
 Skin 35.54 ¢/lb.
 Concentrate residues 35.47 "
 Field lower grades 33.24 "

It is intended that these very sketchy figures will be expanded in the next week or so.



PLANTING PATTERN FOR COCOA AS MONOCROP
DUNLOP'S SAGIL RETITE, TANJUNGPINANG, JOHORE.

- COCOA - 10' x 10'
- ⊥ SERBANA - 18" FROM COCOA
- × GLIRICIDA - 10' x 10'
- ⊗ ALBIZZIA CHINENSIS - 60' x 60'
- ⋮ 2 lbs Flemingia + 5 lbs Centrosema - Drilled.

DUNLOP ESTATES BERHAD.

The following notes report a discussion between FAS and P. Peck, Company Engineer.

The company has planted over 16,000 acres of oil palms. Most of this is concentrated around Paya Lang Estate but there are some plantings at Regent and Segil Estates. This represents an average carry of fruit of 2 miles within Paya Lang Estate to the newly developed mill. From the other estates, fruit will have to be carried about 35 miles.

A 40 ton/hour mill is being erected at a cost of \$6.03 million. This is developed over 4 years and the first phase is already in use.

Year	Cost	Tons/hour
1969	\$2.75 million	10
1970	\$1.54 million	20
1971	\$1.29 million	30
1972	\$.45 million	40.
	<hr/>	
	\$6.03 million	
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The original Stork estimate was \$14 million - the price charged is the result of design and building by United Engineers with about 1/3 of the capital cost being allocated to Malaysian industries.

The average crop expected is just over 8 tons FFB per acre. Two peaks of 12 1/2% of annual yield lead to an expectation of about 18,000 tons to be processed in 450 hours i.e. 25 days at 18 hours per day. A point made here was that this left 75% of the crop to be processed over 10 months - 7.5% per month - or 60% of maximum design capacity (40% under utilisation for 10 months). There would be scope here for the study of long distance transport of fruit to areas where peak yields occur at different times. Mills can and have been worked for 22 hours per day for a few days at a time and certainly could work 20 hours/day for a month. A 30 ton mill, for instance, working 20 hours/day for 20 days and 22 hours for 6 days would process 18,000 tons leaving 2,000 tons surplus to be sold and would cost about \$.5 million less than the above figures.

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The mill would then be operating at 80% of capacity for the remaining 10 months. However, in view of the relatively small effect on internal rate of return the mill cost appears to exhibit according to the COBE programme on Palm oil profitability, any juggling of this nature would hardly seem worthwhile.

Contract transport costs Dunlops 22 cts. per ton mile (including the empty return journey). Their internal estate transport costs more than this and is charged internally at about 65 cts. per mile for all miles.

The cost of the mill is about \$365 per acre. It is hoped to keep it working to capacity by buying fruit from smallholders and small or newly planted estates. Quite what happens to this purchased fruit when the mill is fully loaded with Dunlops fruit was not made clear. If it all does get processed then at any one time there must be a considerable surplus capacity in the area.

The maximum size of mill that Mr. Peck thought could be handled with any degree of success was a 60ton/hour unit operating to capacity. This would represent a lorry being weighed in and out with 5 tons of fruit every 2 minutes for 8 hours a day.

The Dunlop mill is designed to be operated with the minimum of operatives. The approximate breakdown of jobs is:

<u>Job</u>	<u>Men</u>	
Unloading	1	
Steriliser	1	
Engine driver	1	
Cranes	1	
Stripper platform	}	1 now but completely automatic next year.
Elevators	}	
Kettles	}	
Presses - 8 x 5 tons	2	
Oil clarification	1	
Autocrackers	2	
	<hr/>	
		9 or 18 on two shifts.
		<hr/>

Oil manufacture costs \$20/ton oil and overheads are \$40/ton oil.

Waste disposal is a problem. The sludge from the process is just poured out on the ground and allowed to seep away. Water is used at the

rate of $1\frac{1}{2}$ tons to 1 ton FFB. Thus at 18,000 tons/month this is 22,500 tons water or 5 million gallons and 11.25 tons of oil and dirt per month at the rate of .05% oil and dirt content.

A bigger local problem is the disposal of waste water from rubber factories. The water has all of the rubber waste recovered but contains a high percentage of nitrogen in the form of ammonia. There have been complaints that this water present in watercourses has caused padi to become extremely tall with a very low yield. This problem should be investigated as to the effect on the project area. Two Pollution Experts are arriving from the UK shortly to examine the problem for the government.

The water supplies to the estates are mostly pumped and treated with estate equipment. The quantity needed is calculated by the following standards:-

- 1 gallon latex for crumb or sheet - 2 gallons water.
- 1 gallon latex for concentrated latex - $1\frac{1}{2}$ gallons water.
- 1 ton of FFB - 224 gallons water.
- 1 person (man, woman or child) - 50 gallons/day.

Water supplied by the Water Board costs \$1.10 per 1000 gallons. Estate treated water to the same standard costs 50¢/1000 gallons.

A treatment plant for 10,000 per hour costs about \$172,000. A recent plant put in cost:

6" pipeline - 18,500 feet laid	- \$78,000
Sediment tank	- 35,000
2 x 8 feet diameter pressure filters	- \$20,000
2 Pumping sets	- \$20,000
Pumphouse	- 9,000
Chemical dosing plant	- 7,000
Lighting	- 2,000
Site clearing and excavations	- 1,000

Electricity supplied by the N.E.B. costs 5¢ per unit. The estates generate their own at a cost of about 5¢ per unit.

Enough lorry transport is kept on estates to keep them self-sufficient during the low rubber crop months of February-June. Transport is hired for peak requirements. All oil palm FFB and oil transport is hired. The

actual charge by the contractors is 55¢ per mile for a 5 ton lorry on a regular run. If return loads are carried. This is raised to 60¢ per mile. Running costs of the estates own vehicles are in the region of 30¢/mile excluding driver. 5 years depreciation is allowed and/or 200,000 miles. Each 6 months there is an inspection by the RIMV. This necessitates at least \$120/vehicle to be spent on new steering joints etc.

FAS/RH

Association Paper.

Confidential

Muda Agriculture Development Authority: Interview with
Mohamed Tamin - A.S. Mackintosh - 2nd June 1970.

Inche Mohamed Tamin is the State Agriculture Officer, Kedah, and is expected to be appointed Deputy Chairman and General Manager of the Muda Agriculture Development Authority, established by Ordinance 29 (PU (A) 175) of 29 April 1970.

Inche Tamin was appointed to Kedah in 1966, when the Muda River development was ready for physical implementation. He found that the plans were limited to engineering, with no agricultural planning. He made a preliminary survey, to find out the number of farmers who would be affected etc. and the technical agricultural feasibility.

In 1967 he requested a big pilot project of 500-1000 acres. The project was established on 750 acres, with 150 farmers. The supply of irrigation water, which would eventually come from the dam system, was emulated by pumping, using tractor powered pumps. Tamin used an integrated approach to the farmers, supplying free seed, water, advice and technical assistance and fertiliser on credit (without subsidy). In 1967 also socio-economic studies were carried out. The initial reaction of the farmers to double cropping and the strict timing required was "violent" and one of his staff was assaulted. Using IR8 (the only new seed available at that time) yields increased by 50-100% (for the whole year) over the previous years. In the first year, there was a 60% response rate from the farmers; in the next year there was no difficulty in obtaining a response.

In 1968 the farmers next to the pilot project asked for the same treatment and a second block of 750 acres was made the second pilot project. The second lot of farmers did better in their first year than the first lot had done. Tamin spoke of the "radiation effect" and the spread outwards from the first pilot project area of farmers asking for extension assistance.

The IBRD wanted 50 more such pilot projects; but the number was limited by the availability of water and by staff. Seven more projects of 50 to 150 acres were established.

In February 1970, with the canal supply in being, the farmers around the two pilot projects of 1500 acres have already adjusted to the new techniques, especially the requirements of timing.

Marketing is left to the farmers -- which is bad. The irrigation scheme is faulty in design--one mile between the feeder canal and drain, so that it takes up to 30 days for water to reach the farmers at the drain end.

Tamin stressed that there was much unknown - eg. in two apparently similar areas, in one there was 100% turnout of farmers on the date of planting; on the other not.

28 farm localities of 10,000 acres each (2,000 farmers) are planned. In each a Farmers Association managed by an agricultural assistant and 4 junior agricultural assistants, in charge of credit, extension, supply (economics) and accounting. There will also be in the same building DID men (4) and regular visits by vets and fisheries people.

14 Farmers Association have been formed.

Tamin will send his book on organisation - "Muda Scheme Organisation" and "Muda Scheme - Implementation Programme". It may be possible to get it from the Ministry of Agriculture - Abdul Ghani, Under-Secretary.

Tamin commented that until 2 years ago DID limited its functions to the "supply of water"; but it was now also concerned with "water management". One advantage (purpose) of the Farmers Association building is that farmers have less than 2 or 3 miles to travel at the most for agricultural advice.

ASM asked about relationships with the District Office and with PWD. The District Officer is not concerned, except that he is kept informed. The PWD built the first FA building,

but the rest (26) will be built by DID, within the Ministry of Agriculture vote.

On finance of the Muda Agriculture Development Authority: agriculture and DID personnel will be direct employees (within the Ministry of Agriculture). Provision for services of other ministries to the project will (at present) be proposed as part of the individual ministry's plans, specifically for the Muda Scheme. Feclors have been put out about having the scheme's own budget to include provisions for, eg, health etc.

Land: a preliminary study is being made of economical size of padi land. The average size of holding is 4.8 acres, with the range from 2½ acres upwards. 40% of the farmers are tenants. It is estimated that 6 acres is required to give \$300 per month, which appears to be the figure that KL (DPM and others) have in mind as a reasonable standard of living. To get this size will require land consolidation. By law, tenants have security for 3 years, but practice varies very widely. As Tamin expected, now that the success of double cropping and its profitability can be seen, landlords are beginning to be evict tenants in order to farm the land themselves. This cannot be prevented by law. If it becomes widespread, eviction of say 25% of the farmers would present very serious problems.

Planning and evaluation section: is part of the proposed organisation, including a "rural sociologist"; but not yet in being.

On youth: Tamin said that youth were not interested in working on padi schemes. He mentioned examples of farmers, with sons of working age, who were using hired labour, because their sons would not join in harvesting etc. There were, however, some jobs and skills which were attractive to young men - eg. tractor driving and maintenance. There is a farm mechanisation school in the area, which is now training 25 hand-picked youths every two months, with success.

ASM asked about evidence of expenditure from higher incomes. The first expenditure is on the farmer's house. The Socio-economic survey has given data on numbers of houses renovated etc.

Processing: there are 37 large (5 tons per hour) rice mills in the area. A Ford Foundation Study judged 33 of these to be inefficient - 50/60% extraction, compared with 70% expected. These mills are licensed by the state government. Tamin wants the Scheme Authority to take over the licensing, on condition that the efficiency of the mills is increased. However, he cited as an example of lack of coordination between ministries, the Ministry of Commerce & Industry imposes quota on imports of rice mill equipment, which has "prevented" at least one mill owner from re-equipping. (Note that much or all of this equipment is or can be manufactured in this country, so the miller now may not have been trying very hard - ASM). Tamin also mentioned import duties on chemicals and "many other examples" of similar difficulties.

The Muda scheme is seen as a possible model for the introduction of double cropping throughout South East Asia. Barnett of Howard Rotovators estimates that in Malaysia there will be $\frac{1}{2}$ million acres of padi under double cropping and is therefore setting up an assembly plant (" a little slow" - Tamin).

On staff : Tamin has 50-60% of his establishment filled. He and his Deputy are the only experienced ones (he with 20 years plus, his Deputy with 7). He is already losing staff - 6 resignations out of 10. When the Muda Authority is established, he aims to offer better terms than in other government service - "recruit, train, retain". There will be a gap in the supply of suitable people while Serdang produces.

(Prof. A.S. Mackintosh)

6 June 1970

MH JCE FAS
24 12 69

Visits to FLDA scheme, Ayer Hitam
by MH, JCE, FAS & P Choong (interpreter)
on 4-5 December 1969

This report is a record of conversations with staff and settlers on various subjects: especially agricultural advice and management, why and how settlers came to the scheme, and the situation they find themselves in at different times after moving in. Thus one man's conversation often repeats that of another. This form of presentation has been preferred to generalizations about FLDA, based on too small a sample.

MH, JCE and PC made the first visit on 4 December. The scheme is off the Ayer Hitam-Kluang road, beyond the 5th milestone. One reaches it by driving between meadows full of cattle, belonging to the nearby Central Animal Husbandry Station.

Tuan Zakaria bin Ismail, the Manager, said the scheme opened in 1961, when Phase 1 was planted. Phase 2 was planted in 1962; Phase 3 in 1964, with an extension in 1967. There are 323 settlers and 2 900 acres planted. Phase 1 was first tapped last year: it now yields 850 lb an acre. Since the price and the crop are good now, each settler gets \$200-\$400 a month, minus loan repayment (varies with price of rubber: \$97 last month, less this month). Each settler has his own plot, which should be 8 acres. Since the land was not properly surveyed and some is swampy, each settler got 7½ acres. A settler who still wanted 8 acres could move to another Phase or scheme, but none have done so because this would mean postponing their income. Phase 2 was first tapped last month; the settlers have been given individual lots, but this has not been made official. Phase 3 will be tapped in April 1971. FLDA sells the latex to the Revertex Factory in Kluang. Each settler should have 2 acres of dusun land, which has remained jungle, 3½ miles from the village. Each settler pays \$5 a month to a fund set up to develop it, probably under bananas or pineapples; but there are no concrete plans for its development.

If 20 or more settlers got together, they could grow rubber on their dusun plots.

Tuan Zakaria came from another scheme 7 months ago, when the previous manager resigned rather suddenly. He is the 5th manager (the first 3 were Europeans). Most of his problems relate to settlers' welfare: the settlers want the staff to be their leaders, attend weddings and religious festivals, visit the sick and spend all their free time talking to the settlers. If settlers like the management, they can be asked to work hard. All are Malays; three-quarters locally born of Indonesian origin. The Javanese, being an immigrant community, are easiest to control and work hardest. The scheme has a primary school, and about one fifth of the age group go to a secondary school in Kluang. A University of Malaya study has shown that the birth rate on FLDA schemes is higher than in kampongs. 20% of married women attend the weekly Government family planning clinic. There is a midwife on the staff, but no one to do first aid. Those urgently needing attention are taken by car to Kluang Hospital. Settlers can get free medicines, since FLDA has a special arrangement with the Health Authority. The Government mobile clinic, with a hospital assistant and two nurses, comes weekly; and a ward sister comes twice monthly with two nurses, to look at babies. There is no record of malaria cases because there are so few. The last case was last month: the patient spent a few days in hospital and was discharged. The village area is sprayed every six months. No malaria prophylactics are used.

Some young people are unemployed. Others work outside the scheme and in Kluang. Those over 18 are sent away for 3 months' 'training and discipline' (National Youth Development Corps??), and then employed for contract work on new schemes: they will get preference for admission to the schemes. 50 casual workers are also employed on this scheme.

The scheme is badly understaffed. The Manager has a Settler Development Officer (promoted from Field Assistant), an Assistant, a Supervisor and 6 field assistants (two for each phase). The Manager appoints a Group Leader (Ketua) for each 40 settlers.

The Group Leader must inform the duty officer when a settler is sick, mediate in family quarrels, and inform the field assistant when a settler has reached his target for maintenance work and can take some days off. The Manager intends to give them more powers; eg. to grant two days' leave, because he has found that settlers do not respect a Group Leader if he has no power. Settlers in phases which are now tapping do no collective work, but contribute money to maintain roads, bridges and the office compound. They tap according to a timetable, arranged so that no tree is tapped more than 15 times a month. If a settler is sick for more than two days, reserve tappers (who normally work as labourers) are sent in, and the settlers pays their wages. One fifth of the settlers have motor-cycles: the rest get to their plots on bicycles. The Manager has little discretion to make major or policy decisions. If he were to suggest changes or experiments, it is unlikely that KL would take much notice.

The Manager introduced us to a meeting of the Settlers' Committee (JKKR = Jawatan-Kuasa Kemajuan Ranchangan). One man asked whether we worked for the Malaysian or British or US Government or who. We asked whether it made a big difference when one's own plot was allocated: a settler said they had been like temporary labourers in their previous kampongs, whereas the government provides everything they need here (but then, the king was listening). When we asked whether land ownership was so important, as distinct from a steady job etc, they insisted that it was one of the great attractions. They will eventually clear the dusun and plant it with fruits, or perhaps rubber. Fish ponds have not been a success on this low, swampy land. They would like bigger holdings of rubber, and one suggested keeping goats under the young trees. They would like to keep more chickens, but think it is expensive to buy day-old chicks from hatchers. Their suggestions: the shop should be run as a co-operative and not by FLDA; settlers should run buses and taxis; FLDA should build its own factories instead of selling latex to outsiders who get the profit; foreign governments should ban synthetic rubber; Malaysia should fix its own price for rubber. The next generation can work on estates or earn money from new sources eg. chickens; they should be able to stay in the area.

Fuad Ali (Settlers Development Officer), took us to the collecting station. The settlers (who get no regular days off) bring latex on bicycles. It is tested for quality with a hydrometer and stored in tanks. The quantity brought by each settler is recorded. No payment is made at the time of delivery.

We were taken to the house of A, evidently a model settler of Indonesian origin, in Phase 3. He came in 1965, having worked as a labourer for the DID in Batu Pahat, because he wanted a higher income and the freedom which comes with owning one's own land. He had read about FLDA in the paper and discussed it with his penghulu. He has always wanted to own land, and wants more money for his children's education and to extend his house. It is hard to manage on his subsistence allowance, supplemented by the sale of ducks' eggs (and fruit from his garden). The 'government' had better develop the dusun: settlers like him will have no time to work on it after tapping.

This was the only interview conducted in the presence of a member of the staff.

A has 24 ducks fed on (ribbled)? Maize bought in Kulai and presumably household scraps. They appeared to be in good condition and are giving about 20 eggs per day at present. These eggs are mostly sold in Kulai at about 9 cents each. This could yield a gross return of up to \$50 a month. A indicated that he would increase the number of ducks in future.

Settler B, in Phase 1, said the JKRR (of which he is a member) sees that settlers are properly paid, settled in houses etc., and organises activities like film shows. It handles complaints; eg. a settler may complain there are too few trees on his land because some died young. Settlers tapping their rubber get about \$150 a month after loan repayment, and do about as well as estate workers or smallholders. Some earn up to \$400 (after repayment), while others are poor like him. FLDA should take \$10-20 a month from the rich ones to improve the condition of the poorest, eg. by finding out why their land is spoiled. No one thinks of leaving. Co-operative cultivation has been suggested, but settlers do not like the idea because they want to pass the land to their children.

Five settlers, who had got poor land in the ballot, applied for and obtained shares of some land which had not been allocated, because of a surveying mistake (?).

He does not come from a farming family but worked his father-in-law's padi land in the Japanese Occupation. He was a policeman, then a watchman for the Electricity Board in Kluang. He came because he wanted land, for his own security and for his children. He did not apply for land on a GSA scheme: living conditions on FLDA schemes are better, the management does everything for you, people co-operate and there is a loan. On GSA schemes every man is isolated, and it is hard to move out into a better type of scheme.

Over the past 2-3 months he has obtained about 400 lb of rubber per month from his plot which has been tapped for a year. He felt that this problem in variation in quality of plots received by settlers was a major problem. A large proportion of the variation in income received by settlers was a result of 'luck-of-the-draw'. He suggested some form of 'income-tax' to raise funds from settlers obtaining higher yields, to provide funds for community projects. it was not a
it was not a terribly good plot and that
C, in Phase 1, has no agricultural experience. When his job as a British Army driver in Kluang finished he was told he could apply to FLDA, which he did because he wanted a house, a steady job and (rather as an afterthought) land. He has security for his old age, and cannot be evicted from his house for non-payment of rent. He has 'just 5' children all girls. He will not let them work here -- let them study as long as he has the money; then they can marry anyone they like, be he Malay, Chinese (like our interpreter) or Indian. He had $7\frac{1}{2}$ acres, but 1 acre was swampy, or stony, or needed for a road. His plot has been yielding 300-350 lb a month. He has no other income, except a little from his garden. If he had good dusun land he would plant coconuts and coffee, in case rubber prices fall. He does not know much about these crops, but could ask the Manager to find an experienced person to advise him. He could easily sell coffee to Kluang's two coffee factories.

His mother had farmed some coffee in Batu Pahat and after his father's death had remained a man who also owned some coffee land and also dealt a bit in the commodity. He heard on the radio that the prospects for cocoa are good, and might consider growing that. One settler has left to live with his son who has a good job as teacher, but no one else thinks of leaving. He reads newspaper in the Balai Raya; when we asked how the scheme could be improved, he said the Balai Raya should have a stock of books.

D, in Phase 1, was a policeman. He applied to join the scheme because he wanted his own house, also land. He has 7 acres; but since the trees are only big enough to tap every other day, he works only half the month. He tried planting bananas but without success. When the dusun is cleared he will plant fruit.

The eldest of his 8 children is taking a National Youth Development Corps course. He would like **his** children to stay on the scheme if possible. When we asked what changes he would make if he were planning a new FLDA scheme, he said he would introduce machines to do all the work. Having seen how quickly roads and houses can be built with machinery, they now see that everything, including money, comes faster with machines. When we asked who would pay for them, he said we had assumed he was now a big man with the power to make changes, so obviously plenty of money would be available.

MH returned with FAS and PC on 5 December. We found E and F in Phase 2, ~~ar~~ using their neighbours with a chained monkey, which they had trapped to sell to the Singapore Chinese as a pet. Young monkeys can be sold for a high price to men who trained them to fetch coconuts. The two men are neighbours and close friends, who came from near Batu Pahat and joined the scheme together. E used to pick coconuts on his father's land, while F work on a rubber estate. They heard of FLDA through their penghulu. They came because they wanted their own land and houses, and a steady job. Both said (as most settlers did) that they would prefer their own land on FLDA terms to rented land with secure tenure and a somewhat higher income, but they do not appear to have considered such an alternative before.

Both earned about \$4 a day before coming, and found it hard to manage on the \$2.90 subsistence allowance, though with some difficulty they found occasional work digging drains etc, and made a very little money selling chickens' and ducks' eggs. It was worth waiting, because they have a solid asset and the government will not deceive them.

They started tapping last week (which may explain their euphoria). Anyone can learn tapping in a week. By next year E expects to earn \$200-300 a month, minus about \$100 repayment, from his 8-acre plot. FLDA pays \$20 a month for fertilizers. Apparently everyone reads a glossy RRI magazine on rubber cultivation which is supplied free. The men do the weeding themselves without the families' help. E has 5 children, F has 7. The older ones go to secondary schools, and the boys will need land: F has already enquired about this. When we asked what would happen if each generation multiplied at the same rate, F said his job would be done when he had provided for his own children: their children would be their affair, and the government or FLDA would have to provide. The scheme should have its own rubber factory and keep the profits, and should plant more rubber on the land set aside for dusun.

G, in Phase 3, a mandor or foreman, was one of the most articulate members at the JKKR meeting. For six years he was a 'temporary' teacher of Malay in a Chinese school, earning only \$100 a month because it was not a government school. Since his father has rubber land, he took a free six-month RRI course at Ayer Hitam and got a certificate. He heard of FLDA through the Government Information Office. He waited for 4 years after applying, and then received a month's notice to move in. Since he became a mandor 5 months ago, he earns \$3.90 a day, but still finds it hard to manage. He has no other source of income, except selling tapioca from his garden to neighbours and chickens to the Chinese. Occasionally he regrets having come. He joined the scheme to have his own land, with security for the family, and a better income particularly for his children's education.

He supervises a group of 26 workers, who live in a row of houses some distance from him. They treat him as an equal in the village, but not at work.

He supervises the weeding, fertilizing and pruning of two blocks, and divides the workers into groups to avoid quarrels.

In one or two months the settlers will draw lots for their own land. When his own trees are mature, he hopes to earn \$600 a month; anything less would not be a satisfactory income. The scheme needs several improvements: in particular, it should be run by its own members as a co-operative, which could then federate with other schemes to run factories, poultry farms etc. It should become a small town, with individual rubber holdings (people would not pool their land) but many co-operative services. He hopes the JKKR can achieve settlers' control in the next 5-15 years. As a start, FLDA should hand over its shops to a co-operative. The prices are now higher than in Kluang, but most settlers buy from these shops because they get monthly credit. He was elected by a show of hands to represent his Phase in the JKKR, and defeated other candidates. (this contradicts what everyone else has told us here and on other schemes: that members are appointed by the management).

H, in Phase 1, is the uncle of our driver. He was a peon in the Food Control Office. When Food Control was abolished, the FLDA informed him that he could apply for land; while waiting, he worked for a year for Johor Baharu Town Council. He came because he needed a job and wanted land. He earned \$100 before and gets a little more now, as well as the \$30 a month retraining (?) allowance he still receives from the Food Control. He is too old to learn to tap properly, and finds the work too tiring so employs another settler to tap for 12¢ a pound, and collects the latex himself. The eldest of his 7 children is a postman, and his other children will probably leave if they can get good jobs. Although settlers pay \$5 a month towards development of dusun lands, they do not want to do it themselves: the government should do it for them. This interview was cut short by the signal to break the fast.

MH/PW/ZA/24/12/69

Mark Holmström
24 December 1969

NR/V/3

DATE: 22nd November, 1969.

TIME: A.M.

Visit to F.L.D.A. Kulai scheme to meet personnel concerned with the fish culture projects.

The fish ponds on the scheme consist of six approximately one acre ponds which were constructed by the D.I.D. at a cost of \$18,000. There are also about 20 other ponds all less than a quarter acre in area, some barely two yards square. The decision to build the six one acre ponds come from the department of Agriculture. The ponds are leased to the settlers but because there was so little response to take out leases for the ponds several individuals are managing more than one pond. The designs of the ponds is good with adequate drains and are of the most desirable dimensions. But being new ponds they suffer leakage problems and tend to have a high requirement for lime and fertilizers which the operators cannot afford for operation under optimum conditions. The ponds seem to be stocked at too high a rate and consist of *Tilapia*, *Puntius gonionotus* and three species of Chinese carps. But this high rate is probably wise because of the losses incurred in the new ponds and with the inexperienced operators. The major problems facing the success of the pond scheme is theft. Although the ponds are situated close to the village complex it has been necessary to erect an expensive chicken wire fence. But there is still great concern that as the fish grow and approach harvest then both children and adults will help themselves to free meals.

The complex of small ponds are all in one small valley and impractically arranged. The ponds have some prestige value and are not necessarily kept for fish rearing purposes. This prestige is hard to understand in the light of the lack of enthusiasm shown by settlers for the larger ponds. The small ponds which contained fish were very overpopulated with *Tilapia*, the largest being less than 10cms. in length. The ponds were fertilized in an haphazard manner, receiving drainage from cattle stalls and the family bath water (soaps are rich in phosphates). The fish were fed on household scraps, spoilt biscuits and rolled oats. These oats were supplied by the local headmaster who in turn got them from American Aid distribution for school childrens' lunches. There could be an interesting story behind this or it could just be the disposal of spoilt oats.

....2/-

- 2 -

This project will, I feel, succeed or fail on its first harvest, which is a very severe judgement on any new crop. If the harvest is large enough to give good returns then there will be no difficulty in building new ponds as suitable land is available. Further visits to the scheme will be made and the harvesting of the fish will be observed in February.

R.A.J.H.

RAJH/RI/24/11/69

FLDA: Extracts from Land Settlement in Malaysia under the
FLDA, FLDA, March 1966

Paragraphs 5, 6 and 7

5. "Economic Problems"

Very briefly, the main socio-economic problems facing the Nation are:-

- (a) heavy dependence upon rubber with steadily falling world price and tin, the known reserves of which are rapidly being depleted;
- (b) high rate of population growth (3% a year, at which rate population would double in less than 25 years) increasing very greatly the number of people seeking employment and endangering efforts at raising per capita income levels;
- (c) uneven distribution of income with wide disparities between rural and town dwellers as well as among various social groups;
- (d) relatively low level of human resource development resulting in shortages of many skills.

6. The Government's long term objectives in the sphere of agriculture and rural development are:-

- (a) an accelerated expansion of output and employment in the agricultural sector by increasing the land area under cultivation;
- (b) a progressive increase of per capita output and income in the agricultural economy by raising the productivity of all factors of production employed in the sector;
- (c) a broadening of the base of the agricultural sector to ensure that its annual contribution to overall development will be less subject to the market vicissitudes confronting individual commodities, especially rubber;
- (d) an enhancement of the ability of the agricultural sector to stimulate industrial development through the production of those commodities which make possible the viable development of agriculturally-based industrial enterprises.

7. The following serious problems call for attention in the realization of the above long-term objectives:-

- (1) there is currently inadequate technical capacity in the government and the private sector for bringing about the enlargement and strengthening required of the agricultural economy. A massive commitment to agricultural research and education is therefore imperative.
- (2) the price prospects for natural rubber, which is the mainstay of the agricultural sector and of the whole economy at present, are not bright. If the contribution of agriculture to national economic development is to be increased, diversification of agricultural production is imperative. This process, which is already underway must be accelerated.

- (3) there is a lack of incentives for many individual agriculturalists to expand their enterprises and to improve their techniques of production. This problem arises from limited know-how, the small size of production units, high marketing costs both for inputs and outputs, lack of credit on reasonable terms and unfavourable tenure relationships.

Paragraphs 14, 16 and 17

14. "The Authority commenced work in 1957 and its function during the four years, 1957 to 1960, were two fold. First, it made available Federal resources, principally finance, to the State Government established Land Development Boards or Corporations in respect of approved land development schemes. Fourteen such schemes of varying sizes (1,500 to 5,000 acres) were financed by the Authority during this period. Second, the Authority in 1958, undertook the first scheme (the Bilut Valley Land Development Scheme - 6,500 acres for 600 families) directly planned, financed and managed by itself. Thus up to end of 1960 the Authority had sponsored the development of 15 schemes in the various States of Malaya with planted area at that time totalling approximately 18,000 acres. In these schemes over 3,000 pioneer farming families were settled as at end of 1960.

16. "...when in 1961 the Government launched a massive programme of development under the 2nd Five Year Plan (1961-65)... the Authority became the natural choice of the Government as its major agency for the planning and implementation of settlement schemes."

17. In order to gear the Authority to its new role, certain policy changes were made and its organisation streamlined. Briefly the following were the changes involved:-

- (a) FLDA abandoned the role of "loans board" and became directly responsible for the planning, inception and administration of all schemes financed by the Authority.
- (b) investigation and planning of FLDA Schemes were to be co-ordinated through a high powered committee consisting of Secretaries to Ministries and Heads of Federal Departments connected with development.
- (c) the FLDA Organisation was strengthened by the addition of technical and administrative officers, the re-organisation of Head Office into various sections on a functional basis, the establishment of Regional Offices in the various States and the recruitment or training of field staff for effective management at scheme level.

Paragraph 29

While the average planted acreage during the period 1957 to 60 was about 4,250 per year, during the Second Five Year Plan Period (1961-65) the average planted acreage per year increased to about 23,500. However, the achievement of the Authority fell short of the practicable target by about 23 percent. This was due mainly to the following factors:-

- (a) Agricultural Diversification: The decision of the Government in 1964 that as many of the new areas to be developed should be devoted for oil palm cultivation in keeping with its diversification programme meant that many of the areas which had been investigated into and which had been found to be suitable for rubber development could not be proceeded with while new areas suitable for oil palm were not amenable to immediate development for the reason that they were located too far from existing roads or required further investigations before development could proceed.
- (b) Scarcity of contractual resources:
.....
- (c) The shortage of qualified and experienced staff in relation to size of programme:
.....
- (d) Delay in the village development and the provision of infrastructure services:
.....
- (e) Non-development of subsidiary crop areas due to lack of adequate relevant information: In the Authority's existing 62 schemes, a total area of over 40,000 acres earmarked for subsidiary crops are being kept undeveloped due to difficulties in deciding what crops to produce and how much to produce taking into consideration, soil pattern, topography, climate and environmental conditions and most important of all the marketability of suggested crops both within the country and outside. This will account for a substantial portion of the shortfall. (Currently active research is being carried out by the Government and it is hoped to come up with some solutions within the next few years.)
- (f) Delay in the extraction of valuable commercial timber:
.....

Paragraph 38

"The main considerations determining the choice of an area for development are:

- (a) Legal status of land in the proposed development area
.....
- (b) Soil suitability
.....
- (c) Mineral Clearance: Deposits of economic minerals, such as tin, iron, bauxite, etc. are important natural resources; steps are taken to ensure that economically workable mineral deposits are not sterilised as a result of agricultural development. Therefore, the area should be one for which the Director of Geological Survey and the Chief Inspector of Mines would be able to give a mineral clearance certificate.
- (d) Forest Clearance: It must also be ensured that the Forest Department will be able to give clearance to the area either initially or in stages according to the programming of jungle clearing in various phases; thus revenue and income from valuable timber which may have taken 50 to 100 years to reach maturity is not lost to the country as a result of jungle clearing for agricultural development.

(e) Accessibility and topography

.....

(f) Economic Size

.....

Paragraph 51

Those Eligible to apply to become FLDA Settlers

Qualifications for eligibility as settler applicants have been drawn up, taking into consideration the section of the population whose needs are most pressing and the type of people who are likely to put up with difficult conditions and work hard in order to fulfill the economic and social objectives. Settler applicants for FLDA schemes are required to be:-

- (a) Malaysian Citizens or State Nationals;
- (b) between 21 and 45 years of age;
- (c) married, preferably with children;
- (d) landless or with less than 2 acres of land;
- (e) those with an agricultural background, preferably with some useful additional skills;
- (f) those who have no serious criminal record;
- (g) physically fit with normal function of the limbs and senses to enable the performance of hard outdoor work;
- (h) willing to abide by the conditions of entry and rules and regulations prevailing in a land development scheme.

(N.B. 1966)

Paragraphs 75, 76 and 77

Land Alienation

75. The legal basis at present for the alienation of land in the F.L.D.A. Schemes is the Land (Group Settlement Areas) Act, 1960, an Act "for the purpose of ensuring uniformity of law and policy in respect of the establishment of group settlement areas and the conditions of alienation and occupation of land in such areas and for other matters incidental thereto" as amended by the Land (Group Settlement Areas) (Amendment) Act, 1965 enacted to meet the specific needs of the Authority, especially -

- (a) the provision of security for the Authority's substantial loan investment and ensuring of loan repayment; and
- (b) the possibility of collective development on a co-operative basis where the type of crop dictates such a necessity.

76. Briefly, the steps involved in the process of alienation under this legislation are as follows:-

- (1) After an agreement with the State Government concerned on location, area layout, appropriate crop or crops premium, rent, survey fees, etc. in the form of a consolidated annual charge (CAC), date of commencement and ending of the CAC, and on other matters raised

by the State Government or the F.L.D.A., the State Government will declare the F.L.D.A. Scheme area as a Federal Development Area, and upon such declaration, the area shall vest in the Authority.

- (2) Settlers introduced to the Scheme are permitted by the F.L.D.A. to occupy their future holdings in expectation of titles under Section 10 of the Act. These authorisations are effected by means of entries in the register of holdings to be maintained by the Manager of the Scheme.
- (3) On completion of loan repayment (after 10 to 15 years) the area is re-vested in the State and the State Government will issue documents of titles for holdings to settlers in the (Authority maintained) register of holdings, for a term usually of 99 years.

77. This Act aimed at the affecting of alienation in a uniform and simplified manner, the exclusion of certain undesirable features of the outmoded Land Codes of each State, and the provision of a legal framework conducive to having economically viable farms in planned development areas, has the following noteworthy features:-

- (1) Several lots or parcels of land constituting a holding - termed a rural holding - can be held under one title.
- (2) A rural holding may be alienated only to one individual person (with the necessary qualifications) and NO joint ownership of a rural holding shall be permitted at any time.
- (3) A rural holding cannot at any time be sub-divided nor held by way of undivided shares.
- (4) No rural holding may be leased or sub-let in whole or in part.
- (5) The Islamic law of inheritance, which has led to sub-division and fragmentation with serious adverse consequences, will not apply. The persons entitled to interests in a holding may assign their interests to a single holder, and in default of such assignment, the holding shall be disposed of on the order of the Collector of Land Revenue and the proceeds of sale shall be dealt with according to law.
- (6) The holder of any rural holding which does not have direct access to a public road or access reserve shall have a right of way at all times across intervening holdings subject to his liability for any damage caused; this makes the provision of numerous access reserves unnecessary.
- (7) Premium, rent, survey fees, etc. need not be paid at the time of occupation of a rural holding in expectation of title as these can be included in the consolidated annual charge and be made payable starting from the time when settlers begin to get their returns from the main crop.

- (8) Areas that need to be developed collectively on a co-operative basis, as in the case of oil palm, are permitted to be developed on such a basis and be held by settlers in the form of shares equivalent to the individual main crop acreage.
- (9) Provision is made for a holding to revert to the Authority in case of a breach or default by a settler in the observance of any of the conditions or obligations after giving of due notice and opportunity to explain such breach or default.
- (10) Any settler who is agrieved by the decision of the Authority and its officers in the carrying out of the provisions of this Act may appeal to the Minister charged with the responsibility for the FLDA and his decision thereon shall be final.

ASM/ZA/6/4/70

SEJ/3/D26.

Association Paper.

Confidential:

Interview with FLDA Regional Secretary and Works Manager
Oil Palm - 25 May 1970 - ASM and CA.

The purpose of this interview was to get more information on the management of FLDA schemes and on the extent of delegation of decision making from KL.

The mandores are appointed, from among the settlers, by the scheme management (in contrast to the ketua, who is elected by JKKR). The mandore is paid 50% more than the normal wage plus \$1 - 1.50 per day. There are 2 or 3 mandores per field assistant. In the present shortage of staff, there will be one Senior field assistant or supervisor and one field assistant for 1500 - 2500 acres.

The mandores record all the work done by the settlers - eg. the harvesting. All the work is piece work, including weeding (paid by acre), drainage (paid by chain). The piece rates are decided by Zain, based originally on the earnings of the estate in which he worked before joining FLDA. They have been revised since; my impression of the principles of the revision was that they had been revised to keep in line with estate practice and to ensure a supply of people for the jobs which require hard physical work, and not with a view to ensuring some given incomes per month. (We should get figures of the piece work rates).

We asked Zain about the earnings and employment of the settlers on oil palm schemes. There was not enough work to keep all settlers fully employed on oil palm, once it was in bearing. Zain's own personal solution was to give permission to settlers to work outside the scheme - eg. on Kulai, there were 370 settlers, of whom 70 had been given permission to work outside.

This permission to work outside was against FLDA official policy; but it had not been specifically refused. KL knows from the checkrolls, which are sent in monthly, that this is happening - that certain settlers are not working on the schemes. The Chief Settler Development Officer has visited the oil palm schemes and seen the problem, but has proposed no alternative solution, therefore FLDA is "not against".

The effective principle (in this area) seems to be that an outside job can be taken, provided the settler retains his base in the scheme. The dusun plot does not provide the solution to the problem of too little work - settlers are unwilling to work in their "own time", and they have no previous skills in vegetable cultivation, whereas some of them have previous skills in various outside jobs (retailing was given as an example).

An experimental "solution" was being tried on Sungei Dusun, in which oil palm was divided into blocks of 100 acres, each run by 10 settlers. In this, FLDA pays for the ffb. harvested from each block. The way in which the settlers arrange the work and distribute the proceeds from sale of ffb. among themselves is up to them. (It was recognised that this did not solve the problem of underemployment, but merely transferred it to the settlers - FLDA no longer had to decide whether to spread the work thinly over all settlers or to give permission for some of them to work outside).

Rubber presented no problem of the same kind (Jayus) because each settler had his own lot (ie. again problems of underemployment did not impinge on FLDA management).

Zain stressed that FLDA only provides "necessary" work.

Comment: the settlers who work outside will receive the dividend for their share of the oil palm scheme. Their outside work, in preference to work on the scheme itself, presumably provides similar "net advantages" (in remuneration, leisure, nature of work) to the work that they might have done on the scheme itself. The settlers working on the scheme, receive wages for work on the whole scheme, and dividends for their individual shares of the scheme. The implications need to be worked out in a further note - Zain's "solution" can be justified, but it implies that (if the settlers working outside are employed) the settlers on the scheme as a whole are receiving higher **average** incomes than were intended when the acreage per settler was fixed at 10, which was known to be inadequate to provide "full" employment.

95

Accounts: Zain referred to the provisional dividend being paid on Kulai Phase I. The accounts "done to the very last cent" were sent from schemes to KL. From the proceeds of sale of ffb. were deducted development expenses and current expenditure. The price of ffb. varied with the price of oil in the market. Some fruit was being sent for processing to private estates; the estates charged a processing charge and sold the fruit at FLDA's approval.

For one scheme out of 24 in the whole of Johor the accounts were up to date. This was Sungei Tiram, an ex state scheme. We asked about the dividend now calculated for this scheme and were told that it was most untypical. The gross income of the settler was \$100-150 with loan repayment \$70. This scheme had "uneconomical" plot sizes of 4-5 acres; the debt was very high, because it included not only the original expenditure by the state but also FLDA expenditure on the replanting that had been found necessary.

Decisions and delegation: we asked about the kind of problems which came to the Regional Secretary's office from schemes for decision, and what decisions had to be referred to KL. Zain mentioned an example of a few days earlier of a Scheme manager reporting that a settler claimed that he was ill and therefore did not wish to work - what should the manager do? Zain had replied that the manager should obtain a Medical Certificate before making a daily subsistence loan to the settler.

On the need to refer to KL, in general, they were reluctant to give specific examples because these would appear to be critical of FLDA. There appears to be very limited delegation power to spend - the Regional Secretary up to \$25/- etc. We asked about failure of contractors, which might require immediate decisions by man on the spot; but it was said that there were no failures of contractors. We shall go back to them on this question.

(Prof. A.S. Mackintosh)

6 June 1970

ASM/BN

CONFIDENTIAL

SEJ/3/D26

FLDA - Notes on Scheme staff numbers and yields of rubber and oil palm.

These notes summarise results of examination of information on staff and yields obtained from FLDA in April 1970. My aim in looking at yields was to see if there is any strong indication, in poor yields, of effects of shortage of experienced management or lack of farming skills among settlers. The results on yields are inconclusive. Figures of Oil Palm production/acre were obtained for all schemes in bearing; they have been compared only with FLDA's current yield assumptions; comparisons are not simple, especially in the early years of Oil Palm (almost all of the FLDA Schemes). Figures of rubber yields were provided, only for less than a third of the FLDA rubber acreage which is (or ought to be) in bearing.

The first section, on Scheme staff, compares two sets of "requirements" in use in FLDA. Definitions of categories need refinement. A quick comparison is made with incomplete information on staff proportions in use in a private estate. This obviously needs much refinement.

(Professor A.S. Mackintosh)

2nd May 1970.

ASM/BN

Staff requirements on FLDA Schemes

I. Two papers on staff requirements were obtained from FLDA in April 1970:

- 1. Table "Staff requirement at scheme level", showing, for each of 90 schemes : planted acreage; existing staff in the scheme; number of staff recommended; and shortage or surplus.

Staff are subdivided into Mgr., Jr. Mgr., A.M., Asst./Sup., C.A/F.A.

- 2. Charts of "Scheme Staff Structure" in 3 stages, the last of which is after Settlers' entry. This shows the number of staff intended for various sizes of scheme (by "block acreage \pm 500 acres).

Staff are subdivided into OLC, A.M, SA or S/A, FA and SDA(AM), SDA (S/A), SDA (FA), SDA (W).

Table 1 attached classifies schemes by size of planted acreage.

Table 2 compares the staff per scheme of a given size as in "Scheme Staff Structure" with the average "recommended" in each size class.

Table 3 compares the total numbers of staff in various categories "recommended" and as in "Scheme Staff Structure" applied to the 10 size classes.

It is assumed that S/A or SA in "Scheme Staff Structure" is the same as Asst/Sup in the "recommended" staff requirements; and that the "recommended" numbers include S.D.A. officers at A.M., S/A and FA levels.

Various points emerge from this comparison. For brevity, R = "recommended; S = Scheme Staff Structure.

- 1. The total number derived from S is 994, compared with R 1054 and existing staff of 872.
- 2. For size classes 1-8 (schemes less than 4300 acres planted), S requires 65 OLCs, with no subordinate AMs. R requires 26 M and 52 AM - 78 in all.
- 3. For size classes 1-6 (less than 3300 acres planted), S requires 64 S/A, while R requires 106. For size classes 7 and 8 S requires 57 S/A, while R requires 70.
- 4. For all schemes the comparison of senior staff (M, AM, SA) required by S and R and existing is summarised below:

	<u>Size classes 1-8</u>	<u>All Schemes</u>
R : M + AM	78	123
SA	<u>176</u>	<u>311</u>
Total	254	434

	<u>Size classes 1-8</u>	<u>All Schemes</u>
M + AM	65	140 (incl 25 SDA)
SA	121 (incl 37 SDA)	172 (" 37 SDA)
Total	186	312
Existing M	11	22
Jr. M.	13	14
A.M.	35	51
Total M.	59	87
SA (Asst., CA/Sup)	127	180
Total	186	267

The requirements of R and S for managers differ considerably. The requirements of R for SA are much greater than the requirements of S, which apparently could be met by existing staff numbers.

- R requires 620 FAs, no additional SDAs (FA and W)
 S requires 582 FAs, plus 100 SDAs (FA and W)
 Existing staff 605 FAs including (?) SDAs (FA and W).

6. The basis of R and S has to be questioned.

Table 1. Schemes by size of planted acreage.

	Planted acreage	Number in class	Serial Nos. of schemes											
1.	less than 1000	7	7	30	55	60	64	71	73					
2.	1000-1500	3	8	28	86									
3.	1500-2000	5	6	46	53	62	87							
4.	2000-2300	3	56	80	85									
5.	2300-2800	10	9	15	24	25	31	45	59	61	77	84		
6.	2800-3300	18	1	4	11	13	14	19	44	48	50	52		
			54	65	66	67	68	72	79	88				
7.	3300-3800	8	23	26	32	36	47	49	63	69				
8.	3800-4300	11	12	17	37	38	39	43	58	63	70	78		
			81											
9.	4300-4800	11	2	5	10	20	21	34	35	40	75	76		
			83											
10.	Over 4800	14	3	16	18	22	27	29	33	41	42	57		
			74	82	89	90								

11	171	11	88	901	99	98	93	91	9	11	6081-6084	9
12	181	11	101	170	18	88	88	13	13	14	6084-6089	10
13	184	100	188	282	271	112	93	37	99	90	Total	
14	184	100	188	282	271	112	93	37	99	90		
15	184	100	188	282	271	112	93	37	99	90		
16	184	100	188	282	271	112	93	37	99	90		
17	184	100	188	282	271	112	93	37	99	90		
18	184	100	188	282	271	112	93	37	99	90		
19	184	100	188	282	271	112	93	37	99	90		
20	184	100	188	282	271	112	93	37	99	90		
21	184	100	188	282	271	112	93	37	99	90		
22	184	100	188	282	271	112	93	37	99	90		
23	184	100	188	282	271	112	93	37	99	90		
24	184	100	188	282	271	112	93	37	99	90		
25	184	100	188	282	271	112	93	37	99	90		
26	184	100	188	282	271	112	93	37	99	90		
27	184	100	188	282	271	112	93	37	99	90		
28	184	100	188	282	271	112	93	37	99	90		
29	184	100	188	282	271	112	93	37	99	90		
30	184	100	188	282	271	112	93	37	99	90		
31	184	100	188	282	271	112	93	37	99	90		
32	184	100	188	282	271	112	93	37	99	90		
33	184	100	188	282	271	112	93	37	99	90		
34	184	100	188	282	271	112	93	37	99	90		
35	184	100	188	282	271	112	93	37	99	90		
36	184	100	188	282	271	112	93	37	99	90		
37	184	100	188	282	271	112	93	37	99	90		
38	184	100	188	282	271	112	93	37	99	90		
39	184	100	188	282	271	112	93	37	99	90		
40	184	100	188	282	271	112	93	37	99	90		
41	184	100	188	282	271	112	93	37	99	90		
42	184	100	188	282	271	112	93	37	99	90		
43	184	100	188	282	271	112	93	37	99	90		
44	184	100	188	282	271	112	93	37	99	90		
45	184	100	188	282	271	112	93	37	99	90		
46	184	100	188	282	271	112	93	37	99	90		
47	184	100	188	282	271	112	93	37	99	90		
48	184	100	188	282	271	112	93	37	99	90		
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51	184	100	188	282	271	112	93	37	99	90		
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58	184	100	188	282	271	112	93	37	99	90		
59	184	100	188	282	271	112	93	37	99	90		
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67	184	100	188	282	271	112	93	37	99	90		
68	184	100	188	282	271	112	93	37	99	90		
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70	184	100	188	282	271	112	93	37	99	90		
71	184	100	188	282	271	112	93	37	99	90		
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75	184	100	188	282	271	112	93	37	99	90		
76	184	100	188	282	271	112	93	37	99	90		
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78	184	100	188	282	271	112	93	37	99	90		
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92	184	100	188	282	271	112	93	37	99	90		
93	184	100	188	282	271	112	93	37	99	90		
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95	184	100	188	282	271	112	93	37	99	90		
96	184	100	188	282	271	112	93	37	99	90		
97	184	100	188	282	271	112	93	37	99	90		
98	184	100	188	282	271	112	93	37	99	90		
99	184	100	188	282	271	112	93	37	99	90		
100	184	100	188	282	271	112	93	37	99	90		

II. Estate Supervision staff proportions

One private estate example gives roughly 0.1 Manager, 0.25 Assistant Manager and 1 conductor per 1000 acres (rubber). Replanting oil palm requires 1 AM and 1-2 conductors per 1000 acres.

In 1970 FLDA's acreages of rubber and oil palm bearing and not bearing are

Acreage not bearing	:	rubber	(ANBR)	70,000
"	"	"	:	O.Palm (ANBOP) 119,000
"	bearing	:	rubber	(ABR) 78,000
"	"	:	O.Palm	(ABOP) 43,000

- Assuming that
- 1) ANBOP requires the same supervision as replanting OP
 - 2) ANBR requires the same
 - 3) ABR and ABOP both require the same; and applying the above estate proportions, supervisory staff requirements in 1970 are approximately:

	Mgr.	Asst. Mgr.		Conductors		
ANBR	20	70		105		
ANBOP	35	119		180		
ABR	7	20		78		
ABOP	3	11		43		
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
	65	220		406		Total 691
and in 1973:	79	285		570		" 934
1970 Actual FLDA staff	M 22	JM 14	AM 51	SA 180	FA 605	Total 872
S requirements	—	140	—	172	682	994
R "	—	123	—	311	620	1054

FLDA Rubber Schemes - average yields

Two tables on yields on FLDA rubber schemes were provided by FLDA Planning Section on 21 April 1970:

1. FLDA - Rubber Yield Assumptions - FLDA Schemes: Planting Division 12 May 1969. A manuscript note has been added "These in fact are not assumptions but more 'potentials' of areas planted with RRIM 605 and 623 mainly. For FLDA settler holdings reduce yield estimates by 10%".

2. FLDA - Rubber Schemes - average yield: Planning Section 3rd March 1970.

The second table gives average yields on 9 FLDA schemes (13 phases) which were started in 1958 or 1960 and on which tapping began on dates between July 1965 and October 1968. Yields are given for "1st 12 months", "2nd 12 months" etc., not for calendar years. The final year spans 1969 between various dates.

The area in production on the listed schemes in the final years is 9,687 acres. FLDA's total areas in production of rubber in 1968 and in 1969 (calendar years) were about 26,000 and 53,000 acres respectively. These total figures include schemes which were in tapping for only a fraction of the calendar year, whereas figures for listed schemes are for full 12 months' tapping. So comparable yield figures for all rubber schemes in tapping cannot be derived from the total production figures (9.40 and 27.63 million lbs. in 1968 and 1969). Only roughly can it be said that the yields on unlisted schemes would be about the same as the average yield on listed schemes in the final years (808lbs/acre) if the new acreage coming into tapping during 1969 was in tapping for 4 of the 12 months on average. If the average period of tapping of new acreage in 1969 were longer, the yields on unlisted schemes would be lower than the average on listed schemes.

The listed schemes are shown in Table 1. 14 other rubber schemes which were started in 1958, 1959 or 1960 are not listed:

Endau	Machap	Batu Lapan
Kong Kong	Gedangsa	Sungei Tiang
Sungei Tiram	Ijok	B. Tembaga
Ayer Hitam	Bilut Valley	Guar Napai
Parit Haji Idris	Chalok	

There are too few observations in the 3rd and 4th 12 month periods to allow any firm conclusions to be drawn. The 2 yields for the 4th 12 months are about 75% of the assumed yields, but the yields for the 3rd 12 months are close to the assumptions.

Table 1

FLDA

Rubber schemes: average yields

Scheme : Phase	Acreage	Date 1st tapping	Average lbs/acre/year			
			1st 12 mths.	2nd 12 mths.	3rd 12 mths.	4th 12mths.
Kemendore 1	592	7/65	899.5	1078.5	1088	990 (70-77% of assumed)
11	706	10/66	623	742	1078	
111&1V	1376	10/67	479	733		
Solok Menggong 1	295	7/65	459	652	937	1023 (72-79 % of assumed)
11	291	11/66	581	895	1216	
Hutan Percha 1	831	7/68	892			
Kg. LBJ 1	820	7/68	676	938		
Sendayan 1	891	2/68	560	838		
Kg. N.Z. 1	1027	10/68	483			
Kg. Awah 1	953	10/68	554			
Bkt. Serampang 1	929	10/68	823			
Tenang 1	976	8/68	792			
			Average yield p. acre		<u>1080</u>	<u>1001</u>
Rubber yield assumptions full year:			647	941	1176	1412
half year:			323½	794	1058½	1294

Sources: Average Yields : FLDA Planning Section 3rd March 1970.

Rubber Yield Assumptions : FLDA Planting Division 12th May, 1969.

Addendum to note on FLDA rubber yields

FLDA rubber schemes in tapping up to July 1969 are listed below. Schemes for which average yields are given in the note "FLDA Rubber Schemes - Average Yields" (Planning Section 3rd March 1970), are marked Y. Schemes that have received Government new planting grants are marked G.

Source: FLDA Finance Circular No. 2/69, Appendix A.

APPENDIX 'A'RUBBER SCHEMES IN TAPPING

	Schemes	States	Phases	Date Commenced Tapping
G	1. Guar Napai	Kedah	1 & IV	July, 1963.
G	2. Bukit Tembaga	"	1 & 11	January, 1964.
G	3. Batu Lapan	"	1 & 11	June, 1964.
G	4. Sungei Tiang	"	1 & 11	October, 1967.
G	5. Ijok	Perak	1	1st September, 1968.
	6. Sungei Klah	"	1	1st May, 1969.
G	7. Gedangsa	Selangor	1	1st July, 1968.
G			11	3rd April, 1969.
Y	8. Kampong L.B.J.	N.Sembilan	1	15th February, 1968.
Y			11	1st March, 1969.
Y	9. Sendayan	"	1	15th February, 1968.
Y			11	1st May, 1969.
G	10. Sungei Lui	"	1	8th October, 1968.
	11. Bukit Rokan	"	1	1st March, 1969.
GY	12. Kemendore	Malacca	1	July, 1965.
Y			11	October, 1966.
Y			111 & IV	October, 1967.
GY	13. Kampong Baru Menggong	"	1	July, 1965.
			11	October, 1966.
G	14. Machap	"	1	October, 1966.
Y	15. Hutan Percha	"	1	1st July, 1968.
Y			11	16th June, 1969.
			111	16th June, 1969.
G	16. Endau	Johore	1	August, 1966.
G			11	1st September, 1968.
Y	17. Tenang	"	1	8th August, 1968.
Y			11	2nd June, 1969.
Y	18. Bukit Serampang	"	1	1st October, 1968.
G	19. Kong Kong	"	1	1st November, 1968.
G	20. Ayer Hitam	"	1	1st December, 1968.
	21. Lenga	"	1	1st April, 1969.
	22. Parit Haji Idris	"	1	1st May, 1969.
G	23. Bilut Valley	Pahang	1	August, 1966.
G			11	August, 1966.
G			111	June, 1968.
Y	24. Kampong Awah	"	1	1st October, 1968.
GY	25. Kampong New Zealand	"	1	1st October, 1968.
GY			11	1st July, 1969.
	26. Sungei Tokam	"	1	1st March, 1969.
G	27. Chalok	Trengganu	1	August, 1966.

FLDA Oil palm yields (FFB per acre)

Figures of FFB production on all FLDA schemes planted before March 1967 were obtained from Surijit Singh (FLDA) on 21 April. The derived yield figures have been compared with the yields given in the table "oil palm yield estimates, FFB, oil and kernels, D x P material 60 palms per acre average inland soils" (Planting Division 22nd April 1969). This table gives yield estimates in FFB/acre for the half year beginning 2½ years after planting and for each succeeding year until the 25th year.

The yield estimates rise steeply in the 3rd, 4th and 5th years after planting, then begin to flatten out with the following yields : 6th year 8.5 tons per acre; 7th 9.0; 8th 9.5; 9th 9.8; 10th 10.0; 11th 9.7.

Production figures are given for 31 phases of 10 schemes. These include all FLDA Oil Palm schemes planted up to January 1967. In only 8 phases have 3½ years passed since first harvest (and between 6 and 7 years since planting). In only 2 phases have 4½ years passed since first harvest. So most of the schemes are in the steeply rising part of the yield curve.

The yield estimates are given with reference to the time intervals since planting, with the first harvest assumed to be in the sixth half year (i.e. starting 30 months after planting). In 14 of the 31 phases the dates of first harvesting are more than 3 years after the dates of planting, and these longer periods affect the comparison of estimated and actual yields. If estimated and actual yields are plotted on a graph against the periods since planting, most of the actuals for the first 2½ years of production are well below the estimates. If yields are plotted against the periods since first harvesting, the correspondence is much closer.

Table 2 compares actual yields on 8 phases with "yield estimates", both related to periods since date of planting. The figures of "yield estimates" provided by FLDA are related to whole years (eg. the 4th year after planting) apart from the half year at the end of the 3rd year. The observed yields relate to 12 month periods which do not begin exactly some whole number of years after planting (eg. they relate to periods like the 12 months from 52 to 63 months after planting). The "yield estimates" used in the table for comparison with observed yields have been derived by interpolation to correspond in time with the observations.

The table shows:

1. Serial number and name of Scheme
- 2,3, Dates of planting and first harvesting, and period between in years and months (eg. 3:4)
4. Observed yield (O) and yield estimate (E) in tons of FFB per acre, in the latest and earlier 12 month period; only observations in and after the 4th year after planting have been included.

Table 2.

			Dates (month/year)		Interval (yr:mth)	Yields			
			Planted	Harvested		Last yr. O/E	Prev. yr. O/E	Prev. yr. O/E	Prev. yr. O/E
1	Pasir Raja	1	1/64	9/66	2:8	7.2/8.6	7.6/6.9		
4	Kulai	1	6/61	6/64	3:0	8.9/9.6	9.5/9.3	7.6/8.8	6.3 / 7.4
5	Kulai	11	2/63	10/65	2:8	8.2/9.1	8.4/8.6	7.1/6.9	
6	Kulai	111	4/64	8/67	3:4	7.5/8.1	5.0/6.0		
19	Jerangau	Nucl.	1963	4/67	over 3:4	3.4/8.6	2.8/6.6		
20	Jerangau	1	1963	4/67	" 3:4	4.3/8.6	2.4/6.6		
25	Sungei Dusun	1	1963	7/67	" 3:7	5.1/8.6	4.9/6.5		
29	Ulu Jempol	1	1963	6/66	" 2:6	8.2/8.5	6.5/6.3		

FINAL REPORTF.L.D.A.INTRODUCTION

This report is based on the Sociological Field Studies as well as on interviews and discussions with officials of FLDA at Federal, State and Scheme level. It also draws on informal discussions with people in Johor from various walks of life, professionals concerned with planning and implementation of development programmes, medical specialists, teachers, social workers and others including people who have migrated from rural areas and now live and work in Johor Baharu. Moreover, FLDA has featured prominently in the deliberations of the team of consultants so that various aspects of the Organisation have been dealt with from time to time. This report attempts to highlight some of the questions, issues and problems raised about FLDA from these various sources so that something of the imagination and aspirations of the informants, as they see the programme, may be conveyed to those planning for land development not only for FLDA but also relating to high productivity agriculture in general.

It needs to be emphasised that the entire focus of this report is on the study of FLDA as an experiment in establishing a new settlement pattern. We obviously cannot claim, and in fact did not plan, to deal with the subject exhaustively in scope or content. The limitation of Field Studies within the overall limitation of a Master Plan Study of this nature need hardly be emphasised here. Nonetheless this report deals with certain topics and should be read together with the FLDA Field Studies. Moreover for a comparison of similar topics in other settlement patterns it should be read in conjunction with the studies undertaken by Dr. Mark Holmström. This is because the latter studies were also undertaken in specific organisational settings (kampongs, commercial estates, Local Council areas, State land Schemes, and areas of recent rural-urban migrations in towns,) to obtain general information about the physical and human resources available that might suggest directions along which potential development should take place. More specifically, these studies will indicate the merits of each settlement pattern and thereby identify

the comparative advantages and disadvantages of the different settlement patterns on a comparative basis.

Theoretical Framework

This report will attempt to outline a broad policy framework suggesting the kinds of questions and issues that might be relevant in the planning of future land settlement programmes. The limitations of the data as well as its qualitative nature necessitates a theoretical framework to provide a better "fit" of the model. We consider it useful therefore, to present this report within the following broad terms of a theoretical frame of reference.

Our analysis of the social situation obtaining at the end of the First Malaysian Plan suggests that the major social problem is that of raising the level of living of the lower income and other socially disadvantaged groups as a whole, and especially among the rural people. The main problem is that the provision of consumption goods and services in reaching certain minimum standards of health, education and housing, and in opportunities for a fuller life for the people cannot be met. This is because of widespread unemployment, low incomes, low levels of education, training, and skills, as well as other factors such as poverty and its consequences or the combination of factors. These factors, notably unemployment and low incomes which are associated with conditions of poverty, together with its consequences of deprivation of facilities and opportunities necessary for the development of human potential especially among children and youth constitute the biggest and worst problem.

Our experience in the Malaysian setting suggests that the inability of people in poverty conditions, to cope effectively with the demands of their environment is not always, nor necessarily, due to personal inadequacies, to "traditional" values and attitudes, or to an inherent resistance to change. Rather it is due more to the social structure and the unequal relationships between individuals and groups who are thereby denied access to, and deprived of opportunities for, economic betterment, education, health and employment.

It is relevant to examine the existing social situation within the "order" and "conflict" theories of human societies. The former theories are mainly concerned with the social forces which plan for social change within societies or communities according to the existing given structural form. Conflict theories of society, on the other hand, are concerned with those social forces that produce social changes resulting in the continuing emergence of structural changes within the society. The major difference between the two, in the present context, is that those basing their analysis of the existing socio-economic situation on the order model would ignore issues of social power and structural inequalities to which the grievances of disadvantaged groups may be traced. Those working from the conflict model, on the other hand, take into account these social forces that persistently create inequalities of opportunities among certain groups, and in inequalities in the distribution of resources, and attempt to indicate the kinds of changes in the social structure that will be necessary if social problems associated with social stratification and power relationships are to be realistically dealt with.

This report will attempt to present the argument within the framework of both the order and conflict theories, the analysis being based on the diagnosis of the issues which in turn will depend on the weight of the evidence gathered. At the same time for a sharper focus it is considered useful to take a position in the argument and to examine the evidence in the light of this position. We suggest, in this connection, a frame of reference which argues that the development of land settlement schemes is basically dependent upon the creation of a social structure which meets the aspirations, demands, and needs of settlers. That the establishment of favourable conditions in the social structure will create opportunities for the exercise of entrepreneurial talents and changes in technology resulting in the introduction of a wide variety of economic activities that will permit a continued rise in per capita incomes. Moreover, that the main consideration in establishing new settlement patterns is to create new social conditions which offer alternative opportunities for settlers to live a fuller life than that previously experienced, through the creation of new organisations, procedures, regulations and incentive systems in which they can participate,

decide and act. We suggest for instance that the more important variable is not the number or variety of economic opportunities available at any one point of time, as such, but rather the composition of the organisation; that is, whether changes in the structure can be made to reflect shifts in the demand for particular types of economic activities from time to time.

Assumptions

This report makes the main assumption that FLDA has the capacity to open new land (within its targets) as successfully as it has done in the past¹. Moreover that the organisation has shown itself sensitive to change and innovation and that in physical terms it is likely to continue to remain competitive.

Part I

1. Concept: Analysis of the existing pattern of FLDA Land Settlement Schemes

The main objective of FLDA has been to provide land for landless people desiring land for agricultural purposes², by the utilisation of available resources of land and capital made available through the Central Government. The critical question in its concept centres on the form of organisation set up (including management) to implement the objectives of the programme. In discussing the concept therefore it may be useful to deal with three main aspects viz. the concept as incorporated in the objectives, in the form of organisation and in the attraction of settlers to the schemes.

(i) FLDA Objectives

In offering land ownership FLDA was in fact basically appealing to the socio-economic cultural value system of the rural Malays to whom landownership had value as a means of

¹ Evidence has been provided by the team of consultants to show that despite various constraints, FLDA production and costs is comparable to commercial estates.

² "The Expenditure Budget of the Federal Government, 1970" (Pg.323). Other objectives encompass a wider scope. We are referring particularly to the objectives at the inception of FLDA.

livelihood, status value and value as property. In terms of development the emphasis was essentially to reduce the number of landless people who were otherwise in conditions of poverty i.e. unemployed/underemployed, low incomes, large families, etc. by providing new land "to keep pace with the formation of new form families³". The main objective therefore was to create a large number of jobs to absorb the growing rural population through a landownership programme which would create more job opportunities than say, a commercial type estate. (For instance in the latter, one labourer on an oil palm estate can work on 16 acres where as on an FLDA scheme one settler family is given only 10 acres). In other words it was the creation of more job opportunities that was one of the main objectives, even if this implied a certain amount of under-employment with consequent lower incomes.

The other major objective of FLDA of relevance to this discussion is the criteria for selection of families to schemes. The original "System of point award" of FLDA clearly gave increased weightage in settler selection to families in greatest need. That is to say that in accepting settlers who would otherwise be unlikely to obtain access to land under high productivity agriculture, FLDA was in fact helping to meet the aspirations of the rural landless. The ability and capacity of FLDA staff, with limited experience, to have established and successfully run schemes, given the age group, low level of skills, experience, and lack of management ability among settlers, in the past, has been, perhaps one of its greatest achievements. However, the more recent emphasis on criteria aimed at attracting a better-calibre settler has rather far reaching policy implications. On the one hand the fact that there has not been any appreciable increase in the quality of manpower potential among un/underemployed rural families suggests that future FLDA settlers might be drawn from among these who would, more likely than not, be able to secure employment opportunities elsewhere. Moreover, those in most need, with least alternative opportunities, and most unlikely to be given facilities for training and skills elsewhere will not be eligible to participate. Also the new policy implies that the success of the schemes will depend rather more on selecting the type of settler to fit the organisation,

³ IBRD Pg. 323

rather than the organisation becoming flexible to meet the needs of settlers. Moreover the inherent dangers in giving too much emphasis to a prototype settler need hardly be over-emphasised: there is a real danger in rigid adherence to the "Order" theory such that the Authority will have to increasingly resort to "hire and fire" powers rather than in a genuine attempt to seek solutions to problems as it has done in the past.

(ii) Form of Organisation

The significance and success of FLDA as a public sector organisation vis-a-vis the private sector has not been given the attention it deserves. Apart from a comparative discussion of its merits and de-merits in terms of cost-benefit analysis and in relation to costs in the commercial estates, there has been little attempt to evolve a model indicating and identifying the extent to which public sector organisations can in fact meet the needs and aspirations of people who have, and otherwise will be denied access to, participation in high productivity agriculture. Given the historical fact that the rural Malays were not encouraged to participate in the "modern" sector of the economy, by the colonial regime, public sector participation is necessary to provide entrepreneurial skills and financial resources which are not within the means of this group in society. FLDA has in fact provided the opportunity and training to equip rural people for participation in the process of economic and social development.

We are referring specifically to the fact that FLDA has been able to physically open up vast areas and settle large numbers of people most of whom without experience in modern agriculture and many previously engaged in non-farm occupations. This has been achieved through the establishment of a centralised statutory organisation that was vested with wide powers to set up and administer schemes throughout the country (subject of course to national policy and within certain constraints such as land). The demand for accelerated land development has necessitated the creation of such an organisation that has had to take on the responsibility for virtually all aspects of land development, including services that would otherwise be the responsibility of other Government departments. This approach, while it has in the past achieved targets, needs to

be reviewed in the light of a radically changing situation where not only is national priority being given to the opening of more new land but also, and perhaps more important, the need to meet the demands and aspirations of people for employment, higher incomes, career opportunities, and security for themselves and their families.

The sociological field studies in FLDA schemes were concerned mainly with this latter aspect i.e. ascertaining from settlers how they see themselves having moved into a new situation, what their needs and wants are, and, on the basis of their experiences, and an analysis of the total situation, suggest what improvements might be made to meet these needs and aspirations. We have to emphasise that for reasons mentioned elsewhere⁴ and also because sociological studies in the present context aim mainly at portraying and trying to understand how and why people react in a particular situation, for the benefit of planners, we shall be discussing in some detail the criticisms of settlers regarding the organisational set up of FLDA. For the present, we wish to draw attention to the fact that the development of FLDA schemes on a co-operative basis has been envisaged since 1965 and although there is no indication, conceptually, as to what form this may take, it may be useful to keep this in mind when discussing the findings.

(iii) Attraction to Potential Settlers

The main reason settlers stated they moved to FLDA schemes was to obtain land. They stated that land would provide work, income and security. The offer of land ownership, moreover, provided an opportunity to break out of the constraints of kampong life especially in opportunities for economic improvement. Basically there were two aspects to this. Firstly, and most important, FLDA offered the opportunity to take-off into modern agriculture by providing a base or foundation on which it would be possible to participate in high productivity commercial agriculture. Secondly, the skills required to undertake employment functions were the most related to the kind of agricultural experience or activities (mostly

⁴ See "Preface" to FLDA Field Studies; "Limitations of the Study".

rubber), in which settlers were already engaged, i.e. the more inelastic their skills the greater the attraction of FLDA. There were of course other areas where they could secure employment with their limited skills, e.g. commercial estates or state land schemes. The basic reason for choosing FLDA was because commercial estates would not enable them to possess land, and there was no job security. State schemes were unattractive because of insufficient capital, lack of adequate marketing facilities, low level of management ability among supervisors, and insufficient encouragement by government. FLDA appealed to them most because it offered what they wanted i.e. land, work, higher incomes, and the opportunity to participate in modern agriculture. Moreover by making developed land available for them, they considered it worthwhile to suffer hardship in the beginning, because ultimately their income will be based on the revenue from the crop.

Another important attraction which was implicit in the responses was political i.e. the question of government ownership and control. The general impression was that FLDA was a government organisation set up with the expressed purposes of providing landless rural people in opportunity for economic improvement. In other words it was in line with the Government objective of helping rural Malays and in this sense the settlers felt that government sincerely wanted to help them and would give them the necessary assistance (financial and managerial) to make the schemes a success.

2. Concept: Implications for the future

We shall now attempt to deal with the concept of FLDA from the same aspects i.e. in its objectives, form of organisation, and in the reaction of settlers, in terms of the implications for the future. In this attempt, we shall be raising questions, issues, and problems on the basis of what is actually happening so that we might in Part II raise policy issues and make some suggestions for the future.

A. Objectives

(i) Land Ownership

The question of land ownership needs to be taken up first because as mentioned earlier one of the main objectives of

FLDA is to provide land to the landless. The need for land as well as the question of individual or group ownership will be discussed together since the field study data suggests there is a relationship between the two. We wish to stress however, that the entire question of land-hunger is rather complicated, and that our analysis is limited to data obtained from the field studies.

(a) Situation Before Joining FLDA

To begin, we have to ask the question, what does land ownership mean to potential settlers? We have indicated that the demand for land was mainly because it served as a base from which income as well as security for settlers and their families was thought possible. When speaking of land ownership, most respondents were in fact reacting to the situation obtaining before they joined FLDA. For instance those working in kampongs stated that they wroked on land belonging to others on a "bagi dua" or "bagi tiga"⁵ system and apart from low incomes, there was no security attached to such work. Settlers who had worked under this agreement stated that they never felt secure because the arrangement could be terminated at any time by the landownera. (This often happened when the landowner was able to get better terms from another tapper in which case, unless the present tapper was able to match or better the terms, the original agreement will be terminated). Moreover there was no incentive to replant, either on the part of the landowner or the tenant, and production of latex naturally declines thus affecting smallholder incomes. Land in the kampong was owned by a few people who were the same people who weilded considerable influence in kampong matters, so that they began to realise that those who were landless had no possibility of obtaining land. Under this set-up it was impossible for them to improve their level of living; neither was there security nor the possibility of acquiring

⁵An agreement between the owner of rubber land and a tapper whereby the rubber that is tapped is either divided equally or on a 75:25 basis in favour of the landowner.

some property which they could bequeath to their children.

Estate workers on rubber and oil palm were dependent on estate employment for their means of livelihood. They also indicated that employment was insecure and could be terminated at any time for various reasons, especially a fall in prices. Most of them did not have any land or other property to fall back on should their employment be terminated⁶.

In any event, the main point to be emphasised is that settlers' previous occupations did not give security in terms of permanency of jobs, career prospects, and the alternative opportunities they would like to have to improve their economic position. Moreover, the wages, even on estates, was low so that there was no possibility of saving money to purchase land at the end of their working life.

There was another section of respondents, around 15 per cent of the sample who stated that the demand for land was in fact directly related to income security. They argued that the demand for land was rather in terms of the products or the revenue from the land than in the mere possession of land itself. This group argued that income security was even preferred to land ownership because it offered a rising and guaranteed income, whereas the return from land from what they were used to, was uncertain. They added that leaving land in these circumstances for children was not enough because it could easily be sold if economic conditions worsened. They cited as an instance the fact that Malays in urban areas, because they lacked jobs which gave them secure incomes had sold their lands and become impoverished because they had nothing else to fall back on.

⁶On one scheme, namely Kulai, of the 70 percent of the sample who were previously rubber tappers not working on their own smallholdings, nearly 70 percent earned below \$90 per month. This group stated they migrated to FLDA because income was insufficient to meet basic family needs. However another 20 percent earning between \$120 to \$200 per month migrated not because they were unable to live in the kampong on their earning but because they felt the prospect of earning a higher income was better on FLDA. Yet another group of about 5 percent who earned between \$200-\$250 per month (mostly full time estate workers, including mandores) said they migrated in order to get land.

It will be seen therefore that while on the one hand the demand for land ownership was greatly emphasised, there are reasons to suggest that this can be explained in relation to the situation settlers were in, prior to migrating from kampongs. It may be added, from a more general level of abstraction that the alienation of new land for kampong people is in itself a new phenomena as opposed to the securing of land through inheritance. The ownership of new land of much greater acreages than was previously possible and by application, could therefore be considered a new and attractive proposition. Moreover, traditionally, land ownership has meant the best means of earning a livelihood, with security. Then again security of income in a generally accepted meaning of the term, is an even more recent phenomena to rural people. In fact it may not be an over generalization to say that income security has never, and is not even today, applicable to the 'mass' of the rural people. In other words the level of aspirations among rural people for land ownership is more likely to be associated with employment opportunities, incomes, and security arising out of land ownership rather than in other forms of wage employment.

Field data also indicates that older people tend to attach greater value to land ownership because of its strong relationship with the socio-cultural milieu of the "traditional" kampong. Moreover the lack of mobility and limited exposure to the modern sector of the economy among this age-group tends to reinforce such values towards land ownership. Then again being older people they could generally be expected to be more concerned with bequeathing some tangible property to their children. Much of these arguments do not apply to younger people. On the other hand the latter are unable to visualize any form of secure tenure other than land ownership, since their experience has either been in some form of sharecropping or as piece-rate casual labour and they too consequently emphasise the value of land ownership. (Cross-tabulation data also shows some interesting relationships. For instance, it has been shown that the lower the family income the greater the preference for land ownership rather than income security, and vice versa.) Other evidence that supports the thesis that the demand for land ownership can be explained in relation to the situation in which people find themselves is that where

rates of unemployment are high and/or incomes low, there is a tendency among those affected, given the lack of alternative employment opportunities, to emphasise the importance of land ownership as a panacea to their economic problems.

(b) Situation After Joining FLDA

Having been settlers on schemes for a few years, the evidence suggests some changes in the value attached to land ownership compared to that prior to joining the scheme. Firstly, land ownership had not brought with it increased incomes as had been expected. This was especially so in oil palm schemes because of the problem of unemployment and under-employment and because of accounting problems associated with the only producing scheme in the sample i.e. Kulai, resulting in revenue not yet being distributed. However even in the rubber scheme which was producing i.e. Kong Kong, not all settlers, for various reasons, were earning the kind of income they were made to believe they would. The overwhelming majority of settlers argued that although they were supposed to be landowners their incomes had not increased. In fact compared to incomes earned previously, 35 percent of respondents were earning lower incomes the difference ranging from \$1-\$100⁷. They argued that they needed higher incomes now when their children were still of school-going age and not five to ten years later. Settlers were also concerned about the high debts incurred with FLDA and their being tied to the organisation until the loan was repaid which might take anything up to twenty years by which time they would have to replant (on loan?) and start all over again. They also voiced concern as to the

⁷The majority of households for all four schemes earned a total income between \$50-\$99 a month. The majority for oil palm was between \$100-\$149, and that for rubber varied between \$50-\$99 for Pasak and \$200-\$299 for Kong Kong. The wide disparity in incomes in the latter instance is explained by the fact that Pasak is a relatively new scheme with little subsidiary sources of income, while settlers in Kong Kong are not only earning revenue from tapping but are engaged in a wide variety of subsidiary activities both inside and outside the scheme.

future of their children. Landownership under FLDA would mean that only one child would inherit the land, and although the revenue could be divided among the other children, with lack of alternative employment and low levels of education and skills, increasing poverty was likely to result.

It seems clear therefore that the emphasis on land ownership although related to socio-cultural values was demanded more because of its association with high incomes, security, as well as in the form of property to be bequeathed for the security of the children. We have shown that landownership in itself has not resulted in the achievement of these objectives. It would seem therefore that the demand for landownership by the rural people has been based on a rational reaction to their kampong environment, but that their experiences in FLDA has resulted in their questioning the realism of this demand. However in the absence of any other alternatives there is a tendency to hold on to the value of landownership and in fact to request for more land as a solution to the problem⁸.

⁸There were various reasons why more land was demanded; interestingly enough not necessarily on an individual basis. In fact depending on the nature of the activity for which it was sought, there was a distinct preference for new land being put to some sort of co-operative enterprise.

In terms of schemes, a high proportion of settlers in both rubber schemes (100 percent in Pasak and 90 percent in Kong Kong wanted more land). The reasons were that in Pasak, as mentioned previously, there was no alternative employment, (they needed land for vegetable planting and dusun) while in Kong Kong it was because of irregularities in individual holdings viz., number of acres, trees, and because of swampland. More than half the settlers in Bukit Besar wanted more land also for dusun and vegetables. Almost half the settlers in Kulai did not want more land because the attempts of settlers to plant the dusun with bananas ended in failure due to lack of marketing facilities. There was also a relationship between incomes and the demand for more land. As may be expected, 89 percent among those in the lower level of the "consumer index" (total family income divided by number of persons in family with weightage given to age-groups as consumer units) wanted more land. In terms of family income, the lower the income the greater the demand for more land.

FLDA for its part has viewed the question of landownership in a somewhat narrow and static sense i.e. in isolation from the kind of economic changes and social forces which emphasise the provision of a livelihood based on income security rather than from landownership.

(ii) Individual/Group Ownership of Land

Another major objective of FLDA centres on the question of providing land on an individual/group basis. In the earlier rubber schemes it was the policy to offer individual lots but later with the introduction of oil palm the policy was changed to individual shares based on landholding, which was primarily to suit the organisational pattern of production. FLDA policy has been somewhat inconsistent in this respect; on the one hand block cultivation of rubber has been introduced (during the apprenticeship period) while on the other, experiments are underway to test the possibility of introducing a modified version of individual ownership for oil palm. It would appear that this uncertainty of policy is based on the demands of settlers (at least for individual lots in oil palm) and we propose here to examine the evidence we have on this question.

In the first place we wish to stress that the question of individual or group ownership of land cannot be seen in isolation from the wider question of landownership as such and consequently, the moot point, in the context of this report, is to ascertain whether individual or group ownership is more likely to meet the needs of people for land. We have, in discussing landownership, pointed out that settlers wanted land for high incomes, security, and in possessing something tangible to bequeath to their children. The question therefore is to ascertain whether individual or group ownership is more likely to result in meeting these demands. Obviously many of the demands can be met through either ownership pattern given certain other provisions such as social security programmes covering contingencies now unprovided. We shall, for purposes of discussion, deal with the alternative of individual/group ownership mainly on the basis of maximisation of incomes. (Our assumption here is that group ownership in oil palm is a necessary condition for this objective). We shall however include settlers' responses on more general aspects associated with the ownership pattern.

Taking firstly settler responses by the nature of the crop i.e. oil palm and rubber, we find that almost the entire sample in Bukit Besar (new oil palm), 35 percent in Kulai (old oil palm) and 38 percent of Kong Kong (old rubber), preferred group ownership to individual ownership for the reason that people could work co-operatively. The main argument in favour of this for oil palm (44 percent of respondents) was that production required people of different skills and that no one single person could possibly undertake the different jobs involved. The more general reason, which also applies to Kong Kong, was that not all parts of the plantation were identically developed and that if lots were distributed on an individual basis some settlers would stand to lose and others gain. Group ownership would overcome this problem. Above all, there were benefits in people working as a group on a co-operative basis i.e. the revenue would be equally divided. On the other hand all the respondents from Pasak (new rubber) and 44 percent of Kong Kong i.e. both rubber schemes preferred individual lots for the reason that this would avoid misunderstanding among settlers and reduce inefficiency. It should be noted that only Kong Kong was producing and the reason why less than half the respondents preferred individual lots was because of income differences among settlers. Not only was this because some had less trees per acre but also because not all the trees could be tapped at the same time (some took longer to mature because of soil conditions and proximity to swampland). While income varied however, the amount of loan repayment for each settler was the same⁹.

There appears to be some relationship between preference for individual/group ownership with the consumer index, family incomes, and age of heads of households. A higher proportion of those in the upper and middle quartiles of the consumer index preferred group ownership while a higher proportion among the lower quartile preferred individual lots. Taking family incomes, the higher the income the greater the emphasis on group ownership and vice versa. The age variable also

⁹That is, no adjustment in the amount was made depending on varying number of trees. This had resulted in some settlers 'overtapping' for which they were penalised.

indicates a relationship i.e. while the younger settlers (31-40) preferred group ownership, the older groups (41-60) preferred individual ownership.

It is to be emphasised that the settlers who now prefer group ownership, (on the basis of individual shares), were strong advocates of individual ownership prior to joining the schemes. This was especially so in oil palm, and one of their first reactions on hearing that they would not actually possess individual lots was one of disappointment¹⁰. The majority of them however, were at that time, not aware of what oil palm production involved, but are now convinced that maximum production commensurate with high incomes is only possible with group ownership. Although settlers working on rubber (apart from the favouring group ownership for specific reasons in Kong Kong) are generally satisfied with operation on an individual basis it is suggested that with improvements in production methods higher incomes would be possible through group operation rather than on an individual basis.

The main question centres not so much on the choice of individual ownership of separate lots or on group ownership on the basis of individual shares as such. Rather the emphasis should be on group or block operation instead of individual production on the basis of family farms so as to maximise revenue and thereby incomes (allowing for a more realistic repayment plan). What this means therefore is to devise a strategy whereby it will be possible to increase production without losing control and ownership rights.

In summarising we wish to reiterate that the evidence of the field studies suggest the demand for landownership either on an individual or block basis is related not so much to the possession of land as such but to the extent to which such ownership provides the means to higher incomes. We have

¹⁰ Many settlers stated that they were not particular as to whether they were given places in rubber or oil palm before joining because they thought that in either case they would be getting individual lots.

shown that the higher income groups among settlers not only prefer income security to land ownership but also block ownership on a shared basis to individual ownership. Also that the young settlers prefer block ownership. Moreover, this position is not inconsistent with the strong traditional value attached to land ownership. With maximisation of incomes through high productivity agriculture there is no reason to suggest that settlers will not be able to save and to purchase land of their own¹¹ (on a subsidized basis or on the market). The present situation is that with the general level of subsistence incomes of rural people it was not possible to save, (not to mention being able to meet the daily requirements of family living) and it was this factor mainly taken either by itself or in combination with other variables that was responsible for the demand for land.

Some attention also needs to be given to the employment opportunities in oil palm production on a block basis. It has been suggested that there is a possibility of growing oil palm on slightly steeper ground but this will require an additional labour force for reasons of collection, transportation etc. The point being made is that land at present considered unsuitable for oil palm cultivation because of the undulating nature of the land might well be brought under cultivation on a group ownership basis and thereby increase employment opportunities without disproportionately increasing costs¹².

The evidence in group/individual ownership therefore clearly suggests that the FLDA objective of providing individual lots not only in oil palm but in rubber as well needs to be reviewed. Especially in oil palm it appears that FLDA is dealing with the situation where settlers made demands for individual lots when they first came on to the schemes.

¹¹This had actually happened in Kong Kong where settlers have been known to purchase land in areas near the Scheme.

¹²For details please see report by C.B. Edwards.

Moreover it is doubtful whether the experiments now being undertaken with the view to individual ownership in oil palm is based on any systematic survey on what settlers feel in this matter. Unless the evidence in this study is peculiar to the schemes involved, it is suggested that there are strong reasons for the entire objective of individual ownership to be reviewed.

(iii) Mono-crop

Another objective of FLDA is to plant new land with one major crop, that is, rubber or oil palm and to involve settlers in the cultivation of this crop on a modern commercial basis. We have already made reference to the fact that although many settlers have in the past been rubber tappers, they did not have any training or skills to do this efficiently. FLDA, as previously mentioned, has successfully introduced rubber tapping and oil palm cultivation in the modern way to settlers and many have in fact become skilled workers.

However, this emphasise on the cultivation of one crop has led to various problems. In the first place it has resulted in an over-emphasis on the cultivation of one crop such that attempts at initiating other economic activities on the part of settlers has been discouraged. The general official view has been that if settlers were to start other economic projects it would necessarily result in less emphasis being given to the main crop resulting in lower production levels. It is also clear that this policy has resulted in what might be termed a one-crop mentality. That is, management at scheme level, see themselves as being responsible only for the efficient cultivation and production of the main crop to those centred around this one main activity. Even the present lack of alternative employment for settlers who are unemployed, under-employed and whose children are seeking employment, which is causing great hardship does not concern management. Settlers have to make their own individual arrangements for employment in private estates¹³. (These estates are successfully meeting the labour requirements while at the same time paying settlers

¹³The growth of private estates (e.g. sugar cane, rubber, oil palm and tapioca) around the FLDA schemes studied is perhaps more than a coincidence. Apart from low wages paid to settlers employers do not have to pay E.P.F., provide housing facilities or allowances etc. Moreover they prefer FLDA settlers because they are reputed to be skilled and hard working.

low wages than what is generally paid to their own employees). The point is that in a major area such as unemployment, management disclaims responsibility for working towards full employment on the schemes and therefore does not assume any responsibility for making alternative arrangements for settlers for outside employment. Within the schemes there was ample evidence of settlers' desiring to initiate subsidiary economic activities. Almost 90 percent were engaged in some form of activity connected with vegetable, fruit growing and poultry, 40 percent of whom earned subsidiary income from these sources. The singular feature of these activities was their small scale nature. The main reasons for this was said to be the lack of encouragement by FLDA and help from Government extension services. (We shall deal with this question in more detail later).

The other disadvantage in emphasizing on production of the main crop was the lack of encouragement in activities not associated with agriculture. Settlers stated that they were not allowed to undertake any other activities associated with services e.g. the opening of provision shops, coffee shops, barber shops etc. Moreover they argued that they were skilled enough to undertake a wide variety of activities including the building of houses, operation of taxis and buses etc. but that all this was discouraged by management. It seems clear that while it may be inevitable in the beginning to concentrate on the cultivation of the one crop this does not necessarily mean disclaiming responsibility by management for all other economic activities both within and outside schemes.

(iv) Development of Schemes by Phases

Although it is not an objective of FLDA as such to develop schemes by phases, it is the main strategy adopted and consequently merits discussion at this stage. Apart from the possibilities of savings that might accrue if schemes were totally developed at the same time, various disadvantages associated with phased development has been noted. The development by phases has led to attachment or loyalty to one's phase rather than towards the entire scheme. This amounts to a division of the schemes on the basis of phases, because, each phase appears to have its own peculiar problems and reacts to these problems in its own way depending on the

aspirations of settlers and the kind of leaders. For instance it is reported that settlers of later phases tend to model their pattern of behaviour on the experiences of earlier phase settlers. Moreover they considered the latter as more senior and therefore tend to look to them to be their leaders. Also representatives of each phase tend to feel responsible for, and to speak only on behalf of those in their own respective phases. As a result, representatives from one phase never support or speak on proposals submitted by those of other phases. As might be expected, this has had various implications; it inhibits initiative on the part of later settlers who could easily be discouraged by the unsuccessful experiences of earlier settlers although they might have failed under different circumstances. It also tends to reinforce importance to seniority with the consequent adherence to a hierarchical type of organisation pattern.

There is the added disadvantage of having groups of people all arriving at specific periods in identical family situations i.e. uniform age groups, occupational backgrounds, ages and number of children etc. Apart from the fact that these are not total families in the sense of having grand-parents, uncles, aunts, cousins etc. (as would be the case normally if not within the same household at least within the kampong), development by phases would tend to result in planning on an ad hoc basis e.g. primary schools when children reach school going age, secondary schools as they have finished primary schools after a few years etc. Although it might be argued that development by phases should in fact minimise problems of this nature by having groups of people coming at different periods, in practice the time period between the opening of phases is not of sufficient duration to offset this problem. However the real answer would lie not so much in developing an entire scheme at the same time but rather a more varied criteria for settler's selection (e.g. with settlers of different age-groups) with special emphasis given to the needs and problems associated with raising the second generation on the schemes. Thus far there has been no concept and lack of long term planning for the needs and demands of the second generation settlers.

(v) The Creation of Viable Settler Communities

There is evidence to suggest that the policy of FLDA is to create "modern" viable communities in direct contrast to "traditional" kampong communities. This is evident by a tendency to discourage contact with former kampongs or for that matter with towns. The argument is that by maintaining contact with former kampongs there would be a tendency to perpetuate all that is considered to be traditional and conservative in the socio-cultural milieu. Moreover that frequent visits would result in a greater difficulty to change settlers attitudes and values and make them adjust and adapt to new methods.

In one scheme settlers were asked for their views on the possibility of an entire kampong migrating to an FLDA scheme together. This was strongly supported (with the provision that it should exclude the penghulus and others with sizeable land holdings i.e. only the landless should be included). The main reason was that this would enhance the sense of belonging since it did not involve a total cutting of ties with their previous environment and that this, especially one's link with the past, will give them a greater sense of oneness and generate greater co-operative activity in the establishment of schemes. It is significant that management totally opposed the idea. Their main reasons were:-

- (a) That it would perpetuate feelings of dependence on others resulting in settlers being unable to think for themselves.
- (b) That attitudes, feelings, and the lack of initiative, that exists in previous kampongs would perpetuate on the scheme thereby resulting in people being unwilling to change and thus defeating FLDA's objective of creating new communities.
- (c) Lastly, that by so doing, settlers would be difficult to control because of the bond that exists between them. Management would find it difficult to order that things be done since settlers might gang up and oppose decisions because, being united, they would present themselves as a formidable force.

It would seem therefore that considerable emphasis is being placed on the need for settlers to conform to what FLDA considers a viable community and that attempts to minimise contact with former kampongs and towns is aimed at preventing

conflict between values and ideas associated with a changing situation. This is the case even within schemes where there is a tendency for different groups to see themselves as isolated from each other. For instance teachers as well as low level FLDA staff such as drivers do not see themselves as part of the scheme. There have been occasions where a more flexible situation with less status differences could have been used to advantage in specific projects. For instance in Pasak the settlers co-operative might have done better if the teachers had been allowed to become members and provide some expertise at least in the initial stages. In fact the teachers did make various interesting suggestions as to how the society could have been placed on a better footing. However they were considered as being not part of the scheme and were therefore not allowed to participate.

(vi) Summary

We have attempted to raise questions and focus on issues arising out of some of the main objectives of FLDA on the basis of what is happening in Schemes. Generally, the objectives of land ownership either on individual or group basis has in fact been a major attraction to potential settlers. The evidence, however, indicates that having joined the scheme, opportunities and incentives for economic betterment have not been as great as it appeared. We have attempted to explain this in terms of the development by phases, the cultivation of a single crop to the detriment of other alternative opportunities for employment both within and outside the schemes. We have also referred to other aspects such as the so-called fear of conflict between the traditional and modern societies. From the settlers' view point, FLDA policy has constituted a major constraint towards providing a conducive environment for utilisation of such skills and experiences as they have, in the development of a variety of activities. FLDA for its part has argued convincingly enough that it is inevitable to have a degree of greater social control in the initial stages of crop cultivation given the constraints of settlers, management and the need to be competitive. Moreover, there is some evidence to suggest that given the nature of work involved in the early stages of both rubber and oil palm, that unplanned alternative economic activities introduced by settlers have in fact led to less attention being given to the crop. These are obviously not all or none questions. We are merely suggesting that on the basis of the evidence in the field studies, that some of the objectives of FLDA need to be reviewed in terms of their implications for future development.

B. Form of Organisation

(i) Administrative Organisation

The pattern of organisation of FLDA is highly centralised at FLDA Headquarters level where all decisions on policy as well as considerable administrative and financial matters are also decided. This was the impression obtained from interviews with FLDA staff at state level as well as with the staff on schemes. Particularly in the schemes complaints ranged from the lack of authority to make decisions on the spot to severe limitations on the amount of expenditure permitted, making it difficult to effectively administer programmes. In fact some managers stated that their role was primarily to supervise the day to day administration of schemes and that in all matters outside this, including settlers queries were referred to the Regional Office or to Kuala Lumpur. This centralised nature of the overall organisation has resulted in minimising initiative among management to the point where they merely see their work as in any other government bureaucracy where decision making powers are vested with a group at the highest level of the organisation. Moreover the over emphasis on "nuts and bolts" issues has resulted in management taking on to themselves certain duties and responsibilities which could be passed on to settlers i.e. at least those doing supervisory work. This appears to be the main reason why there is a total lack of attempts to introduce new methods and experiment with patterns of work depending on the problems in any particular schemes.

At the same time management on the schemes is expected to be responsible for whatever happens on the schemes. This has created peculiar problems for management. This lack of clarity in direction has resulted in management finding considerable difficulties in working within a situation where on the one hand they are charged with the responsibility of running the scheme effectively and on the other of dealing with settlers who are potential owners of the scheme. In fact FLDA policy has added to the problems of communication by introducing status relationships between management and settlers e.g. the notion that the manager or the Settler Development Officer should be the penghulu to settlers. Moreover the peculiarities of the situation has not resulted in the development of any other model than commercial estates within a paternalistic set up. FLDA of course is committed to an ultimate policy of handing

over schemes to settlers to be maintained on a co-operative basis but thus far, there has been little, if any, evidence to suggest a model along which this restructuring is to take place.

(ii) The Ketua Block/Mandor System

Generally the organisation pattern for both oil palm and rubber is the same, the main difference being the work pattern of oil palm compared to individual lots in rubber. There are essentially two different groups involved in the management of schemes i.e. officers of FLDA and another group chosen among settlers under what has been referred to as the Ketua Block or Mandor system. The system generally and especially the procedure whereby mandors were appointed was much criticised by settlers in oil palm. Mandors were chosen by the manager on the recommendation of F.A.s and though the criteria for selection was supposed to be ability, trust and loyalty, in practice this criteria was not adhered to. Settlers argued convincingly that this position which had considerable power should be open to a more equitable system of selection. Moreover the mandors should be their (the settlers) supporters and not that of the management as in practice it turns out to be. The Ketua Block system if the procedure of selection is reorganised could serve as the basis for a system of reward. As it is, it has certain serious disadvantages. It tends to divide settlers into two classes, the governing¹⁴ and the governed, stifles leadership potential, and

¹⁴In Kulai for instance about 30% of committee members of the various formal organisations were mandores. Also in Kulai and Bukit Besar mandores earn much higher incomes than the average settler.

In this connection cross-tabulation data has also indicated that 43 per cent of respondents in the higher consumer index quartile were members of formal social organisations while most of those in the lower quartile belonged only to religious organisations.

There is evidence to suggest an emerging pattern of class differentiation among settlers. Those involved in the running of the schemes tend to be better off. This has a variety of implications ranging from being better able to educate their children to the tendency for these settlers to form groups or cliques based on class affiliation.

creates a great deal of bad feeling because of the possibility of favouritism and intimidation. Also various problems associated with the allocation of work was mentioned in oil palm. Settlers complained that work was not properly organised and allocation of tasks was too rigid. Moreover the distribution of work among settlers was also criticised as being discriminatory.¹⁵ The probable solution offered by settlers mainly centred on the procedure of selection of mandores, that is, either to rotate the post among settlers who could do the job or to let the settlers elect the mandores.

(iii) Staff-Settler Relationship

The delegation of authority in schemes is highly structured and takes a pyramidal form with the manager at the apex and settlers at the base. Managers do not have direct dealing with settlers because they had the field assistants and mandores whose work brought them in direct contact with settlers. These personnel served as a two-way communication link between the settlers and the manager. It is the policy of management in general to refrain from mixing with the settlers, the reason given is that settlers tend to take advantage of management if they are on friendly terms. Moreover various criticisms were levelled against settlers, pointing to the need for more powers to dismiss those settlers considered to be "troublemakers". There is also a system of punishment on the scheme, the most feared form being that of job suspension where by the field assistant would deprive the settler or other members of his family a job on the scheme.

The general reaction among settlers is one of non-confidence in management. While settlers generally looked to management for organisation ability and skills in production techniques, the field studies have, on the other hand, amply demonstrated that settlers do not consider management as representing their best interests neither do they feel that management is on their side. To them management represents a bureaucracy concerned more with their own interest i.e. in getting as high a salary as possible

¹⁵For details see page 38 - Report No.2 Kulai Oil Palm entitled 'Administrative Organisation on the Scheme'.

as well as other perquisites so as to maintain a standard of living akin to that in urban areas. They argued that the lack of involvement and concern for the welfare of settlers was the main reason for the lack of encouragement in making possible alternative means of economic activities so that settlers might increase their incomes and improve their level of living. Settlers argued that a change of orientation, and the selection of the right calibre of staff was essential if the scheme was not to be organised like any other commercial estate but rather in the creation of a strong viable human community. They added that management has to appreciate FLDA's objectives to make settlers' landowners who should be earning around \$300 per month within 5 years and that the schemes therefore cannot be treated as an organisation merely designed to provide work for them by producing rubber or oil palm. Thus far management had treated them merely as estate labourers which was the easiest way of getting the day to day job done. They felt that the time had come for FLDA to think of a new system which would harmonize FLDA's objectives together with their hopes and aspirations.

Management themselves mentioned various problems and difficulties. Firstly as mentioned earlier there were no clear cut directives as to the precise nature of their duties and responsibilities. Moreover they had to deal with a situation with inconsistent objectives i.e. to maintain competitive production levels and to treat settlers as landowners. Although not spelt out in precise terms management indicated that they did not have the capacity or the ability to deal with settler development. Moreover the training provided for both mandores and field assistants was concerned primarily with farm work.¹⁶ It seems clear that either FLDA has failed to attract the kind of people required to handle the special nature of the task or the system is so inflexible as to inhibit individual talent, and does not provide adequate incentive for staff to work towards improving the situation. There are also definite limitations on the training provided for the

¹⁶F.A.s were mostly ex-mandores of estates and training provided by FLDA was based on the same supervision techniques as that of estates.

higher level staff considering the qualifications and experience before joining. For instance most managers were either former employees of the estates or recruited directly from Universities or Agricultural Colleges with arts degrees and agricultural diplomas. The question to be raised is whether personnel drawn from this background can be expected to do more than concerning themselves with administration and production aspects. Almost all categories of management were also concerned about service conditions and the promotion prospects within FLDA. The main criticism was that the personnel management was based on a Government bureaucratic system which they felt was incompatible with meeting the demand for high calibre officers. For instance most staff mentioned the lack of promotion prospects. Field assistants in particular felt that there were too many promotion grades between theirs and the manager and that reaching these grades depended not only on vacancies, but also on the recommendation of managers. They felt that there were very limited possibilities of reaching the post of manager. Neither did their salary scale provide for adequate career prospects. The same problem seems to have become applicable to even the most recent cadre of personnel namely settler development staff. The argument is that a programme of this nature should offer high salaries to attract the right kind of people needed for actual work with settlers on the schemes whereas thus far this does not appear to be the case. For instance a young officer appointed to one of the schemes started off by showing considerable interest in his work and wished to be regarded as the penghulu by settlers. After a year or so he began talking more in terms of his rather than the settlers' future and admitted that he had lost interest in his job because there was no prospect of his being promoted.

Clearly more attention needs to be given to the whole question of attracting the highest calibre of staff for both efficient management of schemes as well as settler development. FLDA is already facing an acute problem of staff shortage which by present standards would appear to worsen at least in the short run. Moreover the ability to attract staff must also be realistically seen in terms of increased opportunities and facilities for educational betterment as well as adequate incentives considering the general isolation of individual schemes. However, the main point is that priority should be

given to increasing the incentives to attract and keep staff with FLDA.

C. Settlers' Reaction

We have mentioned previously that FLDA offers great opportunity for new settlers especially considering their limited education, skills and experience that might qualify them for alternative employment opportunities either in towns or in State land schemes. However, the evidence is clear that once they join the schemes the incentives and opportunities for expansion are not as great as they might be in terms of settlers aspirations. We shall attempt to deal with some of the main reasons as to how this situation has come about.

(i) Demography, incomes and expenditure

Of the total population of 189 households in the sample, 59 per cent comprise families with children less than 14 years of age. The median age of heads of households was 40 years and the median size of households was 7-10 persons. Further breakdown data indicate that 90 per cent of the younger heads of households i.e. aged between 31-40 accounted for the majority of those families which had 4-10 persons in each household, thus implying potentially even greater growth in family size. Moreover the consumer index indicates that 63 per cent of households earn below \$27.50 per month which suggest that the high proportion of children among families is seriously aggravating existing low incomes creating problems of economic hardship.¹⁷ The data on family incomes on the other hand show that 58 per cent of families earn below \$150 a month and 36 per cent between \$150-\$300 per month. The expenditure pattern shows most settlers spend between \$71-\$90 per month on food

¹⁷Additional data shows that the younger schemes, that is, Bukit Besar and Pasak have the highest proportion of settlers in the lowest quartile of the consumer index i.e. below \$20.50. The settlers in older schemes that is Kong Kong and Kulai constitute the majority in the \$27.50-\$87.00 group. This is because of relatively higher income levels due to more alternative employment opportunities rather than to smaller families.

and up to \$10 per month for education.¹⁸ This indicates that most settlers spend the greater part of their incomes on food and to a lesser extent on education.¹⁹

Most settlers purchase their food provisions from the grocery shop (given on tender) in the scheme although they were extremely dissatisfied with the prices, quality and lack of range of items available. The main reason for their patronage was because of credit facilities. (It is interesting to note nonetheless that the greater proportion of settlers who travelled outside the scheme stated that the main purpose of travel was to purchase food provisions in towns). Other criticisms levelled against the shop was that it failed to meet the needs of settlers. For instance it is open during office hours which was the most unsuitable time for settlers due to their hours of work. Moreover in one scheme the shop was only open to settlers from certain phases on certain days and if a settler runs out of provisions on a day which was allocated to another phase, he would not be able to obtain provisions. Also the strict adherence to the \$50 limit per family together with the amount of provisions being dependent on the amount of work put in at any point of time created some very real problems especially when settlers had been unable to go to work due to illness.²⁰

¹⁸ Except for Kong Kong where almost half families spend between \$16-\$20 per month.

¹⁹ Almost 90 per cent of settlers, except in Bukit Besar, make higher purchase payments but in small amounts of \$10 or less. Additional data shows in fact the higher the income the greater the expenditure on higher purchase especially for sewing machines. In fact over 60 per cent of all groups earning between \$50-\$100 per month possess sewing machines.

²⁰ An instance was recorded where a settler obtained some financial assistance from the Social Welfare Department but had his allowance reduced by this amount.

We have mentioned that 90 per cent of settlers were involved in subsidiary economic activities although only 40 per cent earn subsidiary income from these sources. Even in the later instance the scale of activities was very limited. Settlers were unanimous that specific economic activities could be introduced to help supplement incomes and apart from vegetables, fruits and mixed farming²¹ suggestions for cash crops included tapioca, pepper and ginger. Settlers were keen that many of these activities should be set up on the initiative of FLDA but gradually handed over to them when established, to be run on a co-operative basis (the keenness to have FLDA's sponsorship was mainly because of the need for expertise initially and to enable credit deductions to be made from the pay sheet to facilitate repayments of loans).

The other major question of concern to settlers was that of education. In the first place the extremely low income resulted in children being deprived of facilities and opportunities to get the best possible education available. In Kulai (which was opened ten years ago) for instance, almost one whole generation was deprived of education because of low incomes which in turn has meant a permanent loss of potential opportunities for their future employment. An analysis of family income has shown that the higher the income the greater the proportion of children in schools generally and especially in secondary schools. We also asked settlers of their plans regarding their aspirations on the kind of education they would like their children to have. The data shows that the higher the income the greater the emphasis on University education, also for both University education as well as vocational training. Respondents explained that they were in favour of University education because this would give their children a wider flexibility of seeking employment whereas in vocational training they would be limited to the skills in undertaking specific job functions. They added however, that it might probably be easier to secure jobs with vocational

²¹Please see proposals of Dr. Maniam of the Poultry Research Station Johor Baharu submitted to the project.

training at present compared to University education.²²

Speaking of aspiration level for children, 59 per cent of schedule respondents agreed that their children should be settlers on FLDA schemes. Forty-three per cent with the proviso "but only if they could not get better opportunities elsewhere". Further breakdown data has shown that the higher the family income the less the desire to see their children become FLDA settlers. Also a higher proportion of settlers aged between 41-50 felt their children should be settlers. Settlers were realistic of aspirational levels for their children since many qualified their responses with assumptions of the availability of funds as well as the intellectual capacity of children to proceed with higher studies. However, one thing stands out clearly and that is the very great emphasis being placed on education and training as the only means by which the next generation can have access to better paid jobs with opportunities for career advancement and for security. It is also clear that the second generation are not likely to find employment within the existing pattern of FLDA schemes and may have to be content with living off the family member to whom the land title or the share is bequeathed. On the other hand the demands for employment outside the scheme is unlikely to increase. The implications of this trend can really mean a gradual improvishment of settlers in FLDA schemes with the younger and better qualified members leaving for employment elsewhere. A situation where these people are in fact attracted to return to the schemes must be envisaged.

Passing reference has previously been made as to the lack of alternative employment opportunities especially in servicing and tertiary activities in the schemes resulting in settlers having to travel to the nearest towns to avail themselves of these facilities. Not only did settlers argue that they were capable and had experience to introduce a wide variety of such

²²It is interesting to note that 33 per cent of those earning less than \$150 per month said they would like their children to go to a university in order to increase the number of educated Malays in the country.

activities but also they claimed they were discouraged by FLDA from setting up co-operatives to run the more involved operations such as transportation of FFB and bus transport. As a result of this policy FLDA's schemes which might otherwise have become increasingly urbanised have in fact become isolated from urban influence. This is borne out by a rapid development of towns such as Masai, Kota Tinggi and Kulai which seems to have developed at the expense of the growth of small town complexes within schemes.

FLDA argues that to allow individual settlers to set up business concerns may result in encouraging inequalities in the system whereby some settlers become 'better off' than others. Moreover that by having a virtual monopoly they would be in a position to resort to malpractices to the detriment of other settlers. The alternative from FLDA's view point is to establish its own shops beginning with the provision store. It is considered that this in itself can, at best, only meet the minimal food requirements of settlers. There is the need not only for more variety by way of food provisions but also for other consumer items as well being available at competitive prices. Settlers should therefore be encouraged to establish their own shops even if it means competing with FLDA. The major consideration, of course, is inadequate incomes, which theoretically may result in the creation of dependency relationship through the provision of credit. However, the survey data reveals that despite low incomes some 90 per cent of settlers travelled outside the schemes regularly (at least once a month) of which 68 per cent stated the reason as shopping for consumer items. In this connection it is also necessary to point out that settlers were very conscious of the better facilities for educational and training as well as for social living that is available in the towns and the cities. Although they agreed that FLDA does provide better housing, water, education and health facilities compared to that available in the kampongs, they still feel that this is not comparable to what is provided in urban areas. Moreover other ancillary facilities and opportunities for social and agricultural activities were available in these areas which were not provided in FLDA schemes.

Some rethinking appears necessary with the view to

involving settlers in the decision making process on the schemes. This is vital if organisations such as JKKR are to function effectively. At present settlers complained that this most important organisation is ineffective mainly because the suggestions put forward by them had never been implemented. Moreover they were not informed or involved in any way with the decisions that are made. The general impression seems to be that management knows what is best for settlers and irrespective of what suggestions settlers make management will ultimately make the decisions. Schedule responses indicated that of the 52 per cent of settlers who were members of various social and economic organisations almost all stated that they were willing to accept responsibilities and make a contribution to the success of these organisations because they felt that the latter could assist settlers in specific activities to enhance opportunities for early economic independence. In this connection considerable emphasis was given by settlers to the need for multi-purpose²³ co-operative societies on the schemes. Sixty-five per cent stated that such societies would help them in many ways especially in business and other economic activities and an additional 18 per cent that these societies would help settlers achieve early economic independence. However, speaking of their previous experience with thrift and loan consumer co-operatives they had been discouraged. Respondents were unanimous however that the main problem centred on the lack of trained personnel to manage these co-operatives and that training and suitable personnel were necessary conditions to the success of multi-purpose co-operatives. Reference was also constantly made to co-operative efforts undertaken previously by settlers without adequate supportive arrangements being made by FLDA or any other organisation. In particular the experience of Kulai settlers stands out. Some 50 acres of dusun land was

²³This was explained by settlers as an organisation that provides various facilities such as the supply of agricultural inputs and arranges for marketing of the product, in addition to a consumer shop. Other activities such as transportation of FFB and bus transport was also included.

cultivated, but when the crop was ready for harvest, middlemen beat down the price to such an extent that settlers allowed the crop to rot in the dusun rather than have it sold at the prices offered.

The majority of respondents in the lower income group felt that they had no influence in the schemes. At the same time the majority in the higher income group (i.e. earning between \$200-\$300 per month) would rather set a practical example than make suggestions: though they felt they should have some influence in the scheme.

We have attempted to draw attention to some of the main questions and issues raised by settlers as well as management which has contributed towards inhibiting opportunities for expansion in FLDA's schemes. We have in particular tried to suggest that the improvement of the existing situation leading to a solution of some of the major problems must lie in changes to the structure of FLDA rather than in ad hoc attempts to work towards the amelioration of hardships and short term solutions:

Part II Policy Questions and Suggestions

We shall now attempt to deal with some of the changes that will have to be made if FLDA is to be able to meet the demands and aspirations of rural people. The suggestions will be based largely on the implications of what we have been saying earlier. However, we wish to reiterate the position that we have taken in this paper, namely, that plans to improve existing land settlement schemes must emphasise changes in the social structure obtaining in the total pattern of development rather than in ad hoc attempts to induce changes in any one area e.g. in attitudes and values. We have taken this position because, as explained previously, we do not consider attitudes and values as independent variables. Rather we submit to the thesis that attitudes and values are not necessarily inimical or resistant to change. Moreover attitudes and values often represent a manifestation of reactions to one's environment which becomes institutionalised over a period of time. For instance in a particular environment if attempts at innovation and entrepreneurial activity persistently fail then it is likely that this experience of failure will become institutionalised in that particular society.

As set out in the earlier discussion we shall attempt to deal with this section under the objectives, form of organisation and settlers aspirations.

The main question that has to be raised is to ascertain how to make FLDA attractive to settlers in the next 25 years. This is an important starting point because the kind of attraction which FLDA now offers is not likely to be an adequate incentive in the long term. Our field studies have indicated what people now demand and have pointed to the kind of demands that are likely to be made in the long term. The greatest demand is clearly sharing in the gains from development with some considerable increase in share in decision making. The overall growth in the economy, rising per capita incomes and increased distribution of resources will not necessarily speak to the rising demands and expectations of people. People wish to be involved and to participate in the decisions determining the creation of the kind of society which will meet their needs. These are, increasing demand for rising rural incomes, to be able to provide their children with a better education, to have alternatives in different kinds of employment and especially in high productivity agriculture, manufacturing and industrial occupations. Moreover there is clear evidence that people will increasingly wish to enjoy the benefits of an urban way of life especially in terms of better educational facilities wider range of occupations, higher incomes and to enrich the quality of their satisfaction.

The present objectives of FLDA cannot meet the kind of demands that will be made on the organisation in the long term. Questions such as land ownership, (individual or group) in themselves will not be really speaking to the issues that will become increasingly important. Moreover questions of settler selection will also have to be radically altered to meet the changing situation. For instance increasing emphasis will have to be given to the recruitment of settlers with non farming backgrounds in future schemes so that settlements should offer a wider range of economic activities. The overall objective will have to involve a new concept of land development which should visualize the establishment of nuclear town complexes within which people will have a variety of occupations and facilities for living a fuller life.

We have argued that FLDA has been successful in physically opening up land for development. Moreover it has successfully met the demands and aspirations of people in providing for people who more likely than not, would have failed to qualify for other employment opportunities. We wish to emphasise that the demands and aspirations of people for a better life should be seen against the success of FLDA in these two major areas. The main question that has to be decided is what form of organisation is most likely to meet new needs.

(ii) Form of Organisation

We have repeatedly pointed out that FLDA has been successful in opening large areas of new land for development. We have also suggested that it has been less successful in what has been called settler development and this situation is likely to become worse, under existing policies. FLDA is gradually assuming more and more responsibilities and is trying to do everything as a result of which there is a real danger not only of failure in meeting settlers demands but also of lowering standards in the agricultural sector because of the increasing demands being made on the limited staff who, in any event, are more qualified to deal with physical development. FLDA, as we have noted, is committed to the gradual handing over of schemes once they have been established to co-operative control. Although there has been no indication as to the form which these co-operatives may take it is recommended that immediate attention be given to the working out of a concept or model along which the re-structuring of FLDA is to take place. We are convinced that settlers are capable and willing to undertake responsibilities for the running of their respective schemes. Moreover increasing consideration should also be given to possibility of some schemes being reverted to smallholder lots under some sort of overall organisation. It would appear that there are various alternatives which could be taken up. These of course are not an exhaustive list of alternatives.

(i) That FLDA should continue and in fact increase its capacity to open new land for both rubber and oil palm but that it hand over its rubber schemes to smallholders to be run as a separate organisation. FLDA should then concern itself only with oil palm schemes and subsequently hand these over to be run as settlers' co-operatives.

(ii) That FLDA concentrate on the opening up of new land only and after a period of time considered adequate for the establishment of the crop, it should hand over the entire management of the scheme to a separate organisation whose entire focus and method of operation would emphasise on settler development and participation in the running of schemes. This might also have the advantage of being physically able to clear new land much faster than at present and would also eliminate the present development by phases.

(iii) The possibility of FLDA running schemes on the basis of commercial estates. Settlers will be treated as estate labour and paid wages without the promise of land ownership. There could be an apprenticeship period after which the more successful settlers may be offered land ownership.

We consider the most attractive form as that which ultimately allows for ownership and control to be in the hands of settlers i.e. along the lines as in (i) above. The main problem here will be to determine the form of co-operative that is most likely to meet the kinds of demands made on it. We suggest that some form of multi-purpose co-operative be thought of (i.e. for oil palm schemes which would provide facilities such as credit and supplies of agricultural inputs, marketing, transportation and consumer credit facilities etc.) but also, and perhaps more important, that these co-operatives be open to membership by various groups working in schemes. What is envisaged is that all categories of management, including FLDA staff and other groups such as teachers as well as bus drivers etc. should be able to purchase shares in the co-opt. / In other words the co-opt will be responsible not only for the production and sales of the main and subsidiary crops and other products such as dairy farming, fresh water fish culture, poultry etc. but also for the introduction of a wide variety of commercial manufacturing processing and industrial activity on schemes. (In this connection much more emphasis needs to be given to the processing of the main crop i.e. rubber or oil palm and to manufacturing; industrial activity being in conjunction with the private sector if necessary especially to gain management expertise). This kind of set up will have the added advantage of people having alternatives to move out of agriculture into other kinds of activities if they so desire. Also for shareholders / Also that children of settlers will be able to become members.

to opt out of the scheme altogether by selling their share. The critical question, of course, is to ensure that irrespective of the amount and number of shares each person possesses ownership and control rights would be on an equal basis. It is imperative that priority be given to the provision of training facilities for the various skills, techniques and management expertise that will be required. Obviously a great deal of the expertise will have to be hired on a short term basis with built-in provisions for training, but at the same time every possible avenue of gaining expertise needs to be exploited to the full.²⁴

Finally the existing facilities of commercial estates should be made available to FLDA for training purposes. It cannot be over-emphasised that the larger estates are essentially foreign commercial enterprises which, although making some contribution to the national economy (not to mention the high proportion of profits remunerated abroad) are essentially draining the country's resources. Leaving aside questions of the ability of local people to take over the running of these concerns, and possibly of nationalisation, attempts should be made to utilise the vast management skills and expertise that has developed over the years. It is strongly recommended that commercial estates provide FLDA with training facilities for the higher levels of staff in production methods, including processing. Also that estates should be the training ground for potential settlers to be exposed to modern production techniques.

CONCLUSION

In speaking of FLDA's objectives to meet settlers

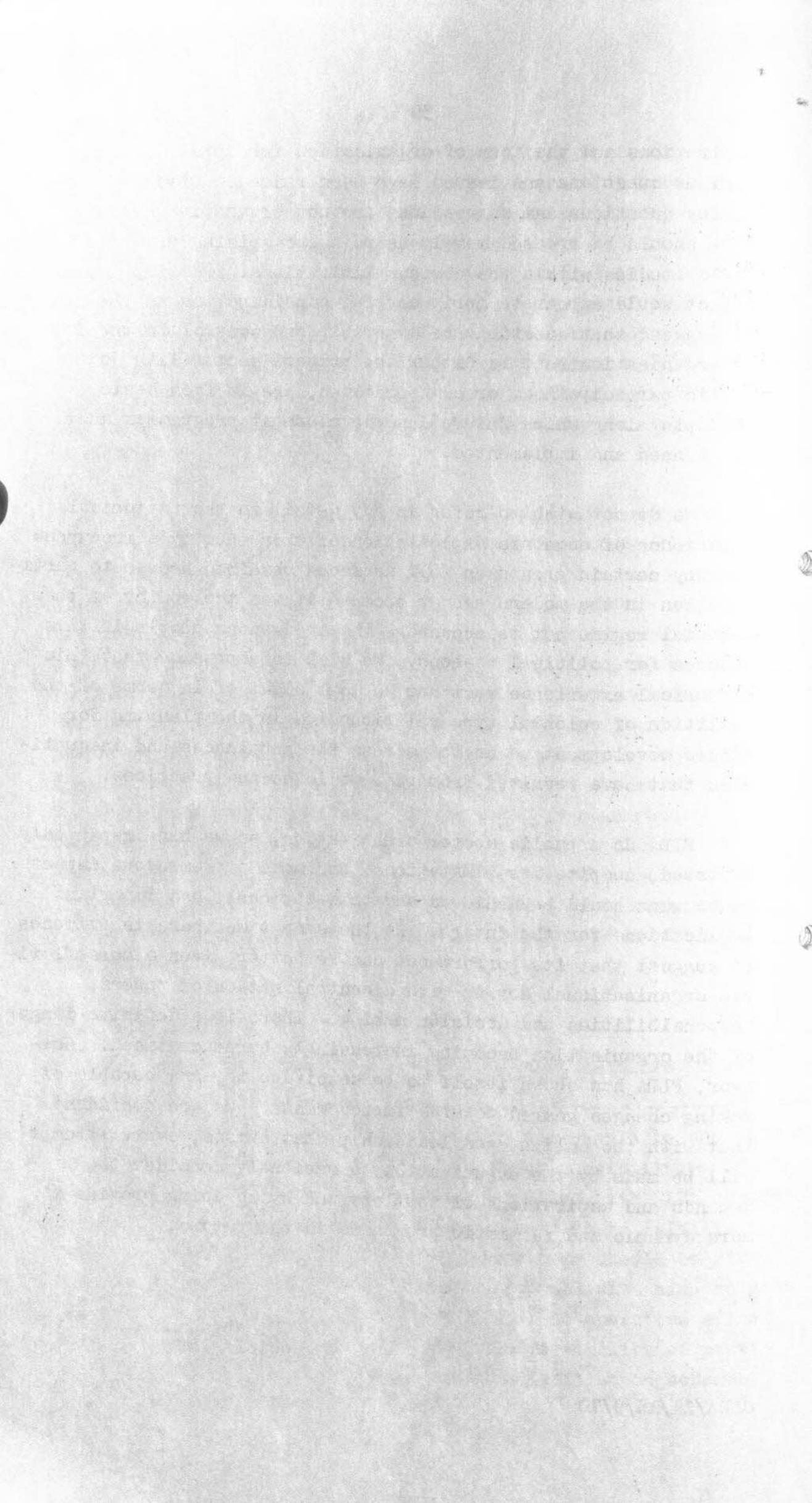
²⁴Organisations such as Farmers Associations should be encouraged on schemes in the interim period. Moreover possibilities of cultivation of the dusun land as co-operatives with FLDA support as well as increased extension services need to be initiated. Also the present settler development programme should be given greater resources and better trained personnel with high salaries who could do much more in the direction of co-operative effort than at present. In this connection the possibility of providing incentives for diversification of activities on schemes should be given priority.

aspirations and the form of organisation for implementation, various questions and issues have been raised. Obviously the policy questions and suggestions are not exhaustive; in fact they should be treated merely as pointers arising out of the field studies within the obvious limitations. One important aspect would appear to merit careful consideration in the future. We suggest that questions of ownership and control in the form of organisation that is either the private sector with joint public participation, or co-operatives, are in fact basic concepts along which future land development programmes must be planned and implemented.

We do not wish to refer in any detail to the historical experience of economic exploitation of this country's resources whereby certain groups as well as races obtained access to participation in the modern sector because it was the policy of the colonial regime not to encourage the indigenous people in this process for political reasons. We wish to emphasise that this historical experience must not be lost sight of in terms of the abolition of colonial type relationships in the planning for future development, so as to redress the imbalances and inequalities that have resulted from past policies and practices.

FLDA as a public sector organisation, as we have repeatedly stressed, despite its limitations, has made a tremendous impact as to what could be achieved and this obviously has important implications for the future. At the same time there is evidence to suggest that its performance can be better given a more flexible organisational set up with decentralisation of powers, responsibilities and decision making. There is a definite danger of the organisation becoming increasingly bureaucratised. However, FLDA has shown itself to be sensitive to, and capable of making changes geared towards improvements. We are confident that with the enlightened leadership that exists, every attempt will be made by the organisation to seriously consider the demands and aspirations of settlers and by so doing provide a more dynamic and realistic programme in the future.

C.E.R. Abraham
Sociologist



SEJ/3/1.40(1.41 - 1.45)

Land Development Ordinance, 1956. (Federation of Malaya No.20 of 1956).

Part I. Title and definition.

.. "development area" = any area in and for which a local land development board has been established.

Part II. Federal Land Development Authority.

- 3. (1) there shall be established the F.L.D.A.
- (2) "It shall be the duty of the Authority to promote and assist the investigation, formulation and carrying out of projects for the development and settlement of land in the Federation".
- (3) "The Authority shall have power" for purposes of (2) .. to do anything, including "promote and coordinate the carrying on of such activities by boards and corporations and to give assistance to boards and corporations, including financial assistance, by way of grant, loan or otherwise" (b) and (c) "to carry on such activities in association with boards, corporations or other bodies or persons (including departments of the Government of Federation or any State Government) or as managing agents or otherwise on their behalf".
 - (d) "to make loans"
 - (e) "to do anything ... which in its opinion is calculated to facilitate the proper discharge of its functions or is incidental or conducive thereto.
- (4) The Authority shall not act until appropriate consultation with State Government or Federal Department has been taken.
- 4. (1) "The Minister may, after consultation with the Authority, give to the Authority directions of a general character and not inconsistent with the provisions of this Ordinance"
- (2) The Authority will provide the Minister with returns, etc. he may require.

5. The power of the Minister to give directions shall extend to "directions (a) as to the disposal of Capital Assets; or (b) as to the application of the proceeds of such disposal; notwithstanding that the directions may be of a specific character".

Provided that no such direction without concurrence of Treasury, so long as any borrowing (by Authority) ^{is} outstanding.

6. The Authority may undertake such other functions as the Federal Government or any State Government may assign to the Authority.

Land Development Fund.

7. (1) "All advances, whether by way of grant, loan or otherwise, made under this part of this Ordinance, shall be made out of a fund, to be called the Land Development Fund, to be administered and controlled by the Authority into which shall be paid - "

Capital sums provided by the Legislative Council, allocated from loan funds, sums borrowed by the Authority, any property, mortgages etc acquired by or vested in the Authority, money earned from capital appreciation of property etc, repayments to the Authority of the principal of any loan made by the Authority, and all other capital assets which are payable ^{to} or vested in the Authority.

- (2) The charges on any amount which may be allocated to the Authority from loan funds shall be met by the Authority: provided that all or any part of such charges may be met from the general revenues of the Federation with the approval by resolution of the Legislative Council."

Financial provisions.

8. Balancing of revenue account: ".... the duty of the Authority to conserve the fund so that the total revenues ... are sufficient to meet all sums properly chargeable to its revenue account ... taking one over the other".

9. Reserve Fund.
10. Powers of expenditure - payroll expenses, purchase of plant and equipment etc, repayment of monies borrowed etc, in the execution of its duty.
11. Gifts.
12. Borrowing powers: "The Authority may from time to time borrow, at such rate of interest and for such period and upon such terms as to the time and method of repayment and otherwise as the High Commissioner in Council may approve, any sums required by the Authority from meeting any of its obligations or discharging any of its duties: provided that no such sum borrowed as aforesaid shall, ~~save~~ by leave of the High Commissioner in Council be used to repay monies borrowed or to pay interest on monies borrowed." (Replaced later by amended clause 12A- see end)
13. The fund and the reserve fund and any sinking fund, may be invested in any of the investments authorised for the investment of trust funds.

Accounts and Audit.

14. (1) "The Authority shall keep or shall proper **accounts** and other records in respect of its operations and of all corporations established by the Authority, and shall cause to be prepared statements of accounts in respect of each financial year."
- (2), (3), (4) - Audit and report to Legislative Council.

Incorporation, constitution and procedure.

15. Constitution of Authority - a body corporate - consisting of (a) a Chairman, who shall be appointed by the High Commissioner in Council and shall hold office during his pleasure; and (b) not more than 8 or less than 6 members, who shall be appointed by the High Commissioner in Council and shall hold office for such term not exceeding three years and subject to such conditions as the High Commissioner in Council shall determine.

16. Common seal.
17. Salaries and fees payable to members of Authority.
18. Committees.
19. Members not to vote on matters in which they are interested.
20. Quorum and proceedings of Authority.

Officers and Servants.

- 21, 22 and 23: Duties of Chairman; appointment of officers and servants; and power to appoint and dismiss officers and servants.
 24. Authority to frame regulations governing conditions of service. Regulations on salaries, fees and allowances, grant of leave, period of service, and other conditions shall only come into operation after they have been approved by the "Minister" (later amendment of original clause).
 25. Provident fund, pension and super-annuation schemes.
- Contracts and delegation, annual report, regulations.
- 26, 27, 28 and 29. 28 - On annual report - lays down that an annual report will be prepared for the High Commissioner "dealing generally with the activities of the Authority, including all corporations established by the Authority".
 - 29 - On regulations - allows the Authority to make regulations, "defining the relations of the Authority with Boards or corporations"; regulating the accounts of Boards and corporations; on system of management and fees.

Part III. Local Land Development Boards.

Establishment, duties and powers.

30. (1) "The Ruler in council in a State ... may from time to time by order published in the gazette establish in and for any area in such State ... a Board to carry out in such area any duties of the kind referred to Sub-section (2) of Section 3".

Section 3 deals with "establishment, duties and powers of the Federal Land Development Authority". Sub-section (2) of Section 30 lays down similar powers, including "to carry on such activities in association with corporations or other Boards, bodies or persons (including departments of the Government of the Federation of any State) or as managing agents or otherwise on their behalf; to make loans,; to do anything and ~~to~~ enter into any transaction which in its opinion is calculated to facilitate proper discharge of its functions or is incidental or conducive thereto.

(3) In addition to the duties imposed under this Ordinance, a Board may undertake such other functions... as the Ruler in council in a State may assign to the Board.

31. Directions to the Board by the "Ruler in Council in a State" are governed by provisions in the same terms as Sections 5 and 6, with respect to the Authority.

Funds.

32. (1), (2). For the purposes of every Board there shall be established a fund to be administered and controlled by the Board, consisting of Capital funds provided by the Council of the State; advance to the Board by the Authority, out of the Land Development Fund; borrowed by the Board; assets acquired for money and by capital appreciation; repayment of principal of any loan made by the Board and the interest payable on such loans.

33. Balancing of revenue accounts- same provision as for FLDA - taking one/^{year}over the other.

34. Reserve fund.
35. Powers for expenditure.
36. Borrowing powers and gifts: " (1) A Board may from time to time borrow at such rate of interest and for such period and upon such terms as to the time and method of repayment and otherwise as the Ruler in Council in a State... may approve, any sums required by it for meeting any of its obligations or discharging any of its duties."
- 37, 38: Investments and accounts and audit.
39. Constitution and procedure: A Chairman and members of every Board shall be appointed by the Ruler in Council in a State.
- 40, 41: Officers and servants and annual report.

Part IV. Corporations.

42. (1) "The Authority with the approval of the High Commissioner in Council, and the Board, with the approval of the Ruler in Council in a State ... may from time to time by order published in the gazette establish a corporation to carry out any project scheme or enterprise which is being planned or undertaken by the Authority or such Board ...".

Part V. Regulation and Incorporation of Boards and Corporations.

43. (1) "... the appropriate Authority shall ... make provision" for - purposes and objects, rights powers duties and functions, terms of office of Chairman, delegation, quorum, execution of instruments, relationships between the Board or Corporation and the appropriate Authority, system of management and terms and conditions of service.
44. Incorporation.

Part VI. Loans.

Loans by Authority or Board

45. Charge on property and priority of loan.
- 46, 47. Interest on loans, repayments of loans.
48. Suspension of payment and power to extend time, compound or release. "The Authority or Board may postpone for not more than 5 years the payment of any sum due for principal and interest... or extend the period for repayment of the loan.
- 49, 50, 51, 52, 53, 54, 55, 56: Payment of loan before due date; enquiry as to application of monies lent; order upon such enquiry; mis-application of loan; enforcement of securities; offences in respect of loans; public prosecutors fiat; burden of proof.

Part VII. Movable and Immovable Property.

57. Powers as to movable and immovable property.
58. "The Authority and every Board and Corporation shall be deemed for the purposes of the Malay Reservation Enactment of the Federated Malay States and the corresponding law in force in any part of the Federation to be a Malay and any registered interest in ^{land in} the Malay Reservation of which the Authority or such Board or Corporation is proprietor shall be deemed for such purposes to be a Malay holding". (Exception for State of Trengganu).
59. Compulsory acquisition of land: "When any immovable property, not being State or crown land, is needed to be acquired for purposes of this Ordinance, such property may be acquired in accordance with the provision of any written law relating to the acquisition of land for public purpose... notwithstanding that compensation is to be paid by the Authority or a Board or Corporation ...".

Part VIII. General.

60, 61. Power to employ agents; compromise.

62. "The Ruler in Council in a State... may, from time to time, by notification in public in the gazette, declare that all or any of the powers conferred upon a local Authority or the President or Chairman thereof by any written law may be exercised within the area specified in such notification by the Authority or by any Board or Corporation or the Chairman thereof respectively: provided that no such declaration shall be made in respect of any area in which a local Authority is for the time being established."

63. Exemptions: The Authority and every Board etc shall be exempt from the payment of stamp duty and income tax. The Ruler in Council may exempt from any other tax etc levied in the States.

64. All members, officers and servants of the Authority and every Board and Corporation shall be deemed to be public servants within the meaning of the Penal Code.

65-67. Public authorities protection; protection of Authority, Board and Corporation; minutes receivable in evidence.

68. Saving: "Nothing in this Ordinance shall be construed as authorising the Authority or any Board or Corporation to carry on any undertaking for the supply of electricity or any railway or telecommunications undertaking except under the Authority of written law other than this Ordinance specifically authorising the Authority or such Board or Corporation in their behalf".

Later amendments: 1957, 1958, 1959, 1962

Throughout:

for High Commissioner in Council, read Minister
for Legislative Council, read House of Representatives

12. replace by:

A(1) The Authority may, from time to time, with the approval of the High Commissioner in Council, borrow money by the issue of bonds debentures or debenture stock, or raise capital by the issue of shares or stock of such class and value and upon such terms as it may deem expedient, for all or any of the following purposes:

- (a) the provision of working capital;
- (b) the fulfilling of the duties of the Authority under this Ordinance;
- (c) the fulfilling of such additional functions as may be undertaken by the Authority under this Ordinance;
- (d) the redemption of any shares or stock which it is required or entitled to redeem;
- (e) any other expenditure properly chargeable to capital account.

(2) The Authority may make rules not inconsistent with the provisions of this Ordinance to provide for such matters in connection with shares, stock, bonds, debentures or debenture stock issued under this Ordinance as may appear necessary or expedient to the Authority, and, in particular, for regulating the method of issue, transfer, redemption, or other dealing with such shares, stock, bonds, debentures or debenture stock."

15. Maximum number of members raised from 8 to 12.

32. Minor amendments

48. Period of permitted postponement raised from 5 to 10 years.

Professor A.S. Mackintosh

11th April 1970

CONFIDENTIAL

1. The purpose of this document is to provide information regarding the activities of the organization.

2. The information contained herein is confidential and should be handled accordingly.

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5. The information contained herein is confidential and should be handled accordingly.

6. The information contained herein is confidential and should be handled accordingly.

7. The information contained herein is confidential and should be handled accordingly.

8. The information contained herein is confidential and should be handled accordingly.

9. The information contained herein is confidential and should be handled accordingly.

Notes on Land (Group Settlement Areas) Act, 1960 and Amendment 1965.

Part I: Definitions.

Part II: Group Settlement.

- 3. (1) Designated areas: The State Authority may by notification in gazette declare any area of land in state to be a designated area.
- (2) No state land in a designated area shall be alienated or occupied except in accordance with the Land (GSA) Act or currently relating to mining land.
- 4. The State Authority may gazette any area of state land, whether "designated" or not, to be a group settlement area.
- 5, 6. The State Authority may gazette any area in a group settlement area as "a rural settlement area" (5) or an "urban settlement area" (6).
- 7. Holdings:
 - (1) The Commissioner may divide land into holdings.
 - (2) Rural holding: The area of each holding to be approved by the State Authority, consisting of one or more parcels within a rural settlement area for any one holder; all rural holdings as far as possible to be of equal areas.
 - (3) An urban holding to be declared for commercial, industrial or residential purposes.
- 8. Reservation of land for public purposes: The provisions of state land law will apply.
- 9. (1) The State Authority may direct a group settlement area to be cleared at the public expense.
- (2) The cost to be paid out of provisions by the State Legislature and may be recovered from persons to whom the land is alienated.
- 10. Alienation.

11. Titles and conditions:

- (1) The holding to be not more than 10 acres. The title in perpetuity or for a term of years.
- (2) Express conditions.
- (3) Breach of conditions may lead to forfeiture.

12. Occupation **in** expectation of title: Holder is registered as holder **in** expectation of title. (Amendment by the 1965 Act to add: even if registration takes place without details of lot numbers or area, CAC rate, rent etc - due to non completion of survey etc.)

- 13.(1) The Commissioner with approval of State Authority will fix rates of premium, rent, survey and other fees.
- (2) **Revision** of rent in a group settlement area after not less than 30 years or after expiration of the period for which the CAC is payable.

Part III: Rural Holdings.

14, 15, 16. A rural holding will be alienated to only one person, with no joint ownership, no sub division, no holding by way of "undivided **sharees**", no leasing nor sub-letting. Transmission on death to a single holder to whom all interests will be assigned.

17. Conditions: (a) area to be cultivated with the appropriate crop by the date fixed and thereafter maintained according to the rules of good husbandry.
- (b) no other crops than the "appropriate crops".
 - (c) the only building **permitted** will be a dwelling house,
 - on (d) the part of a holding directed by the **Collector**.

18. Rights of access.

Part IV: Occupation of rural holdings in expectation of title.

19. Qualifications for holding rural holdings:

- (1) Malaysian citizens only, as long as the holding is state land.
- (2) No person who is proprietor or co-proprietor of any land other than
 - (a) country land of not more than 2 acres; and/or
 - (b) a single plot of town land used solely for his own residential purposes.

But where each group settlement area is declared "for the purpose of supplementing existing uneconomic smallholdings, the State Authority may raise the maximum in (a) to not more than 6 acres".

Husbands and wives holdings will be aggregated for the purposes of (2)(a) above. An occupier will not be disqualified from holding, by subsequent acquisition of additional land by inheritance or gifts *inter vivos*.

20. Consolidated annual charge.

21. Recovery of rent.

22. Breach or default.

23. Compensation for re-entry (by state):

- (1) No compensation except as in (3) below.
- (2) An evicted holder may remove his house at his own expense.
- (3) Compensation will be given for a house left on the land at the valuation of the collector, this value being recovered from the next holder of the holding.

24. Assignment rights to someone in accordance with the qualifications required (in 19) and with the approval of the collector.

25. Implied conditions and obligations: (a) to clear boundaries, (b) to clear holding, (c) to plant the ~~whole~~ with the appropriate crop and carry out any necessary maintenance, fertilising, replanting or other work (all as directed by the collector), to refrain from tapping any rubber until collector

certifies that the rubber is mature (amended in 1965 to change "rubber" to "any crop").

The collector may direct that (a) (b) or (c) above shall be carried out by a holder "in conjunction with the holders of contiguous holdings or on a cooperative basis of joint working on continuous holdings".

Part V: Urban Holdings.

26, 27, 28, 29. An urban holding may be alienated to any one in accordance with the State land law (26). The document of title specifies the purpose (restricting the use) (27). Occupation in expectation of title and assignment of rights (28 and 29).

Part VI: General.

30, 31, 32. Unlawful occupation of land; other offences and penalties; rules.

Land (Group Settlement Areas) (Amendment)
Act 1965.

The phrase "Ruler in Council" used in the original 1960 Act was amended by the 1965 (Amendment) Act 2 "State Authority". This amendment has been inserted into the notes above on the 1960 Act.

The principal amendment in the 1965 Act is the addition of a new Part VII, section 34 onwards, introduced specifically for the Federal Land Development Authority.

"Federal land development area" means a group settlement area declared under Section 4 for the purpose of Section 34 (2).

"Manager" means the manager of a federal development area, appointed in accordance with Section 36.

New Part VII, Section 34 onwards.

34 (1) The State Authority (= Ruler) may permit the Development Authority to develop any State land as a group settlement area and for that purpose may agree with the development authority on location, area; division between rural and urban; the crop(s); the size of holdings etc; the CAC rate and period of payment; etc.

- (2) (a) the State declares the area to be a group settlement area to be developed by the development Authority;
- (b) the area vests in the development Authority;
- (c) on request from the development Authority, the State Authority shall declare any part of the area to be a rural settlement area and any other part an urban settlement area;
- (d) the area re-vests in the State Authority when the CAC ceases to be payable.
- (3) (a) As from the date of re-vesting, the provisions of the Land (Group Settlement Areas) Act, 1960, as amended, will apply to the land.
- (b) The State Authority may issue a title to the Co-operative Society by which such an area is developed.
- (4) For the purposes of 34 (1) the development Authority will have the area surveyed.
- 35 (1) The development Authority may permit any area vested in it to be developed or managed by such cooperative society as it may organise; and the development Authority may direct that any such "cooperative group settlement area" be surveyed as one whole ~~or~~ in as many lots as may be convenient for cultivation.
- (2) Only members of the Cooperative Society shall be registered as holders in the register of holdings; and the manager shall not record any specific lot number, but only the share or shares held in such society by the members registered as holders.
- (3) The Holder holds an undivided share in the cooperative group settlement area.
- 36, 37. Appointment of manager by development Authority .
The development Authority (Chairman) may make by laws.
- 38 (1) Although the Federal Development area is vested in the development Authority, provisions of Parts I-VI (excluding sections 3, 4, 5, 6, sub-sections (3) of section 7 and (2) of 12 and 32 shall apply to the area as if such an area were state land.

39. Any person aggrieved by the development Authority may appeal to the Minister whose decision shall be final.

Professor A.S. Mackintosh
11th April 1970.

ASM/BN.

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Notes on Meetings at the Rubber Research Institute, K.Lumpur.

Date: Tuesday 20th January 1970.

Present: J.C.English.

1. Dr. J. Blencowe

My brief chat with Dr. Blencowe covered a number of agricultural topics the major of which were:

(a) Livestock. Dr. Blencowe indicated that he felt that possibilities for diversification with livestock were considerable. He felt that the best possibilities lay with cattle and sheep. His preference for sheep over goats is because of his believe that local sheep offer much greater potential for upgrading with imported stock. He spoke of the possibility of importing Dorset Horn rams for this purpose. He felt that their light fleece and rapid growth rate were both suited for Malaysian conditions. He gave me the names of three individuals who have had experience with sheep in Malaysia. These were:

- 1) Mr. H. Veerseema,
Buloh Akar Estate,
Perak.
- 2) Mr. H.F. Traill,
Tonnamaram Estate,
Batang Bajuntal,
Selangor
- 3) Dr. Geoffrey Lowe,
c/o Monsanto Chemical Co.
Kuala Lumpur.

(b) Cocoa: Dr. Blencowe believes that considerable potential exists for this crop in Malaysia. I said that I felt that at least 100,000 acres would be preferable in order to make an adequate research programme worthwhile. Dr. Blencowe stated his believe that private producers will plant this amount of a crop over the next few years. He indicated that he believes that the long-term average price for cocoa will be approximately 85 Malaysian cents per lb, with low prices of 65-70 cents per lb occuring only in isolated years of excess production. The present cocoa price in London is approximately £320 per ton, which is slightly in excess of M\$1 per ton.

Cocoa is ideally suited as a smallholder crop, and an individual family should be able to handle 8 to 10 acres of the crop without difficulty. A major advantage of the crop over rubber is its shorter gestation period. The first crop, admittedly a small one, should be obtained shortly after three years after planting. In Malaysian conditions the time needed to establish shade of a crop is relatively short, six months should be adequate. He indicated that Sesbania species appeared to be a useful short-term shade of this crop. A level of fertiliser application similar to that used for oil palm would be necessary in Malaysian conditions to obtain high yields.

(c) Fodder crops. Dr. Bellis of the Institute has been working on fodder crops for Malaysia, particularly rubber intercrops. Unfortunately he was not at the Institute during my visit.

2. Mr. Fong Chuw Chai and Mr. P.J. Thomas, Statistics Dept. RRI.

Mr. Fong stated his believe that the increasing proportion of total world elastomer usage being made up of synthetic rubber did not result from superior properties of synthetic substitute or necessarily from price advantages, but because the supply of natural rubber has not expanded rapidly enough to cope with the expansion of demand. They see considerable scope for increases in overall elastomer usage especially in Eastern Europe and the developing countries. They feel that natural rubber producers should have no difficulty in selling all that they can produce in the foreseeable future without a precipitate fall in price. They have been particularly encouraged by the way in which the natural rubber RSS 1 price has held at the level of 70 cents per lb in recent weeks. They feel that the position of natural rubber vis-a-vis synthetic rubber is not as bad as has often been made out, for example in McHale's short book on the Rubber Market. The synthetic rubber most closely resembling natural rubber is Cis-poly-isoprene. The basic ingredient in its manufacture is Isoprene which costs approximately 10-12 US cents per lb. About 1.2 lbs of Isoprene is needed to produce 1 lb of the synthetic rubber. Apparently a Russian paper on synthetic production has indicated that only about 47% of the price of

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the final product is made up by the price of Isoprene. This would imply a price of approximately 22-25 US cents per lb for the final product, i.e. about 70 cents per lb. There appears to be little prospect of reductions in the price of Isoprene in the foreseeable future. The rubber also of course has superior properties particularly in heat and abrasion resistance for quite a number of uses. They felt that the long run price of natural rubber should lie somewhere in the 50 to 60 cents per lb range.

To the Institute it appears that China does not at present have any synthetic rubber capacity and must therefore import the majority of its rubber requirements. In China and the Soviet Union they believe that there is a considerable lag in synthetic rubber technology. This partly results, of course, from the heavy demands of space and defence efforts on the engineering potential of these countries. Thus although they might like to increase their own synthetic output their capacity to do so at present is somewhat limited and it is perhaps in their best interest to continue to purchase large quantities of natural rubber even though this may increase their dependence on foreign supply. However the buying habits of these centrally planned economies do introduce considerable fluctuations in the world market from time to time resulting from their tendency to enter or leave the market rather suddenly causing sharp fluctuations in overall demand. Thomas did not see any real promise of international agreements among rubber producers. At present Thailand, Malaysia and Indonesia have been discussing efforts to coordinate their sales of natural rubber. However up to the present Indonesia has been the somewhat ineffective member of this partnership. They appear to have been able to establish standards for their sales and although some Standard Indonesian Rubber is coming on to the market apparently this quality is extremely variable. Some of it is in fact being remilled in Singapore. Apparently there were discussions a year or two ago about the prospects of establishing a free port area at Port Swettenham to which Indonesian rubber supplies could be brought for re-milling and upgrading. However the Indonesians have been unable to make any decision on this and nothing has been done so far.

It appears that rubber output particularly in Malaysia will expand steadily over the next few years. Mr. Fong felt that output in 1975 in Malaysia is likely to be in the region of 1.8 million tons, a rise of almost of 50% over the present year. Indonesia will perhaps produce 7 - 800,000 tons although this is somewhat uncertain because at present the extent of the damage to estates during the period of national ownership is not known with any accuracy. Output in Thailand should increase fairly rapidly to 5 - 600,000 tons by 1975.

I received copies of the following publications:-

- 1) Natural Rubber News, December 1969.
- 2) Technical & Economic Backgrounds for the organisation of Synthetic Rubber Production in Developing Countries by Troitsky and Nikandrov. This is a Russian paper presented to UNIDO Conference on Petrochemical Industries held in Russia in October 1969. Copies of two further papers from this Conference will be forwarded by the RRI.
3. Mr. Ng Choong Swee, Economics Department.

Mr. Ng's major interest is with the economic problems of production of rubber and also of impossible intercrops for immature rubber. My meeting with him however did not discuss these topics since Frank Sole will probably be meeting him in the near future and so I did not wish to duplicate any discussion in that area. My major interest in meeting him was to discuss plans the institute have for study in the area of marketing of intercrops. We met Mr. Tee, who has recently returned from a Master's Degree course in Agricultural Economics in UK, and who is now beginning a study of groundnut marketing in Perak. Before embarking upon their plans the Economics of the Institute discussed such studies with FAMA (Federal Agricultural Marketing Authority). However FAMA has apparently done very little work in this area and so the Institute decided to proceed on its own. Groundnuts were decided upon for their first study because it appears to be the most widely grown intercrop at least in certain parts of the country, many other intercrops being grown only to a very limited and scattered extent so that any study of their marketing is extremely difficult.

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Mr. Tee intends to interview both oil millers and groundnut producers in Perak. The sample of producers has been drawn from those corporating with the smallholder division of the Rubber Research Institute. As a result it is probably not a completely representative sample of groundnut producers. However it was felt to be adequate for the purpose. Mr. Tee agreed to keep in touch with us and to provide us with results of the survey which is to be carried out immediately.

Mr. Ng also gave me a copy of the recent publication of the Institute, and Agro-Economist study of Inter-crops on Rubber Smallholdings by Lim Sow Ching.

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Peak capacities (remember peak months yield 30-40% more than average):-

Meru	10 tons per day
Rantau	15 tons per day
Grisek	30 tons per day in the initial stage
Mentakab	40 tons per day

These four factories now under offshoot of RRI, Malaysian Rubber Development Sendirian Berhad.

GPC's scheme established by Smallholders' Advisory Services of RRI. Provide mangling facilities and in some cases smoke houses for production of RSS. Smallholders themselves operate the facilities. GPC's also have scope for delivery in five-ton lorry loads to main dealers who pack rubber for export. RRI's role one of the encouragement and supervision. Loans can be given by MARA for extension; loans are authorised by RRI.

Smoke Houses

Smoking process is designed to dry rubber; it also has the side advantage of acting as an anti-fungicide. Some estates which have run short of firewood use an air drier with a smoking device. Smoking takes from four (best practice period) to six days. Smallest economic size about 1,000 lbs per day DRC (Dry Rubber Content) output but smoke houses of up to 4000 lbs per day DRC are not uncommon. A shift system using one stoker at a time can cope with up to three 4000 lbs per day smoke houses. However some smoke houses have a capacity as small as 100 lbs per day DRC.

RSS Factories

Average estate capacity 3 tons per day (6720 lbs) but the largest 8 tons per day (17920 lbs). Graham thought least cost production level 1 tons per day but could only think of savings on anti-coagulants at this level of output. Costs vary depending on characteristics of latex but Graham gave following ranges:-

Chemical and power costs	- 0.15-2.0¢ per lb
Smoking costs	- 0.3-5.0¢ per lb
Processed rubber	- 0.5-3.0¢ per lb

.../3...

Crumb Rubber

Present Director of RRI came across crumbling behaviour working on oil extension of rubber, although crumbling in the presence of an incompatible agent had been known for some time (c.f. French work on flocculation of rubber). RRI began experiments with granulator (like a mincing machine). Experimented in context of requirement to design machinery to fit into typical Malaysian estate factory and be able to cope with smallholders rubber in central factories. End results was to recommend Hevea crumb process.

Hevea crumb process uses latex with about 30% DRC (field latex DRC), compared with watered down latex of 15% DRC for producing RSS. Latex is sieved through 40 meshes/inch sieve, bulked and blended (castor oil is added at the stage) and coagulated in sheeting battery. Wet sheet is fed on to a series of crepers - 1 ton per hour crepers becoming popular. A newer method is to use 3 crepers then a hammer mill or 2 crepers and 2 hammer mills. Using a hammer mill gives a more even size of crumb over a longer period of the life of the machinery. Putting ordinary crepe through a hammer mill (i.e. same process as for Hevea crumb but without castor oil) will crumble rubber but this would require careful handling to avoid sticking. Crumb rubber dried by hot air for 4-6 hours and pressed into 75 lbs blocks (standard weight of bales of RSS 250 lbs). Hevea crumb blocks are very suitable for pelletising.

Mechanical crumbling processes use granulator. The Guthrie Dynat process uses a granulator for latex and a granulator followed by a pelletiser for scrap. Promoci but not Dynat recommend rolling before granulation. Crumb again dried by hot air. Granulator cannot cope with soft coagulum or oil extended coagulum.

Savings to rubber processors in using block rubber obviously varies depending on the production process but a figure of 3¢ per lb was quoted. Bulk of block rubber are sold to SMR specification; packaging and classification cost given as 1.5-2¢ per lb.

Master Batch

Manufacture of carbon black from hydro carbon oils is a specialised production. Carbon black is produced in a fluffy form and reduced to pellets for transportation. For combination into master batch refluffing is required. Master batch is a batch process. Many different specifications of carbon black are used.

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Factories

John Morris gave me the following list of factories processing rubber and oil palm in South Malaya compiled to include a range of different processes and organisational types.

<u>Name</u>	<u>Agency</u>	<u>Place & State</u>
	<u>RUBBER</u>	
Bilut Valley	FLDA	Pahang
Rantau	MRD	Negri Sembilan
Grisek	MRD	North Johor
Siliau	Guthries	Negri Sembilan
Harun	Guthries	Klang, Selangor
Tangkak	Harrison & Crossfield	North Johor
New Lalu	Consolidated?	Lalu, Negri Sembilan
Sungei Buloh	RRIES	Selangor
Rasak Estate		Sungei Buloh, Selangor
Ulu Tiram		Ulu Tiram
Chan Wing Estate		Bekoh, Johor
Tai Tak Estate		Kota Tinggi
	<u>OIL PALM</u>	
Bukit Besar	FLDA	Kulai
	CDC	Kulai
Tai Tak		Kota Tinggi
Ulu Tiram		Ulu Tiram

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VISIT TO KUALA LUMPUR CRS - 9TH-13TH FEBRUARY 1970

Meeting with Jim Goering, Economic Planning Unit - 10th February

We discussed rubber processing, rather outside Jim's main field of interest - for fuller account of rubber see notes of my interview with Dave Graham RRI on 11th February.

Possible contacts on rubber processing:

1. Malaysian Rubber Development Sendirian Berhad, offshoot of RRI operating two soon to be four Hevea crumb factories - Lim Poh Low is the head.
2. Peter DeJong, head of Marketing for Guthries, Jalan Mountbatten, Kuala Lumpur.

Lim Sow Ching (RRI) did his master's thesis in the field of rubber processing or marketing.

Polymer of Canada are in the middle of negotiations concerning purchasing and processing of latex in Malaysia.

We also discussed oil palm, more in Jim's field of interest. Taking cultivation, harvesting and processing altogether, he suggested on average 8-10 acres of rubber keeps one worker fully employed compared to 14-16 acres of oil palm. There appear to be significant economics of scale in oil palm processing. The National Development Corporation (?), an association of Sim Lim Finance and Trengganu State Development Corporation are establishing or have established a large scale factory (capacity of 40 tons of fruit bunches per hour) in Trengganu. Stork of Netherlands used to build factories on turnkey basis but significant cost reductions have been achieved by the increasing use of local fabrication. United Engineers of Kuala Lumpur have done a fair amount of the local design work.

He mentioned that a solvent extraction plant, presumably for coconut oil, has been or is in the processing of construction. He mentioned Lam Soon Soap of Petaling Jaya in this connection.

Possible contacts:-

1. Food Technology Division, Ministry of Agriculture; Haji Basir, Agronomist.
2. Dr. Sedkey, Food Technologist at Serdang.
3. On pineapples, Inche Hussein of Export Commodities Division, Ministry of Commerce and Industries.

BRIEF NOTES ON VISIT TO KUALA LUMPUR - RAJH, FAS - 26th-31st Jan. 197026th Monday.Visit to Sri Gading Estate - Manager Foo Chow Len.

Mr. Foo has considerable experience in growing annual cash crops on a large scale. He went into large scale annual crop production when the price of rubber fell and he wished to keep his labour force profitably employed. Mr. Foo grew a wide range of crops including chillies, sweet corn, maize, groundnuts, dryland padi, radish, tapioca on up to 400 acres. Mr. Foo stressed that the key to arable cash crops was marketing and all of the crops could prove more profitable than rubber if they could be marketed. He had many problems with this and only now was being able to market maize and mini-corn.

Mr. Foo showed us round the Ko Rubber Factory where they make S.M.R. hoveacrumbs and air dried sheet (ADS). Production was approximately 50% of each product and they received a premium for the ADS of up to 8¢ per lb. from their long established Japanese buyers.

27th Tuesday.Visit to Rubber Research Institute Field Station - Sungei Buloh.Tan See Yeok - Acting Manager, Chen - Assistant Manager.

Mr. Tan was interested in our project and offered any assistance they could give. Most people of whom we could have asked specific questions concerning various aspects of rubber or intercropping were on leave and so a general tour with the Assistant Manager had been arranged. He gave us a demonstration of green budding and soil core transplanting of young rubber. Green budding is now widely adopted and has proved very satisfactory in saving on costs and shortening the immature period. Soil coring is not widely adopted and is a slow/^{and expensive} process. It can reduce the immature period by a further six months. We saw a demonstration of latex collection in polythene bags. This system if adopted could give major savings on labour costs of collection but the system is extremely prone to theft as each bag can contain up to 10lbs of raw rubber. This has not yet been taken up by any estate and is thought to have application only in certain remote areas where labour availability is low.

We were taken to the field area and saw excellent crops of maize, soya bean and groundnuts interplanted with young rubber. The system of

intercropping is thought to be better suited to boost smallholders incomes, rather than for large scale operators. This is because large amounts of hand labour are required for the crops where machines cannot operate between young rubber.

The station also has some trials of cocoa under mature rubber. The rubber in this case specially suited to interplanting as it is hedge planted with wide interrows. Within the rows the rubber trees have been thinned out. The crop looked very promising but squirrel attack was already serious.

Experiments and trials with gambier (Uncaria) were seen. This crop is harvested for its leaves which yield a drug useful in pharmacy. It was stressed that this was a slow growing crop and only in the very early stages of development as a viable crop.

28th Wednesday.

Visit to Faculty of Agriculture, University of Malaya.

We talked first with Dr. Raj of the Agronomy Division concerning aspects of agriculture development in Malaya, and he offered any assistance the department could offer. He was for many years Cocoa and Pepper Agronomist in Sarawak. Later, we met Mr. Rajaratnam of the faculty's soils division. He has recently started at the university and was before at Chemara Research at Layang Layang. He told us that the key to high production from Malayan soils was micro nutrient application. This was particularly true with boron in oil palms. There was a lively discussion on future developments in nutrition, breeding and processing of oil palms. Hybrids with Elais oiliflora, a S. American species with very high fruit weight but only with a 12% oil extraction rate are showing promise in raising yields. These hybrids enable the planting rate to be increased from 55 plants/acre up to 150/acre. The breeding programme for higher yielding clones is aided by the use of a harvest index which is calculated from:

$$\text{Harvest index} = \frac{\text{Fruit}}{\text{Total dry matter}}$$

A high index indicates very efficient plants. He was completely of the opinion that management can override nutrient status of soils.

Later, we talked with Dr. Wong Wai Cheong recently returned from America and is in charge of animal studies. His main interest is in poultry nutrition at a very sophisticated level.

Mr. Beeny of the Agricultural Engineering Department talked in gene-

ral about the primitive level of agricultured mechanisation in the country and possible lines of development. He recommended a book "Profitable Farm Mechanisation" by Culpin. He also recommended a useful contact in this subject would be Inche Wan Dan, State Agricultural Officer, Pahang. Tel. Kuantan: 29.

29th Thursday.

Visit to Robin Woon Kim Yam.

Mr. Woon is a typical successful Chinese entrepreneur who is an aspiring if not actual millionaire. He has wide business interests with offices in Malacca, Kuala Lumpur and Singapore. He has very big and grandiose schemes in motion in the agricultural sector, covering large scale tapioca schemes 21,000 acres in Negri Sembilan, 15,000 acre oil palms in Pahang with interests in solvent extraction processing, large scale ultra-intensive cattle scheme in Frazers Hill not yet off the drawing board, large scale 4000 acres of lucerne for animal feedstuffs in Johore. A very interesting interview especially as Mr. Woon is interested in employment creation to help offset the unequal racial distribution of incomes. He was interested in our scheme and told us that the market for top quality tapioca products was so big in Germany alone, that we should plant our whole area to tapioca. He thought that his lucerne schemes would satisfy the markets in Malaysia and Japan for lucerne meal.

In the afternoon Visit to Mr. Barnett, Director, Rotavator Co. Ltd. Mr. Barnett had heard of South East Johore Project and was very interested to hear of its progress as he had been on the British Aid team which originally identified South East Johore Project as a candidate for Aid. He is very interested in the mechanisation of arable crops. One point he stressed was the high cost of clean clearing jungle suitable for the operation of machines. He is in charge of a 110 acre demonstration farm set up near Kuala Lumpur to demonstrate the possibilities of intensive mixed arable farming with some irrigation. In his opinion many short term crops would show good benefits from supplementary irrigation even in Johore. He has an available detailed information on all kinds of machinery, costs of operation etc., and offered full co-operation in supplying any details we require. He is very keen to see Len Palmer our irrigation agronomist when he is on the project.

30th Friday.

Visit to Tunku Ubaidillah, Acting Director of Fisheries.

This was a preliminary introductory meeting prior to further discussion.

Tunku Ubaidillah took a distinctly pessimistic view of possible fisheries development anywhere. The department is under staffed and overworked and has not produced any research for more than ~~two~~ years. He did have some enthusiasm for South East Johore Project and agreed that fish ponds had a very important role to play in the rural economy. He also could see the potential in possible fish freezing and exporting enterprise. He welcomed contact with the project and promised all the assistance his department could offer.

31st Saturday.

Meeting with Mr. Saker and Mr. Baines of Kumpulan Guthrie.

This was another general discussion on development projects covering tapioca, livestock, oilpalms. Mr. Baines forecast that major breakthrough in oil palm processing was inevitable in the next ten years which would shift the economics of oil palm production to favour smaller planted units Guthrie was interested in livestock and fish ponds. Guthrie have now offered us access to all their production data, costings and computer programmes for forecasting estate costs, production and income. This will be taken up on our next visit in more detail.

RAJH/rh/28/2/70

NR/II/6

DATE: 8th October, 1969.

TIME: P.M.

Meeting of Consultants with Dr. Blencowe, Deputy
Director Rubber Research Institute.

HELD AT: Rubber Research Institute.

PRESENT: Harrison, Sole, Blencowe.

The discussion began with general comments on the project and some possible activity developments. The leather industry in Malaya was discussed in connection with Dr. Jones, now Kara (Publication Rural Leather Industry in Malaya) and formerly of the Forrestal Company, U.K.

Dr. Blencowe made some general points about the rubber industry and the Institute. Rubber comes under the administration of the Department of Commerce and Industry and not Agriculture. The East European countries are now the biggest single buyers of rubber, but they still buy less than the rest of the world together. S.M.R. (Standard Malaysian Rubber) is a registered mark and is equivalent to R.R.I. rubber which was not a registered mark and was frequently used by other countries. S.M.R. can be crumb or sheet rubber and is a technical specification. It is now cheaper to produce crumb block rubber than sheet rubber. Current production is 10,000 tons per month block rubber with 150,000 tons expected over this year. This will be 1/6 of the total solid rubber produced. The saving in producing block rubber comes from its lower labour requirement as compared with sheet rubber together with an increase in overall quality. The collection of latex in polythene bags has been successfully tried but it is unlikely to become standard practice because it is extremely liable to theft.

On the chemistry research side of rubber several new ideas are being tried. A new and high value product is constant viscosity rubber, this is produced by adding small quantities of Hydroxylamine to liquid latex. If small quantities of sugar are added to the latex which is then allowed to coagulate naturally the result is a new type of rubber with very interesting properties. Another process is to add calcium, detergent and other chemicals which gives almost instant solid rubber and saves on coagulation tanks.

On yield of latex it is now said to be possible to produce 2-3,000 lbs. of latex per acre with new clones and new plantings on large scale estates. However, the present national average is 950 lbs. per acre. Dunlop estates are up to 1,400 lbs. per acre average. The new clone RRI 600 should give 1 ton per acre. In the last 10 years yields per acre have doubled.

After the discussion the consultants were rapidly shown over the library and the research laboratories. They met Dr. Guha (Soils Division) and Mr. Pushparajah (other crops) for brief discussions.

RAJH/PW/14/10/69

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NATIONAL DEVELOPMENT PLANNING COMMITTEE

Bil. Kertas Kerja 7/70

Proposals for New Land Development in West Malaysia,
1971-75

The object of this paper is to outline major features of the land development programme proposed for West Malaysia in the Second Malaysia Plan period and to seek decisions and guidance of the NDPC on proposals made by the Inter-Agency Planning Group on Agriculture and Land Development.

I. INTRODUCTION

2. Major objectives of the New Economic Policy (NEP) are (1) reduced income/productivity imbalances, (2) employment growth of 3.0% yearly and (3) overall economic expansion of at least 6% annually. Today, West Malaysia's agricultural sector (including fisheries and forestry) provides nearly 30% of the gross domestic product, employs about half of the labour force and generates more than 40% of all foreign exchange earnings. Equally significant, this sector employs nearly 70% of all Malay workers, the great majority of whom are in low-productivity agriculture on undersized plots of land. Rapid modernization and expansion of this sector, comprising both new land development and increased output from existing areas, are essential to realization of the NEP objectives.

3. Agricultural growth during the First Malaysia Plan period appears to have been substantially more rapid than the 4.8% achieved in 1960-65. Preliminary estimates for Malaysia suggest that overall growth in 1966-70 may approach 8.0% per year, due in large part to rapid growth in rubber output (7.6%), plus expansion in log production (13.0%), palm oil (26%), and fisheries (7.7%). Output growth of food crops has been much less satisfactory.

II. EMPLOYMENT SITUATION AND TARGETS

4. In contrast to output growth, agriculture has been notably laggard in the rate at which employment was created. Reasonably credible employment data are available only for 1957, 1962 and 1967, and then only for West Malaysia. In 1957-62 output grew by 21%, employment 11%. During 1962-67 output expanded by 26% but employment rose only 3%. Significantly, employment in modern agriculture (estates, forestry, trawler fishing, etc.) declined in this period, due largely to the large outflow of labour from rubber estates. While employment grew about 2.5% annually overall, agricultural employment rose only 0.8% per year -- and this in a period of ambitious State and Federally-supported land schemes and a rapidly expanding FLDA programme. This was equivalent to only 17% of all new jobs created in the economy.

5. West Malaysia's total labour force is expected to increase by about 3.3% per year in 1971-75, or, roughly estimated, 110,000 annually. Based upon preliminary estimates of the expansion of the non-agricultural sectors, employment may grow by some 4.1% per year, or 80-85,000 workers. If the overall employment growth target of 3% (implying worsening unemployment) is to be achieved, agricultural employment must expand by about 1.8% per year, or approximately 28,000 new jobs annually. This is the task facing agriculture: to provide new jobs at more than twice the rate of the recent past.

6. Jobs in agriculture are created through (1) new land development and (2) measures which increase labour utilization per acre of already-developed land. With widespread rural underemployment, as in West Malaysia, the latter is not a promising means of generating new jobs. Thus, while completion of Muda and Kemubu will increase labour requirements in those areas, the major effect is likely to be reduced underemployment instead of extensive new job creation. Assuming that 60% of the 28,000 new jobs (i.e. 16,800) are provided by land development schemes which allot $7\frac{1}{2}$ acres per worker, then some 125,000 acres should be developed each year. The other 40% of the 28,000 new jobs (11,200) may ^{be} created in forestry, fisheries and other agricultural activities. For reduction of under-

employment, some additional 24,000 acres per year are required, bringing the total new land development to about 150,000 acres per year.

III. REVIEW OF LAND DEVELOPMENT UNDER FMP

7. Land development schemes in Malaysia typically take two general forms: (1) those designed to provide entire new farms to beneficiaries, as in FLDA, the Kelantan State Land Development Authority, etc. and (2) those which provide supplemental new acreages for smallholders on under-sized holdings such as the fringe alienation schemes. Both are not equally efficient in generating new jobs: the first creates new holdings and new jobs; the second enlarges existing holdings and reduces underemployment. But both are essential to attainment of rural income and employment objectives.

8. The current rate of opening up virgin land for agriculture is estimated to range between 60,000 and 70,000 a year. Major agencies responsible for implementing land development are FLDA, Fringe Alienation Schemes, FELCRA, State Governments including State Development Corporations, Private Sector and Public/Private Joint-Ventures. Their past performance may be summarized as follows:

(a) Federal Land Development Authority (FLDA)

9. About 30,000-35,000 acres per year have been developed under FLDA schemes. This accounts about half of the total new land development in West Malaysia. At its meeting on 17th September 1969, the NDPC examined FLDA land development policy and approved, inter alia, FLDA land development target of 50,000 acres per annum; settlers to be within the 18-35 age group; and increase in a settler holdings from 6 to 8 acres in rubber schemes: and 8 to 10 acres in oil palm schemes. There seems to be no problem in the implementation of the NDPC decisions.

(b) Fringe Alienation Schemes

10. Strictly speaking, Fringe Alienation Schemes (FAS) do not create new employment as they are basically orientated towards supplementing uneconomic holdings in rural areas. Under the scheme, land is developed for agriculture usually within 3-4 miles of a village primarily to augment

income of existing smallholders. Initial development is carried out by a State Government with financial assistance (\$320 loan, \$260 grant per acre) obtained through the Ministry of Lands and Mines. Since its inception in 1961 until the end of 1969, a total of 417 schemes has been opened up with Federal funds totalling \$33.8 million. The total acreage opened up under F.A.S. is 143,000 acres.

11. Although the success or failure of any one scheme can be attributed to a number of localised factors such as terrain and soil suitability, the overall slackness of progress of the F.A.S. programme is due to the following factors:

(i) Maintenance of holdings

Neglect on the part of the participants towards their holdings is the major constraint to the success of the scheme. The participants are not paid any subsistence allowance. For this reason a great number find it difficult to earn their livelihood and at the same time develop and maintain their holdings. That the participant has to commute between his house and holding also contributes to his neglect. While F.A.S. are normally situated within 3 miles of a village, many are forced to be situated beyond this 3 mile limit.

(ii) Type of Crops

As rubber is the mandatory crop grown in F.A.S., the price of rubber has been an important factor in creating interest or otherwise in the participants. Many schemes deteriorate when the rubber price falls.

(iii) Management and Administration

Inadequate personnel at Ministry, State and District levels has impeded the projected rate of development of F.A.S. The experience of FLDA shows that optimum management supervision/discipline are required, especially at the ground level.

(iv) Implementation and Control

The implementation of the F.A.S. is the responsibility of the State Governments. Any loan issued by the Federal Government in respect of F.A.S. is repayable by them. The Ministry of Lands and Mines only controls the grants which are disbursed according to the upkeep of the schemes. The Ministry has only indirect control and very little say over the schemes.

(v) Political Factors

State Governments tend to accommodate to political influence in the selection of scheme sites, selection of participants and ejection of participations. This is one of the factors retarding the progress of the F.A.S.

(c) FELCRA

12. The National Land Rehabilitation and Consolidation Authority (FELCRA) was established on 1st October, 1966 under the National Act, 1966, and started to function in 1967. No definite targets as to the acreages the Authority should rehabilitate or develop were set as the First Malaysia Plan had already been launched prior to the establishment of the Authority.

13. The Authority has taken over 18 State land schemes for rehabilitation comprising 14,782 acres of land under varied conditions and scattered all over West Malaysia.

The acreage of each scheme varies between 160 and 1,600 acres. Altogether there are 2,428 participants or settlers who have been allotted their respective plots within these schemes. Out of 14,782 acres taken over by the Authority for rehabilitation, 29.1% had to be cleared for replanting, 19.7% cleared for new planting and the remaining 51.2% which was under rubber had to be cleared to lalang and noxious growths without destroying the good trees, the area supplied, manured and fully maintained. In the course of rehabilitation, where rubber trees are not destroyed, the schemes would come into production early depending on the age and growth of the trees when first taken over by the Authority. It is expected that some of the rehabilitation schemes would come into partial production some time this year.

14. Apart from carrying out major work on land rehabilitation the Authority has undertaken to open up its first development project in Ayer Hitam, Bahau, Negeri Sembilan comprising 500 acres of State land under jungle.

15. Under the First Malaysia Plan, the Authority was provided with \$17 million and of this about \$7 million would be spent. Reasons for shortfalls are:

- (i) There was some difficulty in obtaining land schemes for rehabilitation as well as delay in obtaining the necessary approval from the State Authorities. This was experienced mostly during the Authority's first few years.
- (ii) There was some delay in obtaining agreement with scheme participants as to the method of rehabilitating certain schemes as this calls for a sacrifice on the part of scheme participants where low yielding rubber trees will have to be eradicated before rehabilitation.
- (iii) There was considerable difficulty in obtaining experienced contractors who would be willing to carry out contract works at reasonable rates. This was experienced throughout the Plan period.

(d) State Development Corporations

16. The Kelantan State Land Development Corporation and the Trengganu State Economic Development Corporation are the two major state organizations in West Malaysia involved with land development. The Kelantan SEDC, functioning since 1960, has organized low-cost family settlement schemes on some 65,000 acres over the past decade. About 6,500 settler families have benefitted from this programme. The Trengganu SEDC has planted about 9,000 acres of oil palm in the Sungei Tong Oil Palm Estate. In addition, the SEDC is participating with the National Development Finance Corporation in the 20,000-acre oil palm scheme at Kemaman.

17. Apart from these corporations, some land is being developed for youth schemes, etc. generally under the aegis of the Department of Agriculture. In Pahang about 3,000 acres have been planted on 8 youth schemes. In Perak, where the programme is newer, 1,000 acres have been planted and another 1,000 acres are being cleared.

18. In Sabah the Land Development Board carried out large-scale development, largely for oil palm. In addition, the Padi Board in that State has responsibility for some of the development of new padi areas.

(e) Private Sector Land Development

19. Based on rather sketchy data, it would appear that the bulk of private sector land development in West Malaysia in very recent years relates to sugar cane. Development in this regard appears to be most advanced in Johore where 5-6,000 acres have been planted. In Perak more than 3,000 acres are planted while in Perlis something less than 1,000 acres are reported under this crop. Some sugar cane also is planned in Negeri Sembilan, although planting there has not begun.

20. In 1966-68 sizeable areas amounting to about 80,000 acres were alienated in Pahang and Johore as "nucleus oil palm estates" which were to incorporate large-scale estate agriculture with continuous

smallholder development. Apparently very little of this land has actually been developed for agriculture, and this largely in Pahang (145,000 acres).

21. In East Malaysia the most significant large scale development is the Tea Kigye banana plantation (Sabah), of which a reported 5,000 acres are planted. A trial banana shipment to Japan was undertaken in June, with generally unsatisfactory results.

IV PROPOSED LAND DEVELOPMENT UNDER SMP

22. The various land development schemes may be divided into Public, Private and Joint-Ventures. They include existing as well as proposed schemes to be introduced under SMP.

A. Public Schemes

23. Six major public land development programmes are proposed for 1971-75:

(1) FLDA

The NDPC has already approved the FLDA proposal to develop at least 50,000 acres annually, of which about half would be planted to rubber, half to oil palm.

(2) Lower Cost Family Settlement

This is a new programme designed to provide new farms to families at per acre costs moderately below those of FLDA, with heavy emphasis upon full settler involvement in scheme development, e.g. land preparation (but not jungle felling), planting, house-building, and early scheme self-sufficiency through annual cash and food crop production. Rubber is likely to be the dominant main crop. Federal loans at the rate of \$1,200/- acre are suggested. If this proposal is approved, it is proposed that 5,000-10,000 acres per year be developed under these schemes. (See Appendix 'A' for details of the programme).

(3) Youth Schemes

Until recently youth schemes have been financed entirely by State Governments -- a factor which has reduced the scope of this low-cost means of job creation. It is proposed that the Federal Government provide strong support to youth scheme development through loans for this purpose to state development bodies (through State Governments especially to those deficit States). A recent precedent has been established in Malacca. An annual target of 15,000 acres/year is suggested with Federal loan funds, at the rate of \$600/acre. (See Appendix 'B' for details).

(4) Fringe Alienation

In the past, fringe alienation schemes have been the major public means of providing supplemental land to smallholders. Success has been limited and rehabilitation of many schemes is necessary. Only 3,000 acres are recommended to be developed annually by this means in 1971-75. Federal costs are assumed to be about \$600/acre (\$320 loan and \$260 grant per acre). No change in financial arrangement is foreseen.

(5) FELCRA

- (i) Rehabilitation. It is proposed that FELCRA continue its modest programme of rehabilitating unsuccessful fringe and other State schemes -- 5,000 acres per year at Federal costs of \$600 per acre provided entirely by loans.

- (ii) Consolidation. In Malaysia no attempts have been made to consolidate fragmented and under-sized agricultural holdings, in part because of ambiguities in the FELCRA Act on consolidation matters. The problem of such holdings is acute in some of West Malaysia's padi and smallholder rubber acres. It is proposed that FELCRA seek the necessary legal authority and initiate in 1971-75 a small consolidation project in a compacted smallholder rubber area, e.g. Malacca. Project scope will depend largely upon the area eventually selected, the availability of expertise and FELCRA's staff capabilities. A pilot project of 5,000 acres (1,000 per year) at \$1,200 per acre is suggested.

(6) Smallholders' Block Newplanting

Apart from FLDA, very little Federal assistance was made available in 1966-70 for smallholder rubber newplanting. Block newplanting permits the use of large-scale, efficient contractor services in land clearing, and centralized management in scheme operation. The Council of Malaysian Smallholders Association (CMSA) has proposed a cooperative block newplanting scheme of up to 50,000 acres annually in 1971-75, with most of the funds coming from Fund B (replanting/newplanting schemes for smallholders) and the Government. Management of the scheme would reside with a newly proposed established cooperative organisation. Under the CMSA Proposal, loan repayments from beneficiaries would go to a revolving fund to finance future newplanting and replanting activities by members. The proposal

requires Government loans of \$750 per acre be provided for block newplanting. It is assumed that contractor and implementation capacity will limit this to about 30,000 acres/year. Detailed examination of this scheme will be made in NDPC's forthcoming paper on "Rubber Newplanting and Replanting".

B. Public Sector Estates

24. Public estates create jobs and training opportunities, and will meet the important objective of new economic policy. This is in contrast to settlement schemes aimed at land ownership but workers will have occupational mobility and may eventually own shares in such public estates. Good management and a minimum of political interference in scheme operation are essential to success. The Federal Government will, where necessary, insist that private sector local or foreign management skills be employed on these schemes. Federal loans may be made to State development authorities to finance public estate development if such authorities are equipped to implement such schemes. Otherwise, a Federal authority or public corporation might be set up to manage such schemes directly. An example of the public sector estate is the Trengganu Sungei Tong Cil Palm Estate which employs a Dutch General Manager and is financed largely by Federal loans. It has already directly created more than 1,000 employment opportunities at all levels in the depressed area. It is proposed that an annual target of 7,500 acres for public estate development be initiated with Federal loans at about \$1,200 per acre.

C. Public/Private Sector Joint-Ventures

25. Major constraints upon public sector land development are limited availabilities of finance, and technical and administrative personnel. In the well-established private sector, these resources are more readily available. Tho

carefully conceived joint-venture, combining the land of the states with capital and management of the private sector, is a promising approach to land development which should be expanded significantly in 1971-75.

26. By employing private sector resources which might otherwise go elsewhere or left under-utilized, joint-ventures of this type permit a larger total development effort. Gula Perak and the Kemaman Oil Palm joint-ventures are examples of job-creation in efficient agriculture with a minimum of expenditure of public funds. Management problems are minimized, training opportunities expanded, and the transfer of technology facilitated. In some cases the private concern brings with it particular expertise in processing and marketing as well. Joint-venture agreements for "nucleus estates" also may be developed, thereby ensuring smallholder participation. Given the wider range of private sector expertise and experience, joint-ventures provide good opportunities to develop schemes for cultivation of the newer crops, e.g. tapioca, annuals, sugar cane, pineapple, etc. A West Malaysian "joint-venture target" of 10,000 acres annually is required in 1971-75.

D. Private Sector

27. Private sector (i.e. largely unsubsidized) land development has occurred largely through controlled alienation to small-holders, together with relatively small development by estates. At the Federal level, little information exists regarding total acreage developed in this manner but it seems virtually certain that the First Malaysia Plan targets (25-30,000 acres) have not been achieved. Alienation to the private sector generally has been small and alienated acreage has not always been developed. Based on scanty data, it would appear that total (public and private) land development in West Malaysia in 1968-70 may not have exceeded about 75,000 acres per year. The FLDA accounted for more than 30,000 acres, various other public schemes perhaps another 20,000 and the remaining

20-25,000 acres by private sector. A large portion of the private sector acreage appears to have been planted to the newer crops such as sugar cane and tapioca.

28. The job creation target called for development of 125,000 acres annually. Schemes so far identified have a total acreage of about 105,000. It is proposed that the deficit of 20,000-25,000 acres be allotted for purely private sector development, in part for smallholders and in part to larger estate interests. Close and constant evaluation of progress must be made. To the extent that the public sector targets fall short of achievement for various reasons (e.g. finance and management), then they should be made good by the private sector by adjustment of targets in the allocation between the public and private sectors.

29. Large-scale commercial agriculture is particularly important as a conveyer of new technology, new crops, etc. (e.g. cocoa, sugar cane, oil palm in Malaysia) and should be encouraged to participate in the total land development effort in a manner consistent with national objectives. Restrictive alienation policies have been the major factors limiting estate-type development in the recent past; liberalized alienation is of course the sine qua non for large development in the future. There is no limit imposed on private sector in land development as any increase in its investment will help Government reduce its expenditure in land development. However, on the basis of past performance, an annual target of 20,000-25,000 is a reasonable expectation.

30. Table 1 indicates proposed annual land development targets with costs to the Federal Government. (See page 13A).

V. LAND USE AND CROPPING PATTERNS

31. Choice of crops to be grown on new land depends upon technical, economic and socio-cultural considerations. While some guidance by Government may be desirable, it should be left largely to individual producers who frequently have much better knowledge of economic and technical feasibility of particular crops. Past research inadequacies restrict the range of new crops which might be grown successfully in the immediate future. The limited domestic market implies that any crop grown over a large area must be marketed abroad.

TABLE I

LAND DEVELOPMENT TARGETS AND COSTS UNDER SMP

Programme	Acres/Year (000's)	Estimate No. of Jobs	Federal Cost Per Acre	Total Annual Cost (Millions \$)
<u>For New Job Creation</u>				
FLDA	50.0	6,818	2,000	100.00
Block newplanting (50%)	15.0	2,045	750	11.25
Youth Schemes	15.0	2,045	600	9.00
Joint-venture	10.0	1,363	-	-
Public estates	7.5	1,022	1,200	9.00
Low-cost family settlement	7.5	1,022	1,200	9.00
Private sector	22.5	2,485	-	-
Sub-total	127.5	16,800		138.25
<u>For Reduction of Under- employment</u>				
Fringe schemes	3.0		600	1.80
Block newplanting (50%)	15.0		750	11.25
FELCRA rehabilitation	5.0		600	3.00
FELCRA consolidation	1.0		1,200	1.20
Sub-total	24.0			17.25
TOTAL	151.5			155.50

Rubber

32. Considerations of market outlets, technical and economic factors make it apparent that rubber and oil palm offer the greatest opportunities for large-scale newplanting in 1971-75 and would probably be planted on most of the acreage developed during that period. In 1964-68 (when various newplanting restrictions were in force) about 33,000 acres of rubber were newplanted (public and private sectors) annually.

33. A key questions is: How much rubber newplanting should be permitted in 1971-75? The World Bank Report of December 1968 indicated that the world rubber market would not probably be unduly disrupted by production from another million acres of rubber in Malaysia planted over the next 5 years and added that such plantings might be expected to generate an economic rate of return of 18% at an expected (cif) of perhaps US\$.16 per lb. It may be noted that world rubber market of recent years was characterised by a shortage of natural rubber, with the "NR gap" filled by synthetic rubber.

34. During 1971-75, it is anticipated that about 75,000 acres (or half of the total land developed annually) would be planted with rubber. Of this FLDA would plant rubber at the rate of approximately 25,000 acres annually. The Council of Malayan Smallholders' Association proposed to newplant up to 50,000 acres annually in cooperative projects supported by Government grants. In addition, there will also be State Development Corporations, fringe schemes, youth schemes, and private sector to plant rubber.

Oil Palm

35. Oil Palm planting averaged about 47,000 acres per annum during 1964-68. Half of this acreage was on old rubber land. Oil Palm's suitability for smallholder development suggests that total newplanted acreage of this crop is likely to be considerably smaller than rubber. For the next five years, the main public sector oil palm programme will be FLDA (25,000 acres). Very tentative plans call for another 20,000 acres annually through various state schemes e.g. SEDC's joint-ventures, and private sector. Without additional land, private estate newplanting of oil palm is

likely to be limited to acreage converted from rubber. This development, of course, does not contribute to the new land target and, over the longer terms, will provide fewer jobs/acre than land in rubber.

Sugar

36. During 1971-75, sugar cane may contribute significantly to the diversification objective. Development proposals for this crop are ambitious and may exceed implementation capacity. Among the four States where sugar cane ventures are contemplated, development is most advanced in Perak. About 7,000 acres have been planted by Gula Perak, with another 12,000 acres to be planted in the near future. In Johore, approximately 23,000 acres have been alienated for sugar cane, of which 10,000 are cleared and 1,000 planted. In Perlis 10-20,000 acres have been alienated while in Negeri Sembilan some 20,000 acres were alienated for this crop.

Cocoa

37. In the mid 1950s, the cocoa industry in Malaysia suffered a serious setback in the form of dieback. No single primary cause of dieback has been identified today although a number of factors (nutritional and environment, soils, pest and disease) have been associated with dieback. In view of this problem of dieback, the policy of the Department of Agriculture then was not to recommend cocoa as a plantation and smallholders' crop.

38. A number of developments, both research and management, have taken place over the last ten years. A new variety of cocoa (Upper Amazon) has been introduced and incorporated in the breeding and selection programme. The Upper Amazon material has shown to be more vigorous than other varieties and able to recover more rapidly from dieback. Experimental results at Jerangau have shown that selected Upper Amazon cocoa plantings under proper management has grown well and yielded between 1,000 and 1,500 pounds of beans per acre. These results serve to open the possibilities of planting cocoa as a sole crop. However, the better understanding of cocoa cultivation would suggest that if

cocoa is to be planted as a sole crop, it should be in areas where the rainfall is more evenly distributed as in South Pahang, Johore, Selangor and South Perak.

39. By far the most important development with regard to cocoa cultivation in Malaysia has been its success as an intercrop with coconut. The acreage of cocoa intercropped with coconut is around 4,000 acres whereas the total acreage of cocoa grown as a sole crop on a plantation scale is only estimated at 1,500 acres.

40. In West Malaysia the area under coconut is about 502,000 acres of which 442,000 acres (90 per cent) are owned and operated by smallholders. After allowing for areas which are acid, poor drainage, etc. at least 200,000 acres could be suitable for cocoa. Based on the successful results of intercropping undertaken by the Department of Agriculture and coconut estates, there is no reasons why cocoa should not be successfully established as an intercrop on coconut smallholdings. Cocoa/coconut pilot projects under the Coconut Replanting/Rehabilitation Scheme in Perak has already produced fruitful results. It may be noted that unlike oil palm and sugar cane, cocoa is simple and cheap to process. Wooden boxes and bamboo baskets can be used for processing. Its beans are non-perishable and immediate processing and marketing problems do not arise. Prospects of world market are good for the immediate future due to world shortage.

Maize and Sorghum

41. Maize and sorghum are similar in a number of ways. They are cultivated during essentially the same seasons, require essentially the same management practices and potentially yield approximately the same quantity of grain per unit area. Both crops offer great possibilities for agricultural diversification in West Malaysia. They can be processed into feed grains which

have hitherto been imported by the local food meal industry. There is also good foreign market for maize and sorghum.

42. Maize is more commonly known than sorghum in Malaysia. It is grown successfully and mainly sold in the local market for home consumption as fresh cobs. Though the price for fresh maize is good, the market is very limited and as a result maize production has always been small and insignificant.

43. Although millions of dollars have been spent annually to import maize grains from overseas for animal feed, no attempts have been made until recently to grow maize on a large scale for animal feed and other industrial uses. With the introduction of Metro maize (a high yielding variety) in 1965 and large scale pilot projects carried out in Malacca and still being undertaken in Trengganu, the Department of Agriculture has acquired sufficient experience and technical know-how to consider large scale maize cultivation in other suitable areas in the country.

44. As regards sorghum, serious and ambitious attempts to find varieties of sorghum suitable for local conditions were carried out as late as 1966. To-date 378 varieties were tested and 6 have been found to be suitable in terms of yield, capacity and adaptability. Although further investigations (to be undertaken in 1970) are essential, results so far obtained have been encouraging enough to initiate a diversification programme for this crop and maize.

Tapioca

45. Tapioca has a great export potential and also the domestic consumption is expected to increase. However, the cultivation of tapioca as an economic crop has not been given the same status and recognition as other economic crops. As a result, more than 75% of the 42,000 acres planted in 1968 were illegally cultivated. It is considered that the normalization of tapioca within the pattern of Malaysian agriculture is essential if the crop is to play a definite and more important role in Malaysia's agricultural diversification programme.

46. Projected increase on domestic demand and consumption of tapioca products over the next five year is estimated at 50% more than present requirements (200,000 tons) of roots. On this basis, it would require a crop production of about 20,000 acres more than the 1969 planted acreage.

47. The biggest exporter of tapioca products from South East Asia is Thailand. Any export promotion has, therefore, to face this competition. In the future development of Malaysian tapioca products for export, it is essential to know the requirements and preference of the consumers.

Pineapple

48. New land for pineapple may be developed in Selangor and Trengganu, but is not expected to total more than 20,000 acres during the SMP period. Small additional acreages may be planted as an intercrop with young rubber.

Cattle Development

49. Commercial beef and dairy production may be feasible in West Malaysia. But these land-extension operations are likely to be small in the immediate future, and provide relatively little new employment opportunities. There is considerable interest in beef cattle production in Sabah, Johore and the East Coast States. In March this year an IBRD/FAO livestock team visited Malaysia to make a study of the livestock potential in the country. The team's report is still awaited. The subject will however be discussed by the NDPC at another meeting and a paper on beef and dairy production will be presented to the NDPC.

VI. NEED FOR COORDINATION IN LAND DEVELOPMENT

50. The several approaches to land development strategy as proposed in this paper reflect the need to tailor programmes to particular circumstances -- to provide different degrees of assistance, land for unmarried youths and families, to provide new farms and supplemental acreage, for Federal and State programmes, etc. This multiplicity of programmes, (under the

responsibility of several ministries* and departments), poses difficult problems of administration and coordination among agencies and ministries at the Federal level and between Federal and State Governments. An urgent need exists first, to consolidate the various programme into fewer operating departments and second, to provide continuous high-level planning, coordination and supervision of West Malaysia's overall land development effort. (With the exception of FLDA, implementation might perhaps be largely vested in the States). It is proposed that the Federal Government establish a single agency for this planning and coordinating role in accordance with details to be developed by the Development Administration Unit. This Agency, working with the Treasury and the E.P.U. or the Sub-Committee on Federal/State Relations also would serve as the means through which Federal loans are made available to state development authorities for purposes of land development.

51. Trained and experienced manpower at the planning, administrative and operative levels is an essential requisite for successful implementation of land development programme proposed here. The demands for trained agricultural manpower (to be detailed in subsequent NDPC paper) will be very large during the SMP period, to service expanded programmes in land development, agricultural extension, credit, rubber replanting and research. Vigorous efforts will be required to meet these needs. Two approaches to this problem are suggested: (1) strong financial support by Government for agricultural training programmes at all levels, but especially for the

*

- (1) Ministry of National and Rural Development
(F.L.D.A.)
- (2) Ministry of Lands and Mines
 - (a) National Land Council
 - (b) Fringe Alienation Schemes
 - (c) FELCRA etc.
- (3) Ministry of Agriculture and Co-operatives
(Agricultural Extension Services)
- (4) Ministry of Commerce and Industry
(Smallholders' newplanting/replanting)
- (5) 13 State Governments
(State Economic Development Corporations etc.)

agricultural schools (operative level) and (2) the use of private sector local and expatriate expertise for high-level management and technical positions in land development schemes.

52. This land development programme totals about 150,000 acres annually, of which some 118,000 would be developed with public funds. It would require Federal expenditure (largely as loans) of \$155 million annually of which FLDA accounts for about \$100 million. It excludes necessary expenditure on drainage and irrigation schemes plus some continuing obligations on the estate replanting programme. (The smallholder replanting programme in 1971-75 is assumed to be financed entirely with cess collections and capital assets of Fund B, i.e. no additional development funds from Government would be required).

VII. CONCLUSIONS

53. The NDPC is requested to consider the following:

- (1) that land development/improvement in West Malaysia be sufficiently accelerated to provide for at least 28,000 new jobs annually in 1971-1975. On the assumption that 60% of these will be created through land schemes which allot $7\frac{1}{3}$ acres of crop land/worker, then some 125,000 acres must be developed each year. Other schemes will be implemented to provide acreages supplemental to existing holdings.
- (2) agreement in principle to the idea of low-cost family settlement.
- (3) that Federal Government should be prepared to provide loans to State Governments (especially to these deficit States) for financing viable and economically productive public estates and youth schemes.
- (4) that food aid programme possibilities be explored and, if feasible, developed for public settlement schemes and public estates.

(5) the establishment of adequate machinery at Federal level to:

- (a) plan and co-ordinate West Malaysia's total land development programme; and
- (b) provide for decentralization of implementation/administration of public sector land development (except FLDA) through a system of Federal loans to state development authorities. Schemes would be developed according to Federal guide-lines but operated by state authorities.

For this purpose, DAU should be requested to study and make concrete recommendations on the establishment of this machinery.

(6) that under this Federal loan programme, the following scheme types (and targets) be considered for financing:

- (a) youth schemes at \$600/acre
(15,000 acres/year)
- (b) public estates at \$1,200/acre
(7,500 acres/year)
- (c) lower-cost family settlement
at \$1,200/acre (7,500 acres/year).

(7) that co-operative smallholder block newplantings of 30,000 to 50,000 acres per year be carried out in 1971-1975 to enlarge existing holdings, with funds provided as loans by the Federal Government to the Malaysian Rubber Smallholder's Co-operative Society. (The management and organisation of the M.R.S.C.S. should be thoroughly examined as to its soundness and integrity before committing funds to the Society).

(8) establishment in 1971-1975 of a pilot land consolidation project in a densely-settled rubber smallholder area (1,000 acres/year at \$1,200/acre).

(9) that fringe alienation be carried on at the rate of 3,000 acres per year (\$600/acre).

- (10) that rehabilitation of derelict fringe and other public schemes be continued at 5,000 acres per year with Federal loans of \$600 per acre.
- (11) (a) agreement in principle to the provision of special incentives for private sector agricultural development in suitable remote areas; and
- (b) that representative from Treasury, E.P.U., Ministry of Lands and Mines and Ministry of National and Rural Development work out the details of these incentives.
- (c) that lands now alienated to the private individuals and private sector companies should be rapidly developed in accordance with the time-table as stipulated, failing which State Governments be asked to revoke the alienation.
- (12) that rubber and oil palm be planted on most of the new land developed in 1971-75. As a general --- but not inflexible --- guideline, half of this acreage might be planted to rubber, a third to oil palm and the remainder to crops of reasonably well-established technical and economic feasibility in Malaysia.

Appendix A

A Proposed Lower-Cost Family Settlement Schemes

I. INTRODUCTION - COMPARISON OF LAND DEVELOPMENT COSTS

(a) Federal Land Development Authority

1. Recent cost estimates (January, 1969) by FLDA for oil palm schemes of 4,000 acres indicate a cost per planted acre of about \$2,000. This includes expenditure for land development and maintenance of the main crop for four years, processing facilities, access roads, village development, settlers' housing, administration and management costs at the scheme. Cost of developing and maintaining rubber for six years appears to be slightly higher because lower factory costs for rubber are not completely offset by two years additional maintenance and administrative expenditure. The FLDA programme is relatively expensive because it provides a range of services and facilities to settlers which substantially exceeds those provided in other types of land development. In most cases the relatively high costs of FLDA development are defensible on economic and social grounds; the successful settlement of large families headed by individuals who frequently are poorly-equipped to undertake the demanding tasks of opening new land requires a relatively expensive development programme.

(b) Fringe Alienation Schemes

2. Cost of fringe alienation schemes are about \$580 (\$320 loan, \$260 grant) per acre. This includes clearing, planting, cover crop seeds and planting materials, but not infrastructure, administration, maintenance during the immature period, processing facilities, and housing.

3. Estate costs to develop, plant and maintain (during immaturity) new land for oil palm and rubber are estimated by one local agency house to be about \$760 and \$1,020.00, respectively. Processing facilities might add another \$200 to the per acre cost for rubber and \$350 for oil palm. Obviously, total costs will depend upon location, terrain, etc. These estimates do not include cost of housing for workers.

(c) Youth Schemes

4. The Bukit Goh Youth Scheme, which provides about 8 acres to each of 50 youths, costs \$500-600 per acre for the first year of operation --- or less than \$5,000 per job created. This expenditure covers land clearing, hostel construction, livestock and crop production expenditure, subsistence allowances and administration. Its relatively low cost is due in large part to minimal reliance upon contractors, early utilization of settler labour in both development and agricultural production activities and heavy emphasis upon early self-sufficiency of the schemes through annual cash cropping and foodstuff production. Moreover, housing and subsistence are much cheaper to provide to unmarried youths than to FLDA settler families.

(d) Kelantan State Land Development Authority

5. The programme of the Kelantan State Land Development Authority provides new farms of 8-10 acres to landless families at public cost of about \$400 per acre. This includes road construction, administrative charges, planting material, fertilizer and insecticides. Most of this assistance is provided on a grant basis.* Clearing, felling, burning and planting are done by the settlers. Land premia and survey charges are paid by the settlers over a period of 16 years. The schemes are austere by FLDA standards and it may well be that services provided to settlers under this programme are below generally acceptable levels. Like the Bukit Goh Scheme, costs are kept down through intensive use of settlers' labour in development and maintenance phases and by emphasis upon early foodstuff production from annual crops. These low-cost

* It is useful to distinguish the grant and loan elements in public programmes because this division of total development expenditure determines over the long-term the amounts of new public funds which must be committed annually to land development. In Kelantan State scheme costs per acre are relatively low but most of the required expenditure is made as a grant from the State Government to scheme participants. In typical FLDA schemes, on the other hand, costs of house-lot development, settlers' housing, processing facilities, maintenance allowances and expenditure on main crop establishment are provided as loans. The loan element is more than 80% of total costs in rubber, more than 70% in oil palm. Thus the grant elements in the FLDA programme are not greatly different from the overall costs of the Kelantan schemes.

schemes offer a useful model which, with some modification might well be emulated in other areas.

II. NEED FOR A NEW SCHEME

6. Apart from rural youths, FLDA settlers, estate interests and land owners seeking supplemental acreage, there are large numbers of rural workers who own no land but actively seek income and employment opportunities in agriculture. It is suggested that these individuals be provided land through a new Federally-supported but State-run programme which offers more assistance than controlled alienation or the austere schemes of Kelantan but less than FLDA. Cost would bear a similar relationship. Like FLDA, an element of public subsidy appears justifiable, although the bulk of public assistance should, and probably could, be recoverable through loan repayment. The programme may be called "low-cost family settlement scheme".

III. MOTIVATION AND SELECTION CRITERIA

7. Youth schemes and those in Kelantan demonstrate that low per acre costs of land development are due to full utilization of settler labour and strong emphasis upon early production of annual cash and food crops. These should be basic features of this new programme. Although the difficult and dangerous tasks of felling and clearing would be carried out by contractors, it would appear -- and Kelantan again demonstrates -- that planting, maintenance and house construction can be done by well-motivated settlers with some training and supervision.

8. Settler motivation and experience determine to a significant extent the expenditure required for effective settlement. To achieve the economic envisaged in this programme without sacrificing significantly the standard of land development and social services provided, it will be necessary to have rigorous selection criteria. Emphasis in selection must be placed upon the candidate's ability to perform satisfactorily in the rather demanding environment of a new agricultural community.

10. Equally important is the concept that opportunities in these schemes must be earned by the candidates themselves. The selection process should give strong consideration to proper motivation, the possession of useful skills, experience and training. This approach would focus upon the successful settlement of young families, an emphasis which complements youth settlement schemes.

11. It seems reasonable to believe that settlers selected on this basis would possess many of the characteristics required to establish largely self-reliant agricultural communities within a relatively short period of time. The cost economies of such a programme would grow out of the factors already mentioned, viz., full utilization of settler labour and heavy emphasis upon food and cash crop production in the early years of the scheme. Some cost savings also might be expected in administrative overheads.

12. Settlers' performance is related to the possession of skills, previous experience and training. Some of these elements might be provided through a pre-selection short courses candidates, with selection based in part upon performance during this period. The course would be intensive and concentrate on practical skills such as animal and poultry production, house-lot gardening, carpentry, etc. The feasibility of such an approach must be examined carefully. Training facilities and staff will be limiting factors, although existing institutions such as the College of Agriculture might assist.

13. In this programme the conditions of settler selection and the performance expected after placement on a scheme are demanding. To ask whether there would be sufficient "takers" is quite appropriate. Given the apparent "land hunger" in some heavily populated areas of West Malaysia and the likely extent of future unemployment and underemployment, there is reason to answer in the affirmative. Settlers on schemes of the Kelantan State Land Development Authority appear to have performed well despite very limited financial help; surely significant numbers of similarly-motivated rural workers exist throughout Malaysia who would welcome the opportunity to participate in a programme of this nature. Workers dismissed from estates would be interested and possess some

of the required agricultural experience, as would residents of New Villages where land per capita has declined sharply since establishment.

14. The cost of this programme is roughly estimated with the help of FLDA cost figures. The following table indicates that FLDA expenditure on administration and management, agricultural land development and maintenance and construction of settlers' houses accounts for about 65 per cent of total per acre costs. It is assumed that costs in each of these areas can be reduced significantly through this programme, together with some reduction in infrastructure costs. Expenditure on processing facilities would be identical to that of FLDA. With these assumptions, total cost per planted acre is estimated to be about \$1,380, or some 30 per cent below the FLDA figure for oil palm schemes. A calculation for rubber schemes would probably show similar savings.

A Comparison of Land Development Costs:
The FLDA and a Lower-Cost Programme

	<u>FLDA⁺</u>		<u>PROPOSED</u>		
	<u>(Oil palm: 4,000 acres)</u>		<u>Lower-Cost Supplement</u>		
<u>Scheme</u>	<u>Percent</u>	<u>Percent</u>	<u>Per</u>	<u>Percent</u>	<u>Per</u>
<u>(\$M)</u>	<u>of</u>	<u>planted</u>	<u>scheme</u>	<u>of</u>	<u>planted</u>
	<u>total</u>	<u>acre \$</u>	<u>(\$M)</u>	<u>total</u>	<u>acre \$</u>
<u>Infrastructure</u>					
Access & village roads, water supply, school, police and health offices, etc.	1387	17.2	346	1100	19.9 275
<u>Administration & Management</u>					
Building, equipment, staff salaries	.820	10.2	205	.440	8.0 110
<u>Agricultural Development</u>					
Felling, burning, pruning, lining, etc.	1240	15.4	310	.800	14.5 200
Maintenance (4 years)	2508	31.1	626	1520	27.5 380
<u>Processing Facilities</u>					
Palm oil mill & ancillary facilities	1400	17.4	350	1400	25.4 350
<u>Village Development</u>					
House-lot development	.040	0.5	10	--	-- --
Settler houses	.660	8.2	165	.260	4.7 65
	8054	100.0	2012	5807	100.0 1380
	=====	=====	=====	=====	=====

⁺ Estimate of January, 1969: Planning Division, FLDA.

Economic Planning Unit,
Prime Minister's Department,
Kuala Lumpur.

15th July, 1970.

Appendix B

Youth Land Schemes

1. The Economic Committee of Cabinet at its meeting on 6th November, 1968, considered Paper E.C. 10/68 and noted that "the Federal Government and in particular the State Governments had a role to play in the establishment and implementation of land development schemes aimed at the alleviation of youth unemployment". It recommended that Government "should aim at the establishment of a land development scheme for youth in each district of West Malaysia". The Committee felt that "although some States would require the assistance of the Federal Government in the setting up of youth land settlement schemes, it was necessary to establish the general principle that such endeavours should be the full responsibility of the State Governments".

2. While it will not be practicable to establish such a scheme in every district in West Malaysia, there is scope for greater efforts by States as a whole in this direction. At the moment only 2 States — Pahang and Perak — have started such schemes.

3. Pahang has developed 8 youth schemes catering for 400 youths. About 36,000 acres for 3,000 unemployed youths have been earmarked for development and expanding the present ones to their full size. In 1969 an additional 4,350 acres were to be developed and added to the existing schemes; some 400 new participants will be joining the schemes in the various districts. Perak, in April 1968, started a scheme at Perlop near Sungei Siput where 1,000 of the 2,000 acres earmarked have been developed and 200 youths have been settled. The next 1,000 acres are in the process of being felled and cleared to accommodate another 200 youths. Another Perlop-type scheme will be the proposed Pondok Tanjong Scheme in Larut District.

4. Though interest prevails in Perak for large-scale youth land programme, the lack of large tracts of land of

over 1,000 acres suitable for development limits the State's future plans. As an adjunct to the large-scale types, the State will embark on smaller land projects for youths to be managed at district level. These will be schemes for about 200 to 300 youths each on unalienated land fringing developed areas/centres. District Officers have been directed to locate the areas suitable for development.

5. Other States are known to be keenly interested in the idea but because of financial constraints are not able to venture into this new field of land development.

6. In Perak and Pahang settlement leads to eventual individual ownership of land. Pahang allocates $7\frac{1}{2}$ acres while Perak allocates only 5 acres to a youth. As in FLDA, part of the cost of development will be regarded as loans which settlers must repay to the State. But because cost is smaller than in a married settler's scheme, the debt repayment for each youth will be much less. In Perak, for example, preliminary estimates indicate that each youth would have to repay about \$1,800/- out of the total cost of development of \$3,000/- per settler. In Pahang, the sum is larger (\$4,372/-) because the acreage per settler is bigger and also because more items are included in the loan element calculations.

7. On the basis of present knowledge, not more than 5,000 acres will be developed in 1970 for youth land schemes. If the objective is to attain a rate of 15,000 acres per annum in youth land development then, as recognized by the Cabinet Committee, there is a need for Federal assistance since not all States will have the resources to launch such ventures. Such assistance, however, would have to be conditional upon States following certain broad principles to create viable youth settlements. (See para.16).

Requirements for Successful Youth Land Settlements

8. The critical factors in the success of these schemes are proximity to urban markets, soils suitable for annual cropping, settler training prior to settlement and a sizeable amount of technical and administrative skills in scheme management.

9. Easy accessibility to urban markets is important if the schemes are to be run on the Bukit Goh model and other Pahang and Perak schemes where the settlers are self-sufficient after the first year of settlement. Self-sufficiency in these schemes are based on income-raising activities like growing of short-term crops (tapioca, maize, fruits, groundnuts), rearing of poultry for table meat and eggs and doing odd jobs for cash. These activities have been facilitated due to scheme location close to market and town centres.

10. The success of existing schemes can be attributed to the high level of settler motivation which arises out of the early economic benefits that they derive from their own enterprise. In the case of the existing schemes, these benefits do not accrue direct to the individual settler. Instead the incomes earned by them are regarded as the collective earnings of the scheme and are kept in a State-managed fund. This money is made available to pay for the settler's food and pocket allowances.

11. The second requirement for these schemes to be economically and financially feasible is that areas selected for development should also be amendable to cash and inter-cropping. In order to fully utilize youth labour on the schemes and to minimise the instability arising out of cultivation of a single inter-crop, there should be opportunities for growing varieties of short-term crops, fruit production and rearing poultry, in addition to growing the main crops of either rubber or palm oil. Soils which require extensive drainage or irrigation or require large inputs of fertilizer for inter-cropping will incur heavier development costs.

12. A prerequisite for success of these schemes is that the youths undergo a period of pre-settlement training in discipline and basic agricultural skills. The training is essential if youth labour, instead of contracted services, is to be used for building up the scheme after the initial felling and burning (which should continue to be done by contract because they are dangerous tasks). Planting and maintaining the main crop, planting the cash crops, rearing of poultry and animal husbandry and doing odd jobs, require co-operative effort and the willingness to share the benefits

during the formative years. This aspect of the work, i.e. income-raising activities, aimed at self-sufficiency is important if the scheme is to be run at minimum cost to Government. Knowledge of simple building and construction skills is necessary if settler labour is to replace contracted services in constructing buildings, laying the schemes's water and the drainage system, etc.

13. On the duration of training, the present practice varies in the two pioneering States of Pahang and Perak. The former's training is one month while the latter's is three months. It is proposed that a two to three months intensive training should be introduced in the States with major emphasis during this period on agricultural and building skills. The para-military training could continue on the scheme after settlement.

14. Training of field assistants is an important area where the Federal Government can provide direct assistance in order to produce the desired quality of field assistants. These will need about 6 months intensive training in agriculture and related subjects like agricultural mechanics, poultry farming and animal husbandry, fertilisers, insecticides, etc. A programme of 15,000 acres per year will require an estimated 150 field assistants annually.

15. In view of the existence of a number of agricultural training centres like the Payar Besar Complex near Kuantan the Rural Agricultural Training Centres in other States, and the National Youth Pioneer Corps, co-ordination is required to avoid wastage of resources, provide diversity in the courses, and maintain standards of training. To avoid the recurrent problem of shortage of instructors, finance and equipment, it may be preferable to concentrate only on the Payar Besar Complex and the NYPC as sources of well-trained field assistants. In the case of the former, the Federal Government will have to subsidise the training and provide the facilities for expansion. In the case of the NYPC too, more emphasis should be given in reorganising and strengthening the agricultural training.

16. The Federal Government should:

- (a) advise State Governments on matters of minimum acreage per settler and types of crops to be grown, taking into account the availability and suitability of land and the need to ensure future satisfactory incomes and full utilisation of labour;
- (b) co-ordinate field assistants training and review from time to time the output required and effectiveness of training;
- (c) assist States in carrying out a satisfactory pre-settlement training scheme for youths who should be within the age group of 18-23, are unmarried and unemployed at the time of recruitment. They should remain unmarried for 5 years after joining the scheme;
- (d) draw up the annual Federal budget on youth land development programme, allocate funds to States and fix the period over which repayments should be made by the settlers;
- (e) plan for the future infrastructural needs of the schemes including social services.

Economic Planning Unit,
Prime Minister's Department,
Kuala Lumpur.

15th July, 1970.

