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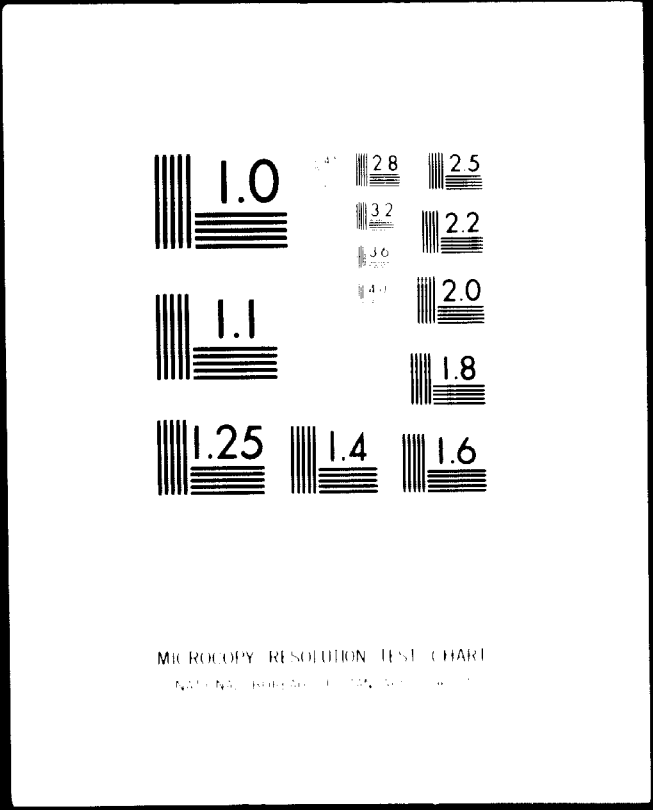
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COUNTRY STUDY REPORT

on the

STATUS OF AGRICULTURAL MACHINERY INDUSTRY

in

SINGAPORE

Information compiled
during
a fact finding survey.

UNIDO, Vienna
January 1969

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

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SUMMARY OF COUNTRY STUDY - SINGAPORE

A. Summary

1. Agricultural Pattern

- (a) Singapore is an island state with a total land area of about 224 square miles. The population distribution on the island is dense.
- (b) Only 21.6% of the total area is under cultivation and from the past five years, the area under cultivation is being reduced to make available the land for industrial development.
- (c) Farms are usually small and government is encouraging intensive farming, especially vegetable, fruit and orchid farming.

2. Pattern of farm mechanization

Singapore Domestic Market offers a very limited scope for farm machinery in general. There is no scope for significant demand for tractors, power tillers, diesel engines, etc. However, there will be a limited demand for hand sprayers, hand tools and a limited number of power sprayers.

3. Manufacturing Industries and Ancillary Facilities

Although a few schemes have been or are being studied, no plant is at present interested in manufacturing farm machinery. Steel is available from the international market at competitive prices and there are good facilities for castings of small and big size. Good facilities also exist for training of skilled workers and technicians.

4. Policy Towards Industrialization

The Government is giving substantial incentives for development of industry - emphasising upon the unique situation of Singapore. The economic policy of the Government is of "free enterprise" and is being liberal towards foreign investors. There is availability of finance through the Development Bank of Singapore and other sources on liberal and attractive terms. The economic trend and policies are favourable for investment.

B. Conclusions

1. Singapore has no sufficient market for agricultural machinery.
2. Because of the strategic location of the country, deep port facilities, availability of raw material through imports, Singapore offers a good scope for further investigation by manufactures in context with commanding a wider market.

/SECTION I

SECTION 1

GENERAL FEATURES OF AGRICULTURE

I. Land Utilization and Crops

Singapore has total 58,100 h.a. of geographical area out of which 12,600 h.a. or 21.6% are under cultivation. There is no irrigated paddy area. There are approximately 25,000 farms engaged in primary production, viz, animal husbandry, fishery and vegetable farming. The following table gives the area of major crops.

Table 1

Area Under Major Crops (1967)

<u>Crops</u>	<u>Area</u> (000 ha)	<u>% of total area</u>
1. Rubber	4.9	39.3
2. Coconut	2.7	21.4
3. Fruits	1.8	14.5
4. Mixed vegetable	2.9	23.1
5. Tobacco	0.3	1.7
	<u>12.6</u>	<u>100.0</u>

Rubber: The average under rubber which was 14,142 areas in 1960 decreased to 12,192 in 1965. About 52% of this area is estimated to be under estate holdings - above 100 acre in size - and the balance is under small holdings. The production of rubber in 1965 was estimated to be 1,500 tons.

Coconut: The area which was 2,880 ha in 1960 has decreased to 4,900 ha in 1965.

Vegetables: The total area which was about 3,124 ha in 1960 has decreased to 2,984 ha in 1965. Total production in 1965 was 40,950 tons.

/Tobacco

Tobacco: The area which was 297 ha in 1960 has increased to 329 ha in 1965. Total production in 1965 was 498 tons.

Flowers: The orchid cultivation has been expanded and intensified.

Orchids: The export value of orchids (except to Malaya) has increased from S.\$193,383 in 1960 to S.\$383,291 in 1965.

Apart from the above, raising of aquenium fish is also one of the important farm business, and poultry farming, mushroom too.

Average size of holding is about 0.6 ha and total production value of all items is about S.\$ 250 dollars per year. 100% rice and 50% vegetable requirement are imported.

The following table gives yield per ha and farm harvest price in 1967.

<u>Crop</u>	<u>Yield per h.a.</u>	<u>Farm Harvest Price</u> (S.\$)
Vegetables	13.83 long ton	170.0/long ton
Fruits	2.03 long ton	N A
Tobacco	2.02 long ton	2.604/long ton
Rubber	0.3 long ton	806.4/long ton
Coconut	4055 nvt	0.12/nvt

Total estimated population is 1955.6 thousand in 1967. There are approximately 25,000 farms engaged in primary production. Average size of family is 7. There are no draft animals. No census of agricultural machinery has been taken. Total number of agricultural tractors registered is 111 in 1967 which includes those which are not used for primary production and used for demonstration purposes only. There are demonstration machinery such as tractors, power tillers, sprayers etc. on government demonstration farms.

2. Primary Production Department

It consists of Agricultural, Co-operative, Fisheries, Rural Development

/and

and Reterritary Divisions and coordinates all aspects of agriculture.

- (a) Tractor Service: The division operates a tractor service to plow land for farmers at the rate of S.S 40 per acre. There are 4 operating centres with one tractor of 65 Hp in each center, each headed by an Assistant Rural Development Officer.
- (b) Plant Protection Service: The spraying team assists and demonstrates effective usage of plant protection chemicals and sprayers. There are 10 extension centers. The spraying of poisonous insecticides is undertaken by the department and other spraying is the full amount subsidised.
- (c) Farmers Training:
 - (i) Central Research Station (Santawing) apart from research, the station runs a farm youth training school which includes a curriculum of 1 year with respect to usage of farm machinery.
 - (ii) Demonstration farm (Lim Chau Kang): It has a full set of farm machinery and conducts monthly tour of farmers for demonstration.
- (d) Community Centres: There are 190 community centres or peoples associations, out of which 10 are used as extension centres by Rural Development Division, 13 of them have primary production services, which include assistance and extension in all aspects of production.
- (e) Extension: Rural Development Division undertakes all extension work through publications, broadcasts, film shows, schools and training programme etc.

- (f) Cooperatives: Although there are 180 cooperative societies, more than 70% are urban cooperatives.

3. Existing Pattern of Farm Mechanization

Although agriculture is intensified usage of machinery is limited. Hand operated sprayers, pumps, small diesel engines, knapsack sprayers are used on small farms and tractors, power tillers, sprinkler irrigation units, seed processing equipment are used on government demonstration farms.

From these observations, it appears that Singapore offers limited scope for domestic market for farm machinery. There may be a small market for hand tools, hand sprayers, pumps, diesel engines and knapsack sprayers.

Singapore is mainly acting as a distribution center for all products including agricultural machinery. The import and export statistics since 1963 for agricultural machinery have even shown in appendix A. In cases where export exceeds imports, the reasons are:

- (i) Army surplus is being exported as second hand used machinery.
- (ii) New machineries are imported for re-export with tenders commission.

There are no existing industry manufacturing agricultural machinery.

/SECTION II

SECTION II

DEVELOPMENT OF ENGINEERING INDUSTRY

1. General Trend in Engineering Industry

Singapore which was traditionally import-export orientated is being stepped into engineering manufacturing program. To-day there appears to be basic primary and secondary structure for engineering service. Fair success in consumer goods manufacture has been achieved and now emphasis is laid on engineering, electronics, metal fabrication and extending engineering such as parts storage, repair and services of ships etc. to neighbouring countries. The domestic market for engineering goods is almost negligible. Hence it has become necessary to seek a wider market.

2. Farm Equipment and Allied Industries

In the field of farm machinery or allied industries the following organizations are operating or may operate in Singapore:

1. Caterpillar Far East Ltd. (Jalan Boonlay, Jurong Industrial Estate, Singapore).

Parts replacement depot was started on a 14 acre plot in 1967 with 100,000 sq. feet of warehouse and 20,000 sq. feet office area. To-day the depot stood more than 75,000 to 80,000 caterpillar components to 15 dealers with 25-30 outlet points from India to South Korea. 98% of components are obtained from Peoria, Illinois in container system of shipping. The depot receives 30-40 orders per day and distributes 1,500-2,000 components daily. All recording operation is conducted through ILM 1401 computers.

2. Allis Chalmers.

In collaboration with a local organization - Southeast Asia Tractors Ltd. 41, 6th Avenue, Singapore-5, an assembly plant for certain earthmoving equipment is expected to be started.

3. Asia Tractor Spares Ltd.

This company is currently manufacturing certain spare parts, components for well-known makers of earthmoving machinery.

4. Small Tractor or Pump Manufacture.

A foreign company has shown interest in this project. No details are yet available.

5. 5-100 Hp Marine Diesel Engine.

Discussions are being held with foreign country regarding its manufacture.

6. Farm Equipment Line.

Two companies have shown interest in manufacture.

7. There are area headquarters of many farm machinery firms are operating from Singapore.

8. Fertilizer Industry.

No manufacturing activity is undertaken. But due to availability of port facilities, fertilizer is imported through large carriers and re-exported to other countries in smaller volume.

9. Steel Industry.

There is a steel plant manufacturing mild steel, billets and bars for construction purpose.

3. Raw Material Resources

There are about 40 foundries for casting grey cast iron. There is a foundry for producing steel and alloy steel castings. No facilities are available for heavy forging and mass productions. Machinings and tools & dies facilities available are of fairly high standard. All machine tools, primary iron and steel are being imported.

4. Economic Development Board

Economic Development board of Singapore coordinates all activities with respect to Economic development and industrialization. It has a close liaison with Development bank of Singapore and other financial institution on one hand and government development on the other. It also operates Engineering Industries Development Agency which trains technicians on one hand and provides technical consultancy services on the other.

5. Engineering Industries Development Agency.

This is responsible for all training in precision engineering, tool manufacture and provides engineering consultancy service. The six major sections are:

- (i) Metal Industries Development Centre (MIDC)
 - for tool and die engineering with UN assistance
- (ii) Prototype Production Training Centre (PPTC)
 - with Japanese Assistance
- (iii) Precision Engineering Development Centre (PEDC)
 - with British Assistance

/(iv)

(iv) Electro Mechanical Training Centre (EMTC)

- with French Assistance

(v) Wood Working Industries Centre (WITC)

- with UN Assistance

(vi) Electro Chemical Engineering Centre (ECEC)

- with UN Assistance

The agency has professional staff of about 30 and total strength including trainees is about 600. There are 19 foreign experts. The total budget is S.\$ 10 million towards capital goods and services of experts. The running expenditure is met by the government. It is expected to train 600 trainees a year in the near future.

The Prototype Production Training Center concentrates on tool and die making, foundry, design, machine shop, heat treatment, electro plating etc. Apart from the regular training programme, the agency primarily has two types of training courses:-

- (i) Industrial Upgrading Course - Primarily for industrial workers who has sufficient experience, but may lack further job knowledge.
- (ii) Industry New Entry Course - For those who will join the industry.

The period courses may vary from 2 weeks for electro plating to 1 year in design. It is expected to train about 1,000 trainees in 1969 under this scheme.

The agency offers allowance assistance of S.\$ 75 per month per trainee for a period not exceeding 1 year if the trainee has 10 years of school education.

/After

After training, when the trainee is released to industry, the industry will pay 50% of the cost of training to the agency. Such trainees normally will command U.S. \$ 6-8 per day in industry.

6. Wage Structure

1. Average wage per working day of 8 hours for skilled workers is between U.S.\$1.60 - 2.00 and semi-skilled up to U.S.\$1.20 and UN skilled workers U.S.\$0.90 per day. The starting salary of fresh engineering graduate is between U.S.\$275 and 325. For fresh clerk, the salary is about U.S.\$80 and for experienced clerk, salary is U.S.\$135.
2. The fringe benefits including bonus are generally 25% of basic wage.
3. It is stated that wage increase in next 5 years is expected to be relatively small because of:
 - (i) relatively stable price level - consumer
 - (ii) price index increased 2.8% during the 3 year interval from December 1963 to December 1966.

/SECTION III

SECTION III

POLICY TOWARDS INDUSTRIALIZATION

1. Policy Towards Manufacturing Industries

Today there is no existing industry manufacturing agricultural machinery. In order to promote manufacturing activities in general, many industrial estates have been planned and Jurong Industrial Estate is one of the largest. Textile, electronics, sports goods, fabrication and other engineering industries have already functioning in these estates. Regarding policies towards manufacture of agricultural machinery, the government, in general, places emphasis in promoting new industries with mechanical engineering bias. The government is prepared to render the following incentives and assistance for setting up of an agricultural machinery industry viz:

- (i) Tax holiday up to a maximum period of 5 years.
- (ii) Export incentive where only a 4% tax is payable on profit accrued through export for a period of 15 years.
- (iii) Services in promoting export rendered by Government Export Promotion Centre.
- (iv) Liberal loan for purchase of plant and machinery.
- (v) Equity participation by the government.
- (vi) Pre-education training of skilled workers and technicians by the government.

There is no fixed allocation of budget to the industrial sector during the development period. However, the government is flexible in meeting the requirement as circumstances demand.

2. Incentives for Investment

1. Singapore adopts a policy of free enterprise with no discrimination between foreign and local manufacturing. The foreign investor can have up to 100% or majority shares, and no special approval for establishing manufacturing is not necessary except with respect to a less than dozen industries under the control of manufacturer ordinance act, or if the manufacturing company applies for pioneer status.

2. There is no corporate tax as such. The present company tax is a withholding tax against dividends.

3. Pioneer industries are completely exempted from company tax for a period up to five years. There are other tax benefits regards investment of profits from approved expansion productive capacity, depreciation of capital equipments, interest paid to overseas companies, income from royalties, etc.

4. There are attractive facilities for loans for building, equipment and working capital through Development Bank of Singapore and Economic Development Board.

5. There are attractive export incentives and easy terms for import of goods and components.

6. There is no corporate tax.

7. There is provision for full repatriation of foreign capital and remittance of profits from foreign investors.

8. There are 12 industrial estates prepared by the government with attractive terms regarding land up, building, continuous low cost electricity and water and other facilities etc.

3. Industrial Financing

Development Bank of Singapore plays a significant role in assisting the establishment of industries. The following are some of the general broad facilities available:

a) Long term loans

- (i) Investors, foreign or local who invest in manufacturing industries in Singapore may secure loans from the Bank up to 50% of the cost of machinery and equipment and 70% of the value of the factory building. The payback period on equipment is 3-10 years and on building up to 15 years with a rate of interest from 7 to 8% per year. The Bank may also participate in the equity capital participation from 10-30%. Normally the Bank would like to restrict its overall commitment to 50% of share capital, including loans on equipment, building and equity participation.
- (ii) Towards working capital, based on current assets, a liberal loan may be obtained on a revolving credit basis on a rate of interest of 9-9½%.
- (iii) There are facilities for banking to finance the working capital at the interest rate of 7-7½% from Commercial Banks.

b) Short term loans

These are mainly aimed at encouraging industries in the 12 industrial estates.

- (a) Ready built factories are sold or rented to the industries. Loans up to 80% may be obtained at a rate of interest of

7-8½%

8-1/2% for a period of 4 years and over respectively.

- (b) Developed lands with roads, electricity and water may be taken on lease up to a period of 60 years - first lease of 30 years - and 30 years on water front areas. The rental value is normally 6% of the value of the land. The land value now varies from S.\$1.00 - S.\$1.20 per square feet. Cost of constructing a modern reinforced concret factory building - as stated - varies from US\$2.00 to US\$3.00 per square feet.

- (c) Low cost continiors supply of electricity is available.

The Development Bank of Singapore has a paid up capital of S\$100 million, and loans from Government, lines of credit of S\$130 million at an interst rate of 4%. 49% of capital is from the government and the balance from Commercial Banks, insurance and members of public.

4. Economic Outlook

With a capital income of US\$500 and a rate of growth of G.N.P. which is - as stated - faster than the world average, with a wide export market of some 350 million people in Southeast Asia, - it is stated - that Singapore aims at becoming in the next 10 years, the major manufacturing, assembling, servicing and distribution centre in this area. It also aims - as stated - in exploring the possibilities of working out some form of regional economic co-operation in this area. Singapore being one of the members of ASEAN (Association of Southeast Asian Nations), - it is stated - that Singapore aims at exploring the possibilities of becoming the centre of commercial and manufacturing centre if some form of economic co-operation among these Asian countries

/materialize

materialize, and also other neighbouring countries.

APPENDIX A

APPENDIX A

REFERENCE - LITERATURE

1. Review of the Primary Production Department 1960-1965.
Republic of Singapore 1967
2. Farm School - Primary Production Department, Ministry
of National Development, Singapore
3. Following Publications of Economic Development Board
 - a) What Singapore offers the investor
 - b) The Jurong Story
 - c) Asian Manufacturing Site outline - Singapore
4. Report on Singapore - Asian Industry August 1967, (6, Duddell
Street Hongkong).

APPENDIX B

PERSONS AND ORGANIZATION VISITED

1. Economic Development Board, 2 Floor, Fullerton Building, Singapore.
 - (a) Mr. I.F. Tang, Director
 - (b) Mr. Man Shoung Fun, Projects Division (Counterpart)
 - (c) Mr. Chan V. Seek, Member-Board of Directors, EDB.
 - (d) Mr. Cheng Hong Kok, Chief, Projects Division
2. Primary Production Development, Ministry of National Development
 - (a) Mr. Ching Tong Fatt, Director
 - (b) Mr. Lim Chin Teong, In-charge, Rural Development Division.
3. Development Bank of Singapore, Fullerton Building, Singapore
 - (a) Mr. S. Dharmabalan, Deputy Director, Operations & Finance
4. Massey-Ferguson (Export) Ltd. Far East Regional Office, 411, Shaw House, Orchard Road, Singapore-9
 - (a) Mr. Noel G. Clarke, Manager
 - (b) Mr. A.G. Handle, Crop Mechanization Specialist
 - (c) Mr. F.A. Mills, Area Sales Manager
5. Engineering Industries Development Agency (Economic Development Board), 179 River Valley Road, Singapore-6,
 - (a) Mr. Lee Ying Cheun, Light Industries Division.
6. Southeast Asia Tractors Ltd. 41, 6th Avenue, Singapore
 - (a) Mr. James, Manager
 - (b) Mr. Taylor, L.W. - Training Officer
 - (c) Mr. Ban Lian Chye, Asst. Tech. Manager
7. Paragon Limited, 33, Balmoral Road, Singapore-10,
 - (a) Mr. Fred, C. Van Nugterow, Chairman and Managing Director

8. Caterpillar Far East Limited, Jalan Boon Lay, Jurong Industrial Estate, Singapore - 22.

(a) Mr. D.J. Kalher

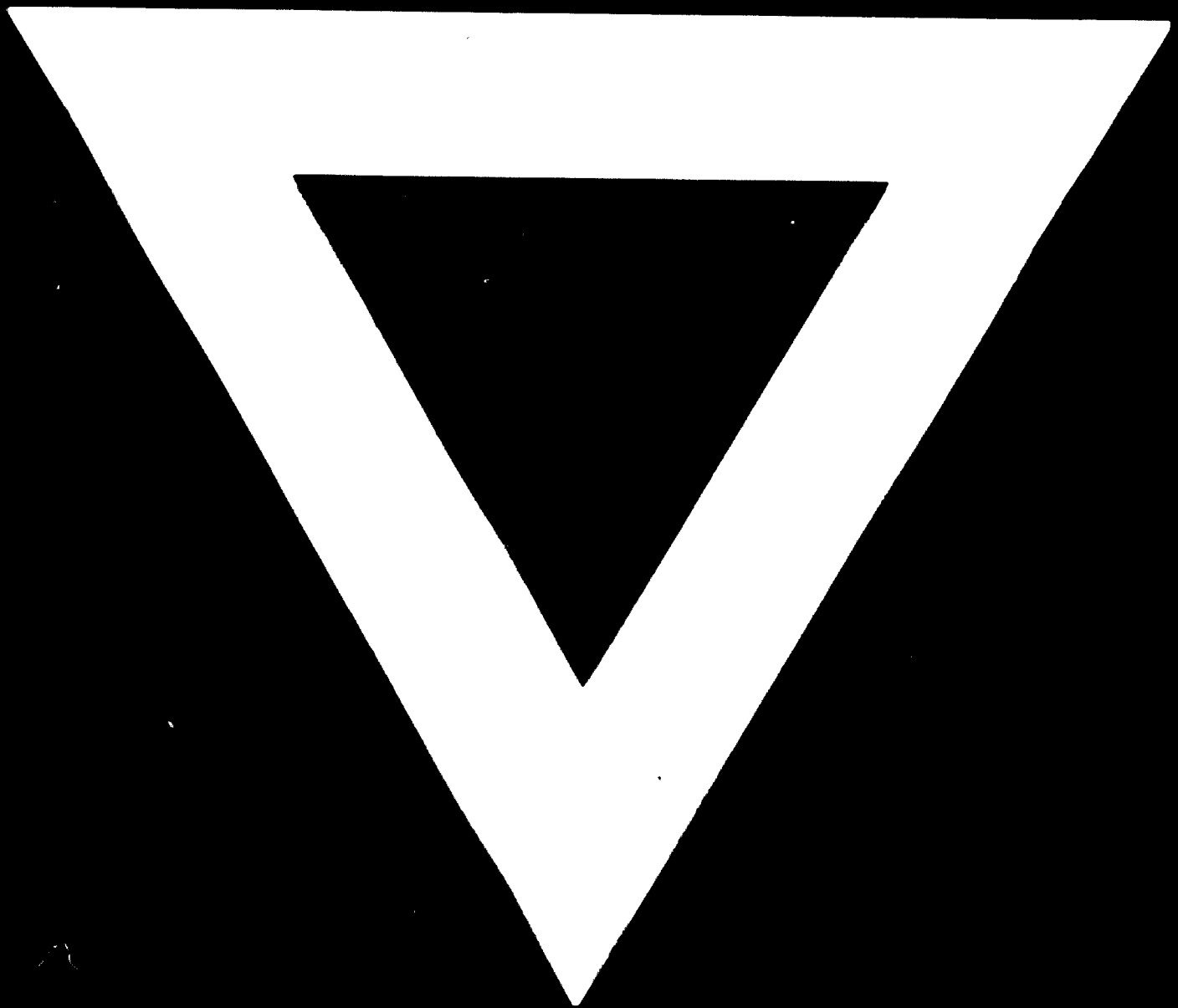
9. International Harvester Export Company, P.O. Box 1175 Singapore.

(a) Mr. Melville Iffla, Manager Distribution Relations, Pacific Area.

/APPENDIX C



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