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COUNTRY STUDY REPORT

on the

STATUS OF AGRICULTURAL MACHINERY INDUSTRY

in

MALAYASIA

Information compiled
during
a fact finding survey.

UNIDO, Vienna
January 1969

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* Note: The opinions expressed in this document do not necessarily reflect the views of the Secretariat of ECAFE or that of UNIDO.

INDEX

Summary of Country Study

/Section IV

RP/21/5

SUMMARY OF COUNTRY STUDY

1. General Pattern of Agriculture

Out of 33.3 million hectares of total geographical land area only 17.2% is arable or potentially productive. Total area under crops and estates is 3.3 million ha of which 79% is under estates, and 15.6% under paddy. There are 145,000 numbers of holdings about 1.0 ha size. The new land reform laws aim at non-fragmentation of holdings in the newly developed paddy areas. 1967, paddy area double cropped is 63,000 ha which is expected to reach 143,000 ha by the end of 1970.

2. Pattern of Farm Mechanization

Tractors, power tillers, power threshers, pumps, and sprayers are some of the farm machinery in usage. West Malaysia provides better opportunity for the usage of farm machinery. 60 hp tractors and 6-10 hp power tillers in paddy fields, 40-45 hp tractors with 3 ton trailers in estates, engines and pumps for irrigation are used in certain provinces on a modest scale. Sprayers, dryers, threshers and paddy combine harvesters have been just introduced. Farmers owning machinery also carry out custom work on a significant scale. There is demand in future for 40 and 60 hp tractors, 8-10 hp power tillers, 2-6" pumps, 4-10 hp diesel engines, 1-2 hp gasoline engines, hand and power sprayers and power threshers. Further extension work is necessary with respect to dryers and combine harvesters.

3. Manufacturing Industries and Ancillary Facilities

No significant actual manufacturing facilities exist either in farm machinery sector or other engineering industries. There are a few small scale manufacturers of hand tools. Four manufacturers are contemplating

/to

to manufacture power tillers. Two have been licensed. One expects to produce 750 power tillers in 1969 and the other which has completed the construction of the plant expect to produce 1,800 power tillers and 370 combine harvesters in 1969 and 3,600 and 600 respectively in 1972. Certain mild steel sections are available from the integrated steel plant and the existing re-rolling plants. There are a few foundries for cast iron and cast steel. There is a shortage of technical personnel in the field of production and manufacturing technique.

4. Policy Towards Farm Mechanization

With the emphasis on agriculture, subsidy on fertilizer, credit availability, cooperative management of farm equipment, floor price for selected crops, availability of seeds are some of the general incentives provided. The First Malaysian Plan emphasizes on irrigation, double cropping of paddy and land development. There are many effective organizations involved in rural development. The University of Malaysia and Seludan Agricultural College offers education in agriculture and agricultural engineering. The Agricultural Engineering Sections and Rice Research Centre at Penang is involved in research and testing.

5. Policy Towards Industrialization

The policy towards attracting investment is encouraging. The general trend of economy for foreign investment is favourable.

6. Conclusions

It is expected that demand for 60-70 hp riding tractor will go up along with that for power tiller. After a few years, it is expected that the demand for 35-45 hp tractor will go up and will be used for paddy cultivation. There is good scope for manufacture of pumps, diesel engines, plant protection equipment, threshers and driers. Extension work

/is

SECTION I

General Pattern of Agriculture

Malaysia consists of 13 States of which 11 States are on the Asian Mainland (Western Malaysia) and two others (Sabah and Sarawak) are on the Northern Coast of Borneo (Eastern Malaysia). Total population in 1965 was 9.4 million.

1. Land utilization

(a) Land distribution by nature

Table 1.1

Land distribution by nature (1965-66)

('000 hectares)

Item	West Malaysia	Sabah	Sarawak	Total
a. Total land area	13,133	7,612	12,520	33,263
b. Agricultural area				
(i) Arable land and under permanent crops	2,451	205	709	3,359
(ii) Permanent meadows and pastures	-	6	15	21
c. Forest land	8,552	7,314	9,172	25,039
d. Other areas:				
(i) Unused but potentially productive	-	84	2,245	2,286
(ii) Waste land etc.	-		308	420

From table 1.1 it is seen that out of 33.3 million ha of total land only 17.2% is arable or potentially productive.

/(b) Land

(b) Land distribution by crops and agricultural production

The following table gives the distribution of major crops:

Table 1.2

Major Crops in Malaysia ('000 ha)

	West Malaysia (67)	Sarawak (63)	Sabah (63)	Total
Paddy	440	2	36	478
Rubber	1,789	146	84	2,020
Coconut	278	18	39	265
Oil Palm	122	-	2	124
Miscellaneous	137	(sago) 36	(Cacao) (Abaca) (Tobacco) 5	178
Total	2,687	202	176	3,065

Thus considering rubber, coconut and oil palm as "estate crops", the following table gives the distribution pattern of paddy and estate crops:

Table 1.3

	Estate Crops ('000 ha)	Paddy ('000 ha)
West Malaysia	2,110	440
Sabah	104	2
Sarawak	135	36
Total	2,409	478

Thus, it is seen that 7% under estate crops and 15.5% under paddy as compared to the total area under crops. The total area under crops and estate is 9.2% of the total geographical area of Malaysia.

/Considering

Considering the agricultural pattern of West Malaysia, 20% of geographical area is under crops and estates.

It is estimated that approximately 65% of the land area in West Malaysia is covered by mountain ranges and forests, and therefore is not under cultivation. Of the remaining 5.5 million ha, about 2.5-3.0 million ha are considered to have agricultural potential, after making allowance for peat and other waste lands.

(c) Land distribution by size of holdings (West Malaysia):

The classification of land under various crops on the basis of size of holdings is as follows:-

Table 1.4

Distribution of Farm Sizes (West Malaysia)

Size		No. of farms reported ('000)	Total land area ('000 ha)	%
Acre	(Hectare)			
a. 0- 1	(0 - 0.4)	45.9	12.5	1
b. 1- 3.75	(0.4 - 1.5)	215.1	203.3	23
c. 4- 9.75	(1.6 - 3.9)	142.8	356.9	40
d. 10-24.75	(4.0 - 9.9)	40.9	233.0	26
e. 25-99.75	(10.0-39.9)	5.1	79.5	9
f. Above 100	(Above 40.0)	10.0	9.7	1
	Total	599.8	895.0	100

Thus it is seen holdings of 1.6 - 10 ha are about 183,700 (35% total) covering an area of 53[illegible],000 ha (66% total), and holdings above 10 ha are about 145,000 (24.6% of total) covering an area of 59,200 ha (10.6% of total).

/(d) Land

(d) Land distribution by type of holding (West Malaysia)

Table 1.5

Number of holdings in different crops

	Estates	Small holdings* (as at end of '67)	Other
Rubber	1,793,200	2,297,800	384,400
Oil Palm	253,900	66,000	-
Coconut	80,000	438,500	-
Padi	-	878,000) Wet 44,100) Dry 156,000) Off season	

* Small holdings: Rubber & oil palm: below 40 ha;
Coconut: 0.6-1.6 ha;
Rice: 1.2-1.6 ha.

(e) Land Reform

(i) No land reform scheme has been carried out on a national scale.

(ii) The new settlement areas operated by FLDA, the rehabilitated farm family is expected to return the development and planting cost in a period of 15 years.

(iii) According to the law passed in 1962, no fragmentation of land is allowed in the new settlement areas operated by Federal Land Development Authority.

(iv) However, in the paddy areas, existing tennancy systems and inheritance laws will operate.

2. Cattle Population

Water buffaloes are generally used for land preparation on padi farms except in Kelantan where oxen are used. Oxen are also used for agricultural purposes to a significant extent in Trengganu and to some extent in Perlis,

/Negri

3. Farming Practices

As paddy mechanization is a relatively new concept in Malaysia, most of the farming operations are done manually or with animal power. However, from the past few years, in order to be self sufficient in food, emphasis has been given for rice production. Subsidy schemes regarding seeds and other inputs has been initiated. The total area under paddy in West Malaysia is 1,079,000 acres. The average under double crop of paddy has steadily increased from 1961 as shown in table 1.6

Table 1.6

Acreage of Double Cropping in Paddy

Year	Ha
1961	13,786
1962	18,608
1963	19,644
1964	23,371
1965	35,920
1966	41,935
1967	62,000

As per the First Malaysian Plan it is expected that a total of 143,440 ha would be rendered capable of being double cropped during the period 70. Between them, the Muda and Kemubu projects will account for 85% of this acreage.

As of 1966, Penang and Selangor States had 84.2 and 67.7% of area under double cropping respectively in West Malaysia as shown in table 1.7

/Table 1.7

Table 1.7

Double Cropping Pattern in Penang and Selangor States

	'000 ha		% of area
	Main crop	Second crop	double cropped
Total West Malaysia	360	41.5	11.6
Penang State	16	13.2	84.2
Selangor State	18.9	12.8	67.7
Kedah	115	5.2	4.5

It is also expected that double cropping on 112,000 ha of paddy in Kedah will be introduced during the plan period.

The existing farm practices require 1,500 manhours/hectare of paddy production.

It is expected that with the introduction of double cropping of paddy in major paddy area, the usage of farm machinery and equipment will be very necessary due to limited time interval for critical farm operations, and value of produce.

SECTION II

Pattern of Farm Mechanization

1. Farm machinery population

No special surveys of farm machinery have been conducted. However, some data regarding the types and number of machinery used for agricultural purposes are available from the census of farm machinery carried out by the Federal Department of Agriculture periodically. These are summarized below:-

Table 2.1

Summary of Ownership of Agricultural Machinery in West Malaysia*

(as at the end of March 1983)

S. No.	Description	4-wheeled tractors	2-wheeled tractors	Power thresher	Water pumps	Power Sprayers	Total
1	Departmental machinery	170	66	87	111	153	587
2	Machinery owned by farmers	310	817	14	243	103	1,487
3	Machinery owned by contractors	590	58	1	67	18	734
4	Machinery owned by Farmers Association & Co-operative Societies	24	66	1	2	1	94
	Total	1,094	1,007	103	423	275	2,902

* Data for Sabah and Sarawak are not readily available. The above figures do not include machinery used on estates.

Number of tractors and power tillers in operation in West Malaysia excluding usage on cattle is given in table 2.2

/Table 2.2

Table 2.2

Statewise Distribution of Farm Machinery
1967-1968
(Numbers)

State	Tractors	Power tillers
Perlis	49	49
Kedah	223	60
Penang	108	168
Perak	176	53
Selangor	87	202
Negri Sembilan	38	34
Malacca	41	22
Johore	124	30
Pahang	91	15
Trengganu	47	12
Kelantan	46	82
Total	1,030	727

2. Imports and Production of Farm Machinery

Table 2.3 gives imports of farm machinery in Malaysia. Regarding production, no facilities exist except on a very small scale at village level.

/Table 2.3

Table 2.3

Imports of Farm Machinery for the whole of Malaysia

(1958-67)

Item	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
1. Tractors - wheel or lay track 40 hp and above	197	392	523	646	374	445	64	51	114	31
2. Crawler tractors - 95 hp and above	92	137	447	365	400	211	277	295	378	137
3. Tractors and power tillers upto 40 hp	179	149	196	310	722	843	430	490	472	590
4. Diesel engines - stationary 50 hp and above	806	1218	1954	2044	2869	3576	3261	3642	3362	2866
5. Centrifugal and rotary pumps	1870	2492	2840	3796	4134	5594	7076	8350	8172	8863
6. Machinery for soil preparation	143	318	714	792	29	42	-	-	-	-
7. Harvesting threshing machinery	2	18	89	1423	208	536	-	-	-	-

It would be seen that the retained imports have risen from $10.12 million in 1964 to $13.91 million in 1967 which is an increase of 37% over a period of four years.

3. Demand and Sale of Farm Machinery

No reliable data is available regarding actual sale figures of farm implements. However, based upon the demand trend patterns, the following is the analysis:

(a) Crawler tractors:

About 75% of imported crawler tractors are used for industrial and construction purposes. About 25% are used for land clearing and limited agricultural usage.

(b) 4 Wheel Riding tractors:

(i) Usage: In paddy field, around 60 hp tractors are widely used. These are normally owned by the contractor for custom work for agriculture. Scope for 4 wheel tractor is increasing. Ownership by farmers is limited due to limited financial resources. Normally the tractors are fitted with extension cage wheels which are made locally and imported rotary tiller is used for paddy cultivation. Usage of these tractors for transport on a commercial scale is limited as the road fees for 3 ton trailer-tractor is the same as that for a 3 ton truck.

35-45 hp tractors are used on estates for transport purposes.

(ii) Market share: Ford, Massey Ferguson, Nuffield, International Harvester are some of the most popular tractors. It is estimated that the total market in 1968 is about 600 tractors and the share of market is estimated as follows:

Ford	30%
Massey Ferguson	40%
International Harvester	20%
Nuffield and others	10%

(c) Power tillers:

(i) Usage: In West Malaysia from the past couple of years, increased number of power tillers have been imported. Normally these are farmer owned. The necessary loans are issued by Paddy Boards to cover the entire cost of the tiller. The tillers are also bought on hire purchase system with 1/3 down payment and 2/3 to be paid in 2 year period. The interest rate is about 6% whereas by private agencies, the interest rate is 10%.

(ii) Market share: The present estimated demand is about 600 units and will go up to 900-1,000 a year in 1969. The most popular HP range is 8-10 hp. The present market share in West Malaysia is estimated as follows:

Yubota	40%
Iseki	25%
Satoh	20%
Honda & others	15%

(d) Engines:

(i) Diesel engines: No diesel engines are being manufactured. As diesel fuel which is about M$0.78 per gallon, diesel engines are popular. No tax relief for usage of diesel oil for agriculture is offered. The engines are imported. The estimated demand for engines about 3,000 per year excluding engine for power tillers. The horsepower range from 4 to 14 hp.

(ii) Gasoline engines: There is also necessity for 1-2 hp gasoline engines for power sprayers.

(e) Pumps:

Centrifugal water pumps for dry/and cultivation is becoming popular. Only pumps for mining industry is being manufactured. Government is

/examining

examining the question of requesting the existing pump manufactures to diversify into agricultural pump manufacture.

. One foreign firm has applied for pioneer status and intend manufacture pumps and diesel engines.

The total demand for pumps is about 1,000 - 2,000 per year.

(f) Sprayers:

Usage of hand operated sprayers have just been started. There are not very many power sprayers. However, with emphasis on paddy and other dryland crops the usage is expected to increase.

(g) Dryers: More than 15 types of dryers are being imported and tests are being carried out. It is expected that dryers will become popular and will be bought by millers, contractors and farmers associations.

Hulling and polishing is done commercially by rice mills. As during 2nd crop season there is rainfall driers are needed to dry paddy. The small dryers with 1/2 ton/hour capacity with dil fired or butane heating system has opportunity for local production.

big dryers with 3-4 tons/hour up to 10 ton/hour costing about M$3,000 are suitable for big licensed rice mills.

(h) Threshers: The pedal type of threshers introduced have not been popular due to low capacity. There is a great necessity for power driven high capacity threshers. From 1964, no pedal operated threshers have been sold.

As the present system of harvesting and threshing is done manually by contract labour, there is a necessity to introduce power threshers and also pedestrian or riding small combines. It is interesting to note that

/in

in 1962-66, about 100 power threshers were imported. But in 1966 to 1969, no power threshers are being imported. One of the reasons may be the low capacity.

(i) Harvesting and threshing: A few self propelled and pedestrial combine harvesters have been imported. As the combine harvesting is a new concept, it is expected that it will take some time to educate the farmers in its usage. The self propelled combines are being tested in the paddy fields. A 7 feet combine imported - it is reported - has taken 2.1/2 hours per acre whereas a 13 foot combine has taken 1/2 hour per acre. However, the results are not conclusive. The small roads and small fields offer limited market for the big self propelled combine.

The 2 row pedestrial or riding small combine harvester, as a maximum capacity of 2 acre per day. Although it is slow compared to big combine, it may offer a intermediate solution, for harvesting problems. In this connection, it is to be pointed out the labour input for harvesting paddy is 21 man days/acre costing M$63/acre out of which about M$36-39 are given to hired labour. The time interval factor for harvesting in double crop areas will become very critical.

It is to be pointed out that for next 4-5 years, it may be advisable to introduce different makes of combine harvesters and popularize them.

(j) Tractor drawn implements: For estates and dry land cultivation the following are popular:-

(i) Disc plow
(ii) Disc harrow
(iii) 3 ton trailer.

/For

lor paddy, cagewheels, rotary tiller are most popular. As government is encouraging crops such as maize, tapioca, sorgum, planters and fertilizer distributors and harvesting equipment will be necessary. The target is 50,000 ha of maize and sorgum. But this offers limited scope at the present for local manufacture. Again although about 48,000 ha of sugar cane is expected to be planted in the near future, the scope for local manufacture of specialized machinery for sugar cane is limited.

(k) Trailers: There are a few firms making trailers locally with about 20 - 30% local content. Tyres, tubes and body are local, and axle, chassis and brakes are imported. There is a need for varied type of trailers - 2, 4 and 6 wheels.

Trailers are used for farming and non-farming operations extensively.

4. Usage of Farm Machinery

Pattern of usage of farm machinery in estates and crop areas are on different basis. However, machinery usage in both cases for land clearing and land development are with crawler tractors and heavy equipment. No machinery is involved in planting and taping of rubber. However both in rubber and oil palm estates, tractors with trailer are primarily used for transport.

Even in the padi areas, mechanization has so far been confined to certain land preparation. Of late, however, increasing interest is shown by farmers in mechanical harvesting, pest control and farm transportation.

The important areas in West Malaysia where farm mechanization is employed, and the extent of the area covered are indicated below:-

/(i) Padi

(i) Padi

Main areas:	Penang & Province Wellesley	37,664	hectares
	Selangor	23,280	"
	Kedah	119,676	"
		179,620	"

(ii) Other food crops

Total acreage		56,800	hectares
Main area:	Johore	4,141	"

It is interesting to note that enterprising farmers are using their machines on contract service basis. A survey carried out by Department of Agriculture and Rice Research Centre showed that in Penang and Province Wellesley area, 81% of the farmers operated on contract basis, whereas full time contractors were only 14.6% as shown in table 2.4

Table 2.4

Pattern of Farm Machinery Usage

(General survey results)

Districts	No. surveyed	No. of farmer contractors	No. of contractors only	Co-op	Estates
1. Penang	8	3	2	Nil	3
2 a. Wellesley Northern	113	103	5	24	Nil
b. " Central	51	43	8	Nil	Nil
c. " Southern	24	6	4	5	Nil
Total	196	158	29	29	3

In Penang, Northern and Central Wellesley, most of the above farmers owned power tillers. In general each farmer contractor covered about 40 ha per year or 20 ha per season. Tractors are owned in central and northern part

/of

of padi growing area. It was observed during the survey that a significant percentage of farmer-contractors start off with a power tiller and as their income increase, they venture into buying of these tractors. Apart from cultivation, contract work is done also for pumping water. The farmer-contractor normally uses the tractor about 3 months a year. Those with power tillers do not as a rule travel very far, but those with tractor cover a wider area as detailed in table 2.5

Table 2.5

Details of Custom Work by Contract Farmers

(Results of Survey)

	District	Nos. surveyed	Ave. area covered per yr (ha)	Ave. time worked per yr (months)	Ave. distance travelled (km)	Type of Mech. Power Tiller	Tractor	Time/hectare Power tiller hrs/ha	Tractor hrs/ha	Other work
1.	Penang	3	29.4	2.8	45.5	5	-	15.5	-	Nil
2a.	Wellesley - North	108	34.6	2.5	12.8	121	17	12.2	6.3	Nil
b.	" - Central	43	32.2	2.6	8.0	47	17	13.2	4.8	Nil
c.	" - South	8	61.5	5.3	31.0	4	4	11.7	5.8	12.5%
	Total AVERAGE	162	39.8	3.2*	14.4	177	38	13.0	5.5	-

* average

It was found that approximately 13 hrs/ha with power tiller and 5.5 hrs/ha with tractor was taken.

With respect to custom work by constractors only, out of 29 contractors interviewed by the Department of Agriculture, it was found that on an average in 5 months 110 ha was covered. Most of the contractors used tractors. It was estimated that contractors may cover as high as about 300 - 400 ha/year. The total 162 persons interviewed, 156 farmer contractors

/possessed

possessed 175 power tillers and 38 tractors and 29 contractors possessed 6 power tillers and 35 tractors. The makes and number of power tillers are Kubota (173 Nos), Mitsubishi (9), Yanmar (1), Satoh (1) and regarding tractors, Massey-Ferguson (39 Nos), Nuffield (21) and Ford (10).

Regarding form of payment for buying the machine, 71% bought on installments and 29% on cash. The charges for one rotary tillage contract work varied from N530-75 per hectare. Payment for custom work was on the basis of 31% in cash 69% on credit.

5. Future Demand and Trends in Design

Demand for tractors, power tillers, pumps, engines, sprayers, threshers will increase. There also will be demand for combine harvesters and dryers for paddy.

Table 2.6 gives the estimated demand in future.

/Table 2.6

Table 2.6

Estimated Demand & Future Trend for Major Agricultural Machinery

S.No.	Item	Specification	Estd. Demand in 1969	Future trend 1972-73
1	4 wheel riding tractor	35-45 hp	200-300 (Estate)	Total demand by 1972-73 is about 1200-1500. It is expected that percentage share of 35-45 hp tractors will go up as it may be used by farmer owners for paddy and upland.
2	Power tiller	8-10 hp	1000-1500	Demand by 1972-73 will go up by 2000-2500
3	Pumps	2" - 6"	1000-2000	As dry land cropping is being encouraged, demand will go up to 4000-6000 by 1972-73.
4	Engines	4 - 10 hp (diesel)	3000-5000	Estimated demand 5000-7000
		1 - 2 hp (petrol)	500	Estimated demand 2000-3000
5	Sprayers	Hand operated	10,000	10,000 - 30,000
		power	500	2,000 - 3,000
6	Dryers	1/2 ton per hr	-	Need introduction and extension
		4 - 10 tons/hr		for the present.
7	Threshers	Power operated	500	Need introduction and extension for the present
8	Combine harvester	2 row	75 - 100	Need introduction and extension for the present.

SECTION III

Manufacturing Industries and Ancillary Facilities

1. Farm Machinery Manufactures

(a) Existing industries

As regards production there is hardly any production of agricultural machinery at present. However, there are about 30 industries of small and medium size engaged in the manufacture of water and gravel pumps mainly for the requirements of mining industry. Some of them manufacture pumps for agricultural use also but the quantum of production for agricultural uses is small. There is one unit manufacturing sprayers for agricultural use. Apart from this there is no manufacturing activity in this field. Practically the entire requirements of agricultural machinery are being met from imports at present.

There are about 50 foundries of which about 20-25 are fair size, engaged in miscellaneous casting. There are also about 74 establishments engaged in the manufacture of scythes, rakes, spades, mowers and other hand tools. Some small plants produce pumps for the mining industry and for irrigation purposes. Pipes of size 1/2" to 5" are also produced at a capacity of 1,500 tons/yr which can also be used to increase input in irrigation.

Motor transport industry has already been established with local assembly. More than 25 small units manufacture bodies and some parts and accessories for vehicles and agro-industrial equipment like Rubber Plant, Rice Mills, etc.

/(b) New

(b) New Industries being planned and/or existing industries being expanded

With a view to cut down the imports and become self dependent in future as far as possible, two new industries are being implemented for the production of power tillers, attachments, rice threshers and dryers, automatic sprayers, peanut shellers and hand implements to a total value of about $10.5 million and under carriage parts for crawler tractors to the extent of $15.0 million per annum after the factories go into full production say by 1974-75. Estimated year of production is in 1969. The required detail information in respect of the said two new industries is not available as these are undertaken by private enterprise.

Three more proposals undertaken by private enterprises for the assemble and phased manufacture of power tillers, harvesters, trailers tractors and associated equipment are in the final planning stage. Estimated date of assembly is in 1969. Phased manufacturing would be carried out at a later date.

(c) Industries licensed to manufacture power tillers [illegible]

(i) MAM (Malayan Agricultural Machinery Company)

Licensed to manufacture 'Kubota' power tillers. The capital participation is as follows:-

Tractors Malaysia	55%
MAMA	15-20%
Maruleni (Kubota)	15%

Pioneer status has been granted to this firm. The company expects to produce about 75 power tillers in 1969, achieving 15% local content in two years. The tyres, front frame, paddy wheels, parts of rotary tiller are to be manufactured locally and handle bars etc. are to be

/sub-contracted

sub-contracted to local agencies.

(ii) United Motor Works

Licensed to manufacture "Iseki" 9 hp power tiller (PT-K48, 48 C) and pedestrial combine harvester (HD-50).

Present paid up capital is M$2 million and authorized capital is M$4 million. Capital participation is 40% by United Motors, 20% by United Motor employees, 40% by end users which include 15% by MAPA and 25% by Kedah Paddy Board.

The present facilities include 2 plots of a total of 6 acres with 33,600 square feet covered area.

The manufacturing programme intended is as follows:

	1969	1971	1972
Power tiller	1800	2400	3600
Combine harvester	300	450	600

The local content is expected to be as follows:

	1969	1972
Power tiller	15%	35%
Combine harvester	10%	40%

Proposed items to be locally manufactured or obtained are:

a) Tyres and tubes
b) Hardware
c) Sheet metal items
d) Cast iron components
e) Electrical components
f) Fabricated items

/Items

Items to be imported in 1972 are gears, axles, shafts, complete engines, etc. It is proposed to import crank and cam shaft forgings and to carry out finishing operations locally.

The staff is expected to increase from 200 in 1968 to 560 in 1969.

(iii) MAMA CHINA

Taiwan Agricultural Machinery Company is expected to produce their model (Kubota) in Malaysia. MAMA is expected to participate 10% in equity capital.

It is also expected to manufacture power threshers, pumps and hullers and other items.

(iv) United Engineers

It is proposed to manufacture 10 hp "Satoh" power tiller. A building of 12,000 sq.ft. is proposed. They intend introducing "Satoh" riding two row paddy combine harvestor.

2. Other Engineering Industries

Sources of primary iron and steel products:

Some of the primary iron and steel products are being made in Malaysia; they are made by:

(i) Integrated steel plant;

(ii) Re-rolling or processing industry, specializing in particular types of products.

(a) Integrated steel plant and its products

The Integrated Steel Plant is situated in the Prai Industrial Area in Penang (the first of its kind in South-east Asia) - M/s Malaysia Iron & Steel Ltd., consisting of ore sintering plant, charcoal making, blast

/furnace

furnace for the production of pig iron, steel making plant, and a rolling mill. The steel plant employs about 550 persons at present and this number may go up to 800 or more in the second stage of production. As coke is not available locally, charcoal from rubber trees is used for reduction and smelting of iron ore. Iron produced in this method is of a better quality due to the fact that there are lesser impurities in charcoal as compared to those in coke.

The blast furnace installed at the Walayawata Iron and Steel Works has an installed capacity of 170-200 tons of molten pig iron per day. Iron is converted into steel using L.D. converters. The installed capacity for steel making as at present is 10,000 tons of steel ingots per month. The rolling mill, rolls various items in steel. The actual output of all rolled steel products is about 60,000 tons per annum.

The types of products made at the Walayawata Steel Works are thus mainly pig iron and rolled steel products. Among the rolled products are round bars - in straight lengths, deformed bars, angles, and flats. The various standard sizes as produced at present are given below:

(i) Round bars: 3/8" to 1.1/2" in dia.
(ii) Angles: 1" x 1", 1.1/2" x 1.1/4" and 2" x 2"
(iii) Flat bars: 1/8" x 1", 1/4" x 1", 1/2" x 3"

Other sections are rolled on special order.

(b) Re-rolling and processing industry

There are a few re-rolling and primary steel processing industries, which manufacture bars, galvanized iron sheets, H.B. wire, G.I. wire and G.I. pipes.

/The

The re-rolling mills (4 Nos. in all) produce bars from billets and can make them in sizes from 6 mm to 24 mm or in respective inch equivalents. The estimated installed capacity of all the re-rolling mills is 69,000 tons/annum and actual production is about 53,000 tons per annum.

Galvanized iron sheets from 20 S.W.G. or 35 S.W.G. are produced in another unit from imported cold rolled sheets. This plant has a capacity of approximately 19,750 tons per annum and actual production is about 16,809 tons per annum.

Similarly, B.B. wire, G.I. wire and G.I. pipes are also produced in other plants. The total wire drawing and galvanizing capacity of all units is 13,000 tons per annum, and the actual production is almost the same as installed capacity.

The sources for all other categories of steel, such as black sheets various categories, cold rolled sheets, bright bars, heavier rolled sections, are from imports. Some quantity of pig iron is also being imported for meeting the requirements of the local foundries.

3. Ancillary and Supporting Industries

(a) Foundry and fabrication

Excluding the engineering industries, which are manufacturing consumer goods, the following categories of units, which can offer production facilities for the agricultural machinery manufacturing industry, are existing at present in Malaysia.

(i) Grey iron foundries;
(ii) Structural fabrication shops;
(iii) Steel foundries;
(iv) Manufacturers of standard parts.

/Detailed

Detailed information on each of the above industries is given below:

(1) Grey iron foundries:

a. Production facilities:

Grey iron foundries form the biggest group among the engineering services industries in Malaysia. There are an estimated number of over eighty (80) foundries in Malaysia; the estimated installed capacity of these foundries on the basis of 2 castings per week is about 80,000 tons per year. With improvement in the off-take of the castings the production of castings can be doubled to 160,000 tons/year by employing more persons.

b. Types of products:

The types of products at present made in the foundries are, cast iron pipes, gravel pumps, liners, diesel engine base plates, centrifugal pumps, roller machinery, bandsaws, brick making machinery and concrete mixers and spare parts for engineering workshops.

c. Manufacturing facilities:

Most of the foundries can be considered as jobbing foundries although they generally make only a few types of castings. A heavy machine shop and structural fabrication shop is usually attached to these foundries for carrying on the machining of castings, and fabrication and assembly of tin mining machinery or parts. A typical list of equipment generally found in foundries is given in Appendix III-A.

/Cost

Most of the machinery and equipment installed however are old.

(2) Steel foundries:

a. Production facilities:

There are a few steel foundries making alloy steel castings. The total installed capacity in steel castings is estimated to be about 5,000 tons/year.

b. Type of products:

The main products of the steel foundries are alloy-steel castings for dredger parts used in tin mining machinery.

c. Manufacturing facilities:

The steel foundries are either crucible type foundries or employ induction type electric furnaces or electric arc furnaces. Some are equipped with laboratories for sand testing, chemical analysis and machine moulding facilities.

(3) Structural fabrication shops:

a. Production facilities:

There are over 70 general engineering fabrication shops. The installed capacity may be between 50,000 tons to 100,000 tons of fabrications per year.

b. Types of products:

The types of products made are structural steel fabrications, welded tanks, pressure vessels and pressings and stampings. The units work mainly on job orders.

/c. Manufacturing

c. Manufacturing facilities:

The fabrication shops are generally equipped with a gen... engineering shop consisting of S.B. and S.C. lathes, drilling machineries, shaping machine, structural shop, consisting of section cropping machine, sheet metal working machines, like guillotine shears, presses, sheet rolling and bending machines, and welding equipment for electric welding, gas welding and cutting.

(d) Manufacturers of standard parts:

There are a few manufacturers of standard engineering stores such as bolts and nuts and washers, rivets etc. There are a number of plastics working units, which can manufacture items such as knobs, handles, tubes, etc.

(b) Units manufacturing forgings, tools and dies:

There are no units specialising in the manufacturing of forgings. However, some general engineering shops have installed pneumatic power hammers and undertake job orders for forgings. However, crop forging on a production basis is not yet developed.

Similarly there are no established tool rooms, specialising in the manufacture of items such as small tools, cutting tools, jigs, fixtures, press tools, or moulds. However, some of the plastic working units have established their own tool room sections in which they make the moulds and dies for their own use. They generally do not cater to outside requirements in this line, as their capacity is limited. Similarly some units making sheet metal pressings make their own press tools. The above however indicates, that skill in tool making trade exists in the country.

/So far

So far as cutting tools, small tools and some of the hand tools are concerned, they are entirely imported.

(c) Development of ancillary industries

Development of ancillary industries, which can manufacture items such as pistons, piston rings, air filters, oil filters, wheels, tyres and tubes, radiators, is complimentary to the establishment of industries manufacturing agricultural machinery. However the development of these industries can only be taken up in co-ordination with the requirements of industries such as automobile manufacture, since the requirements of agricultural machinery industry alone for these items would not justify establishment of manufacturing units for these items.

4. Availability of Technical Personnel

There is a shortage of availability of technical personnel in the field of manufacturing and extension work.

As expressed by the Government sources, the following are the areas which need training of technical personnel.

a. Manufacturing techniques and production;
b. Design and development;
c. Training of industrial operators;
d. Training of field mechanics.

/Appendix III-A

Appendix III-A

Typical List of Machinery installed in a Foundry and General Engineering Workshops, Manufacturing Gravel Pumps and Grey Iron Castings

Foundry:

(1) 3 to 5 tons/hour cupola, complete with blower pipe lines, charging platform or hoist.

(2) Moulding bay and floor, with cast iron moulding boxes, moulding tools.

(3) Mould drying oven, heated by charcoal.

Note: Only a few foundries are equipped with this oven; others use open charcoal fire over moulds for drying the mould.

(4) Sand muller (only a few foundries use this equipment).

Machine shop:

(1) Heavy duty facing and turning lathes for the machining of gravel pump castings. Dia. of swing: 40" to 48".

(2) Pillar type drilling machines, sizes 1" to 2" dia. of hole.

(3) S.S. & S.C. lathes of assorted sizes.

(4) Shaping machines 20" or 26" stroke.

(5) Hacksaw machine.

(6) B.F. Grinders.

(7) Radial drilling machines cap. 1" to 2" dia. of hole.

(8) Capstan or turret lathes - bar capacity: 1" dia.

(Some workshops are equipped with vertical turning and boring mills, instead of and sometimes in addition to facing and turning lathes.)

/Appendix III-B

Appendix III-2

List of Producers of Primary Iron and Steel Products

Name	Products manufactured
(1) Malayawata Steel Ltd., Prai Industrial Area, Butterworth, Penang. Office: 5th floor, Bank Bumiputra Bldg., Kuala Lumpur.	Pig iron, ingots, billets, rolled steel products
(2) United Malaysian Steel Mills Ltd., Lot 5, Road 13/6, Petaling Jaya.	Rerolling mill, round bars, flats & sections
(3) Federal Iron Works Ltd., 14 Jalan Tandang, Petaling Jaya.	Galvanized iron sheets
(4) Malaysia Galvanized Iron Pipes Ltd., 12A, Jalan Tandang, Petaling Jaya.	Galvanized iron pipes
(5) Southern Iron & Steel Works Ltd., 3 1/2 Main Road, Nibong Tebal, Penang.	M.S. round bars, flats & G.I. sheets
(6) Pan Yung Steel Mfg. Co. (M) Ltd.	-do-
(7) Malaysia Steel Mills	M.S. round bars & flats

Note: In addition to the units shown above three units have been proposed for the manufacture of G.I. wire, bright hard drawn wire and steel wire. The proposed installed capacity of all the three units is 54,000 tons per annum.

List of Producers of Alloy Steel Castings

(1) Federal Engineering Co., Ltd., Lahat Road, Ipoh.

(2) Kwong Loe Yoon Foundry, Tasek Industrial Estate, Ipoh.

(3) Chiang Koon Hong Iron & Steel Works, Kuala Lumpur.

SECTION IV

POLICY TOWARDS FARM MECHANIZATION

Extensive usage of machinery in paddy area is encouraged. For the present, no subsidy is given for buying of farm machinery. Loans are granted through Loan Boards which are assisted by the government. Government would like that private enterprise and farm machinery industry initiate hire purchase scheme and also grant loans to the farmers.

By 1970, it is aimed to reach self sufficiency in food, especially rice. It is also aimed to stress emphasis on crops such as sugar cane, maize, etc.

1. Incentives by the Government

Among governmental measures which may be said to have a direct bearing on the use of agricultural machinery by the farming community are the following:

(i) Provision of credit to farmers for the purchase of various inputs such as fertilizers and pesticides, and equipment such as tractors;

(ii) Financial assistance to Farmers' Associations for the purchase of pest control equipment, water pumps and accessories, harvesting and processing equipment etc. to enable extension agents to educate farmers in the use of modern technology in the production and processing of their crops;

(iii) Financial assistance to co-operative societies for the purchase of agricultural machinery and its supply, for common use, to under-farmers;

(iv) Training of agricultural extension agents to equip them to

/educate

educate farmers in the use of better farming methods including the use of machinery and equipment;

(v) Establishment of training centres to train farmers in the use and repair of farm machinery such as tractors and related equipment. Four regional centres are planned to be set up in Paya Besar, Kuantan, Telok Chengai, Kedah, Rumbong Lima, Province Wellesley and Lundang Kelantan.

Some of the governmental programmes in the field of agricultural development which will have an indirect, but significant, impact on the increased use of agricultural machinery are:-

(i) A sizeable irrigation programme providing facilities to over 240,000 ha of existing cultivated land and land rendered capable of being double cropped during the period 1966-70;

(ii) Land development programmes of the Federal Land Development Authority, the State Governments etc;

(iii) Programmes of agricultural education, training and extension;

(iv) Consolidation of agricultural holdings through the efforts of the Federal Land Consolidation and Rehabilitation Authority.

In the country's industrialization programmes the agricultural machinery industry ranks high in priority. As will be noted later, the growth of machinery making industries, including agricultural machinery is expected to be over 10 percent per year during the First Malaysian Plan period.

(a) Subsidy on fertilizers

During the First Malaysian Five Year Plan (1966-70), the budget for fertilizer for paddy was $89.9 million. Normally 30% subsidy on the cost of fertilizer is granted. It is the policy of the government to discontinue the subsidy in a given area after the usage of fertilizer has been accepted and move on to a new area.

(b) Availability of credit financing to farm owners

In several States in Malaysia, especially in Kedah and Selangor, the Paddy Planters' Boards grant to farmers loans for the purchase of agricultural machinery on the security of titles to land. The rate of interest is 7 percent per annum. Period of repayment is 5 years; six monthly equal instalments in double cropped areas, and annual equal instalments in other areas.

Where the size of individual holdings is very small, it is usual for farmers, generally four or five, to come together to raise loans from the Paddy Boards to purchase machinery. The security for the loans is, in some cases, provided by one or two of them only. One of the conditions of eligibility for machinery credit is the applicants should furnish certificates to the effect that they have undergone training in the operation and maintenance of agricultural machinery. Such training courses are offered to farmer-borrowers by the State Agricultural Officers.

(c) Co-operatives to manage farm equipment

There are no such cooperatives. However, the Farmers' Associations, the formation of which is provided for under legislation, are given financial assistance to purchase and manage farm equipment mainly for training purposes. Under the First Malaysian Plan, the active promotion of mechanization is contemplated, and in several "Agricultural Stations", and "Rural Agricultural Training Centres", agricultural machinery are used for training of farmers in the operation and maintenance of machinery.

/(d) Floor

(d) Floor and subsidy prices for selected crops

A governmental price support programme for padi farmers is in operation since 1959. This is in the form of a Guaranteed Minimum Price (GMP) of $16 per picul of dry padi (i.e. padi of not more than 14% moisture content, free of dirt, empty grains, husk, straws, or other foreign matter, and having rains fully matured) at the mill door. This price is to be paid by all mills licensed to purchase paddy and sell rice to the stockpile. Padi of over 14% moisture would not qualify for coverage under the GMP as the government wishes to discourage producers from offering low quality padi for sale.

(e) Agricultural policies to promote the development of other inputs:

(i) Fertilizer

Government has been actively assisting the development of the fertilizers industry and towards this end, tariff protection has been granted to assist the expansion of local production. To encourage the increased use of fertilizers government has also been giving subsidies to farmers.

(ii) Seed

The Department of Agriculture is operating a paddy multiplication and distribution scheme to encourage the growing of improved varieties. Seed farms have been set up both on farmers' land and on the land attached to Agricultural Stations run bythe Department, for growing improved and pure varieties of seeds. The latter are exchanged with farmers' seeds once in three years. As at the end of December 1967, there were 39 departmental seed farms, and 430 seed farms on farmers' land. The guaranteed minimum price (GMP) is revised every year and applies to any padi grown for the

/first

first crop but only to the recommended varieties of Malinja and Mahsuri for the second crop. Other varieties would be paid $14 per picul.

The GMP for padi is administered by the Supplies Division of the Ministry of Commerce and Industry.

2. Rural Development

(a) First Malaysian Plan 1966-70

Emphasis during the Plan period is on accelerated expansion of output and employment in the agricultural sector by (i) increasing land area under cultivation, (ii) diversifying agricultural production (iii) assisting in the increased use of various inputs such as fertilizers, (iv) facilitating the flow of latest technical know-how into the agricultural sector through correlation of research and extension services, (v) correcting institutional deficiencies in land tenure, credit, marketing etc. and (vi) assisting in the marketing of agricultural products.

The First Malaysian Plan has also proposed bringing under cultivation a little over 40,000 ha in West Malaysia and to the opening of new land to the extent of 24,000 ha in Sabah to settle 12,000 families, and 32,000 ha in Sarawak to settle 11,750 families. The Sarawak's development plan of 1964-68 has proposed the extension of cultivation as follows:

Oil palm	4,000 ha
High yielding rubber	40,000 ha
Coconut	20,000 ha

The Sabah development plan for the period 1965-70 proposes rubber planting and replanting to the extent of 41,200 ha, oil palm 16,000 ha, cocoa 1,2[illegible]0 ha and hemp 800 ha.

/(b) Irrigation

(b) Irrigation Projects

Of the total land under cultivation, 315,600 ha mostly paddy, have been provided with irrigation facilities as at the end of 1967. Similarly, drainage facilities have been provided to 255,000 ha of rubber, coconut and oil palm. The Government has formulated a large irrigation and drainage development programme under the First Malaysian Plan. The public development expenditure proposed under the Plan on this programme is $332.70 million, including the schemes in Sabah and Sarawak.

The major irrigation projects with respect to paddy cultivation are:

(i) Muda River Project: To irrigate 251,500 ha. The total cost of 226 million dollars. This has been financed to an extent of $135 million by the World Bank and is expected to be completed by 1970 and this irrigated area will be brought under double cropping of paddy.

(ii) Kemubu Project: This will bring an area of 90,000 ha under irrigation and double cropping and will be completed by 1970. World Bank loan has been requested also.

Thus an additional 340,000 ha apart from the existing double cropping area will be brought under paddy double cropping scheme by 1971-72.

The irrigation rates now levied by government are very low, ranging from $54 to $6 per acre, and there is a large element of subsidy in the irrigation programme.

(c) Land development

The Federal Land Development Authority (FLDA) which was set up in [illegible] has the responsibility of bringing new land into agricultural use with

/a

a view to settling people on land. During the period 1961-65 the Authority opened up 48,000 ha of land in West Malaysia and settled 12,000 families. During the First Malaysian Plan (1966-70) period the target for land development is 36,400 ha, and this is likely to be exceeded. About 35,000 ha of this area has already been developed. Subject to availability of finance and other resources, the FLDA expects to develop new land at the rate of about 16,000 ha per year during the period 1971-75. In its policy of land development for agricultural uses, the FLDA's objective has been and continues to be to promote the expansion in the acreage of high yielding varieties of rubber, and oil palm in new areas, and on low yielding rubber plantations.

(d) Organizations for rural development

(i) Ministry of National and Rural Development and National Operations Room

This First Malaysian Five Year Plan (1956-60) was primarily orientated towards replanting of rubber plantations and building of a few roads and bridges. The Second Malaysian Plan (1961-65) was aimed at economic and rural development. In order to co-ordinate overall economic development programme of Malaysia, this Ministry was created in 1961 and carry out rural economic development activities directly, and coordinate the development activities of other ministries through National Operations Room.

(ii) Federal Land Development Authority (FLDA)

This organization is primarily involved in opening up land, carry out development and planting of estate crops and setting the land less labourers. The aim is to raise the income level to M$400-450 per month per rehabilitated family.

/The

The FLDA has about 75 projects, each with about 5,000 ha. Total area opened up is about 219,717 ha. It involves jungle clearing, building of roads, houses, schools, etc., planting of rubber of oil palm. The rehabilitated family is given a total of 4 ha - 32 ha of plantation and 0.8 ha of other crop. The subsidy for family maintenance is given for 4 years in rubber and 6.1/2 years in oil palm area. At the rate of M$75 per family. After 6 years, the farmer is expected to return the development and planting cost to FLDA in a period of 15 years.

The Jarka Triangle settlement area which will cover 98,000 ha is expected to receive for its first phase of development a loan of M$44 million from the World Bank.

(iii) Medjlis Amanit Bayat (MABA)

(Council of Trust for Indigenous People)

This organisation is a special body created to promote commerce and industrial activity and participation among indigenous people by the Parliament in 1966. Its activities due to provide a) credit facilities; (b) advisory services; c) training; d) establish or expand existing commercial units and to e) operate road transport and thus impart initiation and participation in "Bhumiputras" in the field of commerce and industry.

It has established industries in the following fields: timber, tannery, food handicrafts and textiles. The last enterprise is a joint participation and others are totally financed by MARA. It has also participated in 10-20% equity participation in the field of engineering manufacture such as Bjelos, motor-car assembly and television and records.

/Any

Any new industry which expects granting of pioneer status - tax relief for 5 years - are normally expectedto provide 10-30% equity participation for the local people. The activity of MARA includes such participation.

About M$15 million has been invested in all activities including farm machinery manufacturing participation. It has active participation in 4 firms, and has established 6 companies. A sum of M$30 million has been authorized to MARA in 1968.

(c) Paddy Boards

The Paddy Boards are initiated by the Department of Agriculture in each State to increase production through integrated supply of inputs. The Paddy Boards also have a pool of farm machinery to be used on custom basis. For example the Paddy Board of Sabah and Sarawak in East Malaysia has about 130 power tiller units and Sabah Paddy Board has 20 paddy crawling type harvesters.

3. Research, testing and education institutions

Research and testing on farm machinery usage is conducted at the University of Malaysia, Agricultural College and Rice Research Centre at Penang.

(a) University of Malaysia, Kuala Lumpur

University of Malaysia is the only institutionwhich offers degree in agriculture. The Agricultural Engineering courses are imparted to third year student. In the fourth year, farm mechanization is offered as a minor optional subject.

/A

A two-year course by Agricultural Engineering Section leading to M.S. in Farm Mechanization for agricultural graduates and Agricultural Engineering for engineering graduates is also offered only one student secured M.S. in 1967.

There appears to be a necessity of offer full agricultural engineering curriculum as there is a shortage of agricultural engineering personnel in the country.

(b) Agricultural College, Seldan

Agricultural College grants 3 year Diploma in Seldan. Students are sponsored by 21 bodies which include governmentagricultural departments, corporate bodies, rubber estates. Total student strength is 650 of which 15% are girls. Staff student ratio is 1:16. Total campus area is 400 ha with 20 units of tractors and power tillers. The four branches are Agricultural Engineering, Agricultural and Plant Science, Agricultural Education and Extension and Agronomy. Farm Mechanization course is offered to third year students, 3 hour lecture and 3 hour practicals per week. The first and second year students are given practical training only.

(c) School of Agriculture

Diploma course for extension workers and government servants and is run by Department of Agriculture.

(d) Rural Agricultural Training Centre

There are two centres in West Malaysia.

(e) Rice Research Centre

Kaudeng Lima, Province Wellesley, Penang.

This Centre run by the Agricultural Engineering Section of Department of Agriculture is doing excellent work in the field of research,

/development

development and extension in the field of paddy mechanization. The work is being conducted in all fields including land cultivation, transplanting, weeding and spraying, harvesting, drying, transportation and storage.

SECTION V

POLICY TOWARDS INDUSTRIALIZATION

1. Measures to attract national and foreign capital

In view of the favourable domestic and export market prospects for manufactured goods, the First Malaysian Plan has targetted a rate of increase in industrial output to the extent of 10 per cent per annum. Basic metals and machinery manufacturing are among the industry groups in respect of which a production rate of more than 10 per cent per year is expected. To attain these objectives the government will follow a purposeful policy of sustained encouragement and assistance to private entrepreneurs. It is believed that Malaysian businessmen will have to respond more vigorously than before to the opportunities existing in the industrial field, and there should also be an increased flow of foreign private capital and entrepreneurship into manufacturing industry, preferably in joint participation with domestic capital and enterprise.

As the First Malaysian Plan observes,

"Foreign entrepreneurs will be accorded the same incentives as local industrialists and, in addition, will continue to be given guarantees regarding the security of foreign investment. Investment guarantee agreements have been signed with the United States and West Germany and the government is willing to enter into similar agreements with other countries. An additional measure of protection to foreign investment is accorded by Malaysia's accession to the World Bank-sponsored Convention of International Investment Disputes, which permits foreign industrialists to resort to an International Arbitration and Conciliation Centre to settle disputes, should

/any

any claims against the Malaysian Government arise. Moreover, there will continue to be unrestricted repatriation of capital and remittance of profits and dividends within the Sterling Area. As in the past only nominal control will be imposed on capital movements and profit remittances to countries outside the Sterling Area. Agreement has been reached for relief from double taxation with the United Kingdom, Japan, Denmark, Norway and Sweden. The government is anxious to enter into similar agreements with other countries.

The involvement of foreign private entrepreneurship and capital in Malaysia's industrial development will be welcomed not only for its contribution to the growth of national income and employment but also for the part that it will play in helping to modernize industrial technology. In regard to the latter, the government is anxious to ensure that techniques of production are evolved which fit the circumstances of the economy by maximising the use of the country's abundant labour resources and economising on scarce capital".

Under the Investment Incentives Act of 1968 the Malaysian government offers to both national and foreign investors basically two types of incentives:

(a) Incentives for the initial setting up of manufacturing establishments in Malaysia. These are:-

(i) Pioneer status

(ii) Investment Tax Credit

(b) Incentives for existing and new Malaysian manufactures to export their manufactured products. These include:

/(i) Reductions

(i) Deductions for promotion overseas

(ii) Accelerated depreciation allowances

(iii) Export allowance

(iv) Payroll tax refund

The various incentives offered to existing and new industries are explained in detail in a booklet titled "Investment Incentives" a copy of which is enclosed. The Incentives Bill contained in the booklet has already become an Act, and is in force now.

2. Industrial finance

Malaysian Industrial Development Finance Organisation is assisted from Government, private and World Bank funds and is one of the main financing bodies for private industrial growth through loans, underwriting and participation.

3. Industrial estate

The Petaling Jaya is one of the industrial complexes built near Kuala Lumpur during the past 10 years and a second complex which is between Petaling Jaya and West Coast has been started.

SECTION VI

CONCLUSIONS

(1) Apart from estate crops, paddy is the main food crop in Malaysia. Efforts are made to increase intensity of cropping of paddy by irrigational projects which expects to bring additional 300,000 ha under double cropping from the existing 62,800 ha of double cropped area.

(2) Although government is encouraging maize, cassava and sorgum cultivation, emphasis will be on rice production for the next few years.

(3) The subsidy with respect to fertilizer usage on paddy, fixing of flour price for paddy, creation of paddy boards etc. are some of the major steps taken to increase paddy production.

(4) Usage of farm machinery on estate is primarily limited to tractor trailer haulage with 35-45 hp tractor.

(5) As most of paddy tractor powing is done by contractors, the 65-75 hp tractor is more popular.

(6) The power tillers have been introduced recently and appears to be well received.

(7) It is expected that power tiller demand will go for a few years along with 65-75 hp riding tractors. After a few years, it is felt that 35-45 hp riding tractors demand will go up for paddy cultivation in suitable area.

(8) Good scope for pump, diesel engines, plant protection equipment and threshers exists.

/(9) Usage,

(9) Usage, testing and popularization of combine harvester, and dryers are necessary.

(10) There is necessity to introduce full agriculture engineering degree course at the university level.

(11) Only power tiller, pumps, sprayers, threshers and small dryers have potential for local manufacture at the present.

(12) The local manufacturing and ancillary industry is not yet developed for full scale manufacture.

(13) It appears there is a shortage of industrial and production engineering personnel in the country.

(14) It is recommended that for items such as tractors, combine harvester, diesel engine and large dryers, a slow indigenous manufacturing policy is established so as to allow time for healthy growth of local ancillary industry.

(15) It is recommended that facilities be created for training industrial technical operators in the field of manufacture.

(16) It is also necessary to reinforce the agricultural engineering education on a degree level and also start design, development and testing centre for farm machinery.

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Appendix B

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1. United Nations Development Programme Office
   3 Jalan Freeman, Kuala Lumpur
   a) Mr. E. Klickenstaff
      Res. Rep. (27152)

2. Federal Industrial Development Authority
   Bangunan Bank Puniputra
   21, Jalan Melaka
   Kuala Lumpur (299371-5)
   a) Mr. Jeyanathan (not met)
      Head of Project Evaluation.
   b) Mr. M.T.S. Phung
      Officer - Service Center for Industry
      Division (counterpart)

3. Ministry of National & Rural Development
   National Operations Room
   Jalan Dato Onn, Kuala Lumpur
   a) Mr. Ahmad Bin Haji Omar
      - Asst. Secretary (Development)

4. Ministry of Agriculture & Co-operatives
   Jalan Swettenham, Kuala Lumpur
   a) Mr. Abu. Hassan b. Abdullah
      Permanent Secretary

5. Department of Agriculture
   Ministry of Agriculture and Co-operatives
   Jalan Swettenham, K.L.
   a) Mr. Mohammad Bin Jamil
      Director of Agriculture - West Malaysia

/b) Mr. Ani

b) Mr. Ani B. Arope
- Senior Agronomist

c). Mr. Lon Swee Chool
- Agricultural Engineer

d) Mr. Abdul Lutalib
- Mechanical & Agricultural Engineer

6. Majlis Amanah Rakyat (MARA)
232, Jalan Tuanku Abdul Rahman
Kuala Lumpur

a) Mr. Osman Bin Mohd. Sham
Director of Commerce and Industry

b) Mr. Mansor bin Othman
Director of Training

c) Mr. Mohd. Tahir Bin Abdul
Director of Advisory Services

d) Mr. Mohd. Nasli bin Mohd. Nawi
Director of Credit Finance

e) Mr. Dato Haji Mustapha bin Haji
Deputy to Chairman (not met)

f) Mr. Abdul Shafar bin Baba
Chairman (not met)

7. Ministry of Commerce & Industry
Federal House, K.L.

a) Mr. Nasruddin bin Mohd. (not met)

8. Tractors Malaysia Berhad
Agri. Equipment Department
P.O. Box No. 2, Jalan 225, Petaling Jaya, K.L.

a) Mr. P. Allborough Smith - Manager

9. University of Malaya
Faculty of Agriculture, Dept. of Agri. Eng., K.L.

a) Prof. Keeny

b) Prof. ..Webb

/10. (i) United

10. (i) United Motors Works (M) Sdn. Bhd.
114, Jalan Tuanku Abdul Rahman
Kuala Lumpur
a) Mr. Eric Chia
Executive Director
b) Chong Chee Yin
Sales Manager
(Heavy Eqpt Div)

(ii) United Manufactures Sdn. Bhd.
114, Jln Tuanku Abdul Rahman, K.L.
a) Mohd. Tarmizi
Mechanical Engineer

(iii) Nissho-Iwai Co., Ltd.
No. 4, Lorah Pasar Besar, K.L.
a) T. Kanamaru
Manager
b) Y. Shioiri
Asst. Manager

11. (iv) Serdang Agricultural College
Serdang, Malaysia
a) Prof. J. Smilie
b) Prof. Encho Mohd - Noor bin Ismail

12. United Engineers Ltd.
No. 5 Road 217, Petaling Jaya
P.O. Box 135, K.L. (53543)
a) Mr. Peter Price
Tractor & Equipment Div.
Zone Manager

/13. Other

13. Other persons met

a) Mr. A.B. Higgins
Manager
Plant Protection Ltd.
I.C.I. Agriculture (Malaysia) Sdn. Bhd.
P.O. Box 264, 50, Jalan Ampang, K.L.

b) Mr. Geoffrey Lenbruggen
General Manager
Malaysia Industrial Development Finance, K.L.

c) Mr. Hugh Hablet
Senior News Editor
Straits Times, K.L.

d) Mr. Victor Ngo
Assistant Accountant
First National City Bank, K.L.

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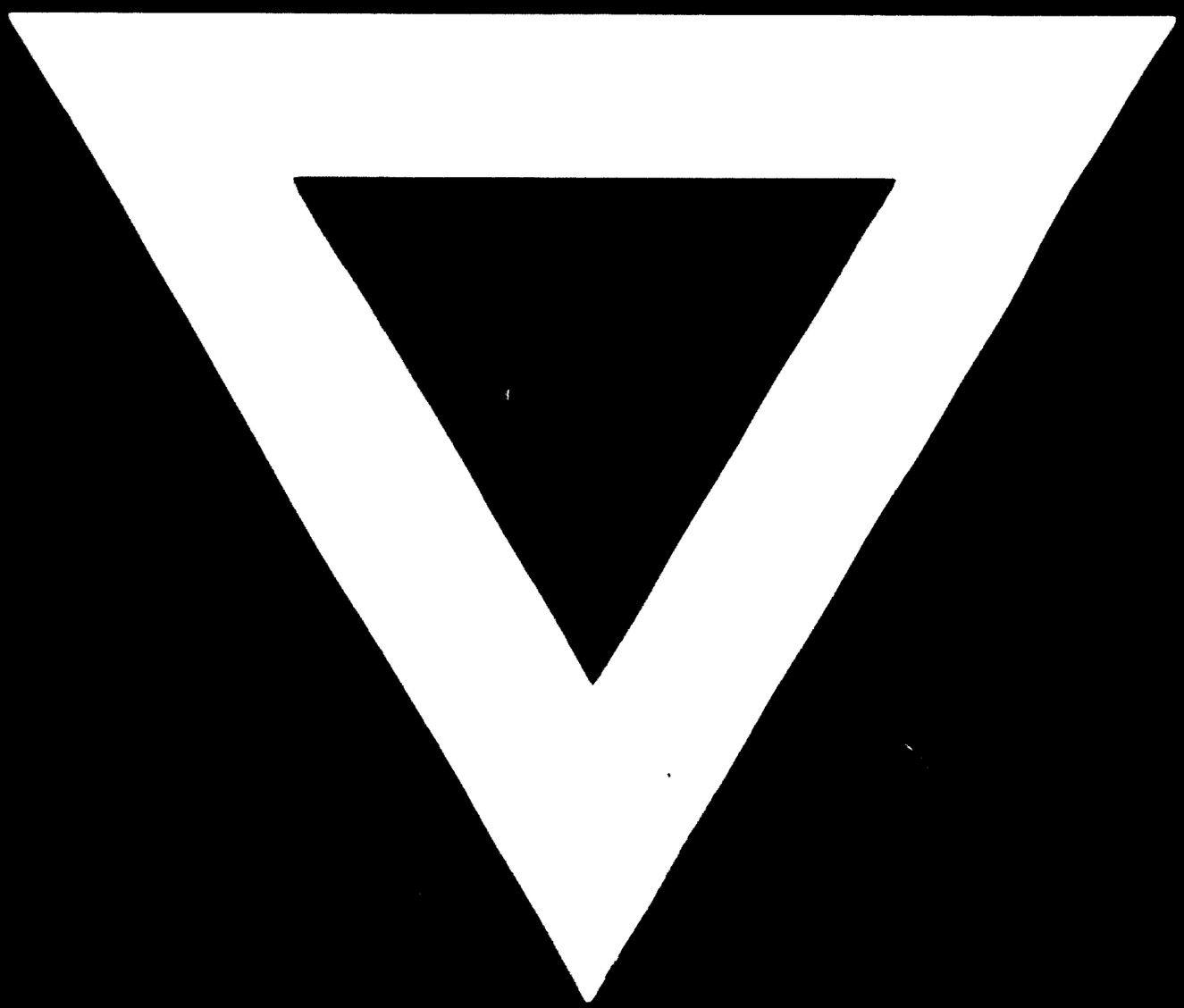

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