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Meeting of Experts/Decision Makers for Promotion
and Development of Machine Tool Industries in
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Tbilisi, Georgia, USSR, 5 - 15 October 1974

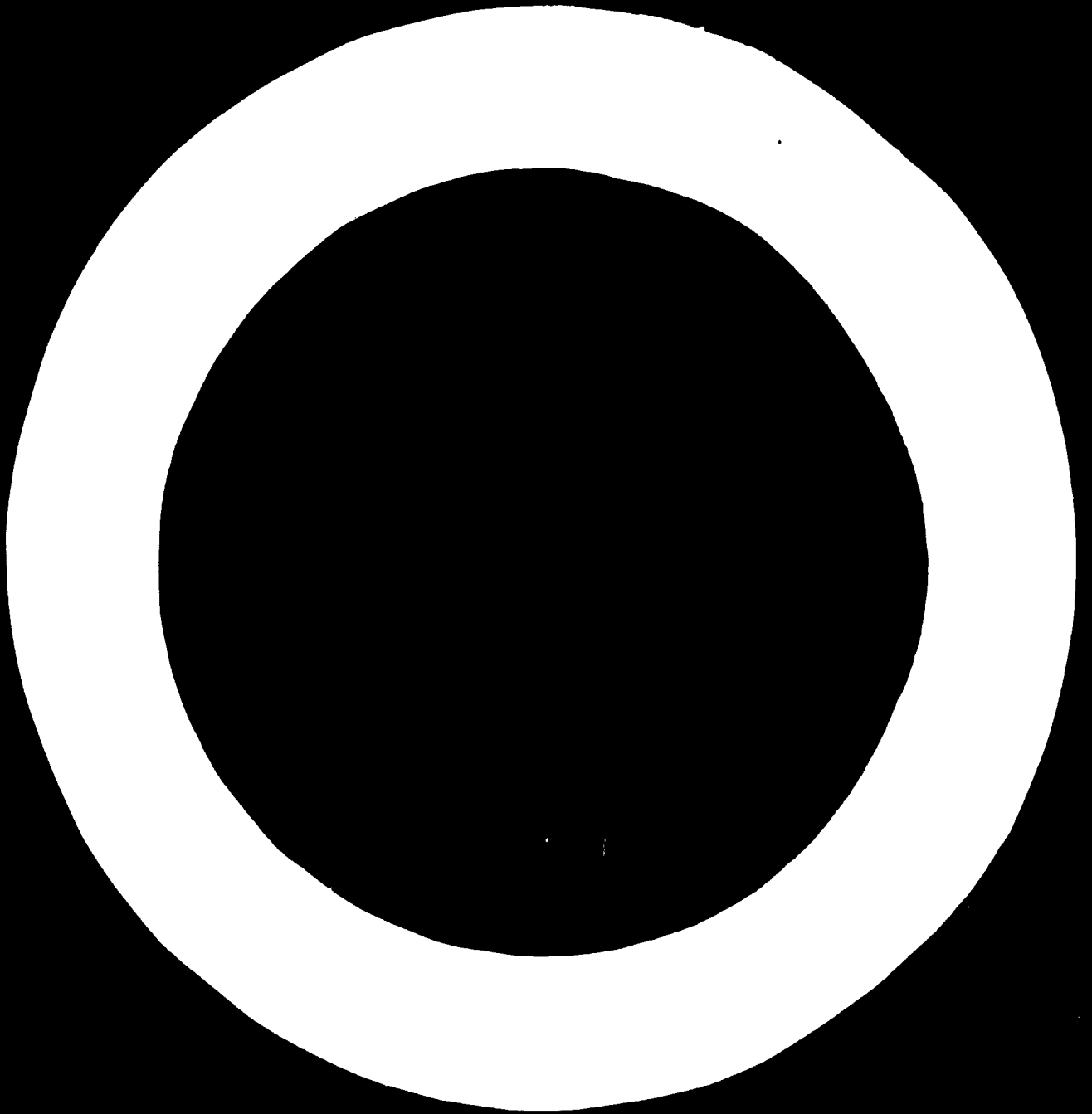
COUNTRY STUDY REPORT ON THE MACHINE TOOL INDUSTRY
IN SINGAPORE ^{1/}

by

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I INTRODUCTION

Located at the cross-roads of East-West trade routes, Singapore has developed into the premier financial, commercial, trading, shipping and distribution centre of SE Asia over the past 155 years.

In 1961, with the establishment of the Economic Development Board the Government launched an accelerated industrialisation programme aimed at broadening our economic base and improving the living standards of the working population. As a result of our traditional position as a major port, a wide range of supporting services such as ship-repair, engine overhaul and repair and manufacture of replacement parts for the marine and mining industries in the region had developed by the late 1950's. Other industrial activities then included general metal fabrication, food and beverage processing, garment and apparel manufacturing, timber processing and printing.

To support the industrialisation programme, high priority has been given, and continues to be given, to expanding the necessary infrastructure - communications and transport facilities, public utilities and industrial estates. The educational system was modernised and expanded to provide a strong orientation towards the teaching of technical subjects. To ensure a steady supply of skilled and semi skilled manpower for industry, there are 11 vocational/technical institutes and 2 technical colleges, with an output of over 6, 100 graduates a year.

In addition, maximum attention has been devoted to the expansion of social facilities, including the provision of quality low-cost public housing (currently catering for over 50% of the population) and heavily-subsidized medical and dental services. To provide a just sharing of the fruits of economic growth, a National Wages Council was established in early 1972 with high level representation from the trade union movement, employers' organisations and relevant Government departments with the objective of ensuring an orderly growth of incomes.

As the domestic market is not large, the Singapore Government has always emphasised export-orientation in her economic activities, manufacturing competitively for world markets. Reputable international companies with established export market overseas, a capacity for transferring technology and technical skills and an ability to install efficient business organisation method as well as managerial and financial expertise are welcome to participate in our programme.

Appendices I, II and III reflect the industrial development over the last 14 years. The manufacturing sector now constitutes over 26.2% of our Gross Domestic Product compared to 9.2% in 1960 (See Appendix IV).

II PRESENT STATUS OF MACHINE TOOLS IN SINGAPORE

Appendix V shows the value of machine tools imported into Singapore over the past 14 years. It is estimated that over 90% of the existing machine tools in Singapore are less than 10 years old, while over 60% are less than 5 years old. This reflects the rapid development of the metal working industry over the last half decade.

In line with the Government's encouragement to enhance operational efficiency, some companies have introduced highly sophisticated automated or semi-automated equipment as well as numerically-controlled machine tools into their manufacturing systems.

III DEVELOPMENT OF METALWORKING INDUSTRY IN SINGAPORE

There are to date over 460 metalworking companies engaging 10 or more workers in Singapore compared to only 127 in 1960, while the number of workers involved have increased from 5,913 to 48,019. The industrial activities include ship-repairing and building, oil-rig building, manufacture of instruments like surveying levels and cameras, industrial components such as roller chains, precision tooling, bearings etc, consumer equipment and components such as electric typewriters, refrigerator compressors, high quality cutlery and industrial machinery and machine tools.

In the machine tool sector, 3 factories are already in production, while a further 9 companies are in various stages of establishment. The dozen machine tool facilities will involve over US\$25 million in equipment and factory building. The products manufactured will include surface and cylindrical grinders, radial and sensitive drills, milling machines, various types of lathes as well as machine tool accessories. A list of some of the machine tool companies is at Appendix VI.

IV SUPPORTING INDUSTRIES

Recognising that good supporting industries are extremely vital to the development of modern, sophisticated manufacturing enterprises, the Government has given every priority and emphasis to their development and expansion. The growth of export-oriented industries has given great impetus to the modernisation and progress of key supporting industries such as foundries, heat treatment, and plating facilities, precision tool making as well as precision component manufacture.

VI COOPERATION AND TECHNICAL ASSISTANCE REQUIRED

As the machine tool facilities in Singapore are either wholly owned subsidiaries of reputable foreign manufacturers or joint ventures between local and such foreign firms, the markets, latest manufacturing processes and other relevant technical knowhow are freely available to the local subsidiary companies.

The successful development and growth of the machine tool industry therefore depends on the skill level of labour as well as the degree of development of local supporting industries.

The Singapore Government will welcome offers from CECIMO or any other machine tool organisations for scholarships to train tradesmen and skilled workmen in machine building through formal apprenticeship courses.

NUMBER OF ESTABLISHMENTS IN MANUFACTURING BY INDUSTRY GROUP
(ESTABLISHMENTS ENGAGING 10 OR MORE WORKERS)

Year	1960	1971	1972	1973
Total Manufacturing	548	1,813	1,931	2,061
Food, Beverages & Tobacco	135	254	257	264
Textiles, Garments & Footwear	33	270	294	320
Timber & Paper Products & Printing Industry	162	433	458	481
Leather, Rubber, Chemical, Petroleum, Plastic & Non-Metallic Mineral Products	58	284	312	331
Electrical & Electronic Products	13	79	94	106
Metalworking Industries	127	388	413	452
Other Manufacturing Industries	20	105	103	107

NUMBER OF WORKERS IN MANUFACTURING BY INDUSTRY GROUP
(ESTABLISHMENTS ENGAGING 10 OR MORE WORKERS)

Year	1960	1971	1972	1973
Total Manufacturing	27,416	140,552	170,352	190,789
Food, Beverage & Tobacco	6,296	13,073	13,552	13,813
Textiles, Garments & Footwear	1,302	24,430	32,928	36,436
Timber, Paper Products & Printing Industry	7,443	22,888	24,986	25,979
Leather, Rubber, Chemical, Petroleum, Plastic & Non-Metallic Mineral Products	4,688	16,422	17,870	19,511
Electrical & Electronic Products	1,252	18,749	31,483	40,843
Metalworking Industries	5,913	37,101	42,470	48,019
Other Manufacturing Industries	522	7,889	7,063	6,188

VALUE OF OUTPUT BY INDUSTRY GROUP (ESTABLISHMENTS ENGAGING 10 OR MORE WORKERS)

(S\$ million)*

Year	1960	1971	1972	1973
Total Manufacturing	465.5	4,699.2	5,722.2	7,244.0
Food, Beverage & Tobacco	153.6	741.7	728.0	922.1
Textiles, Garments & Footwear	15.2	274.8	425.5	626.8
Timber & Paper Products & Printing Industry	87.4	390.3	493.8	666.1
Leather, Rubber, Chemical, Petroleum, Plastic & Non Metallic Mineral Products	99.0	1,920.9	2,120.0	2,422.8
Electrical & Electronic Products	17.1	400.9	740.8	1,131.9
Metalworking Industries	83.8	845.1	1,090.5	1,291.7
Other Manufacturing Industries	9.4	125.5	123.6	162.6

* At current market rates, US\$1 = S\$2.50 approximately

GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN
(AT CURRENT PRICES)

(S\$ million)

Economic Sector	1960	1971	1972	1973
Gross Domestic Product at Factor Cost	2,046.0 (100%)	6,480.4 (100%)	7,454.9 (100%)	9,092.8 (100%)
<u>Goods Sector</u>	353.3 (17.3%)	2,020.5 (31.2%)	2,599.5 (34.9%)	3,237.9 (35.6%)
Agriculture & Fishing	124.0 (6.1%)	186.1 (2.9%)	203.3 (2.7%)	244.9 (2.7%)
Manufacturing	187.4 (9.2%)	1,429.7 (22.1%)	1,877.2 (24.6%)	2,378.8 (26.2%)
Construction	41.9 (2.0%)	404.7 (6.2%)	563.0 (7.6%)	614.2 (6.7%)
<u>Services Sector</u>	1,692.7 (82.7%)	4,459.9 (68.8%)	4,855.4 (65.1%)	5,854.9 (64.4%)
Utilities	47.3 (2.3%)	151.9 (2.3%)	171.8 (2.3%)	195.5 (2.2%)
Trade	650.1 (31.8%)	1,848 (28.5%)	1,960.6 (26.3%)	2,466.4 (27.1%)
Ownership of Dwellings	92.6 (4.5%)	275.6 (4.3%)	343.2 (4.6%)	411.4 (4.5%)
Government Services	106.6 (5.2%)	443.6 (6.8%)	473.5 (6.3%)	559.7 (6.2%)
Other Services	796.1 (38.9%)	1,740.4 (26.9%)	1,906.3 (25.6%)	2,221.9 (24.4%)

IMPORT DATA FOR MACHINE TOOLS

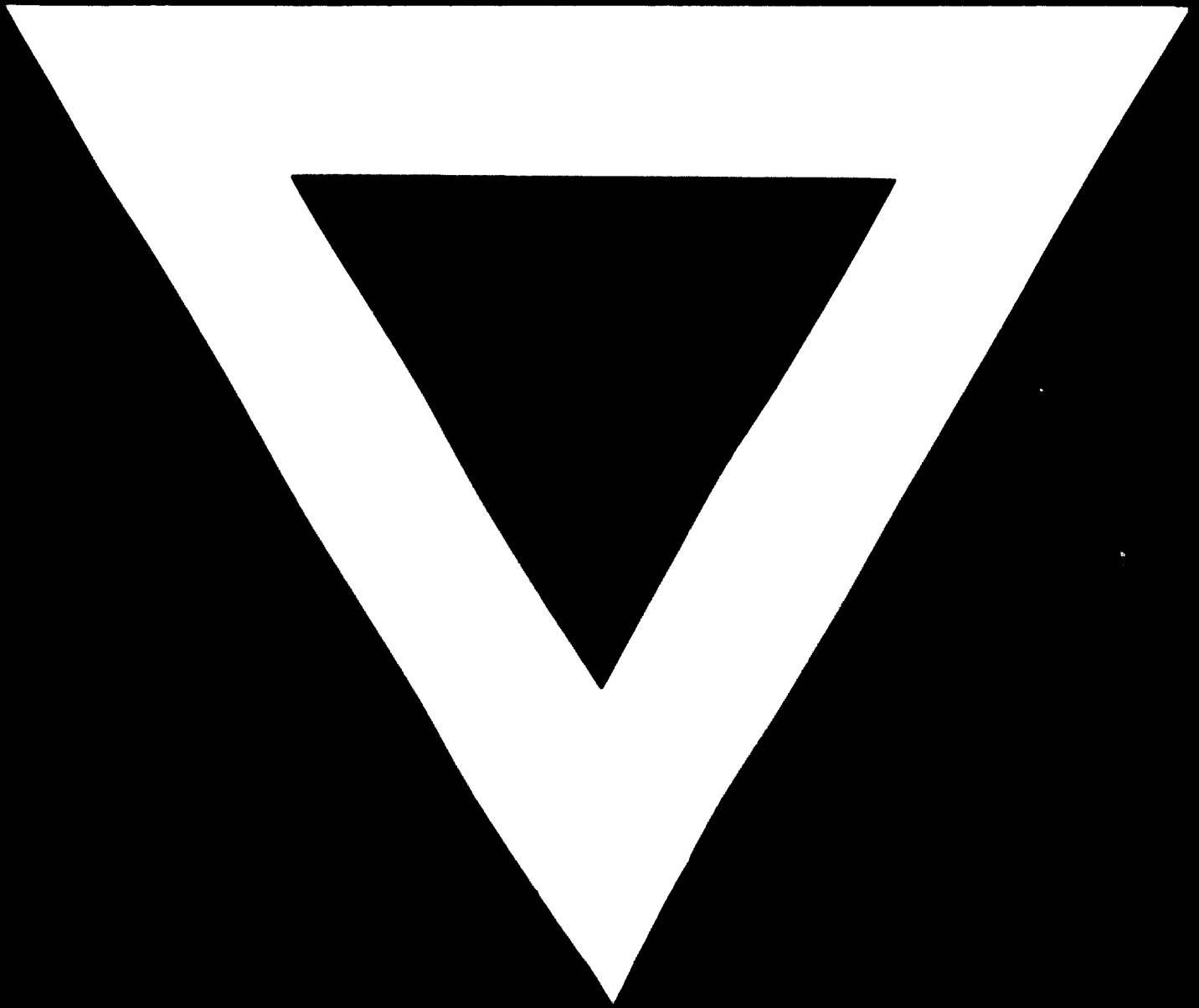
(S\$)

Year	Import Value
1960	411,148
1961	575,594
1962	2,380,707
1963	2,790,580
1964	4,855,612
1965	4,395,289
1966	5,143,971
1967	7,845,891
1968	9,188,775
1969	17,242,819
1970	33,121,540
1971	44,429,523
1972	56,608,160
1973	76,175,520
TOTAL	265,165,129

LIST OF MACHINE TOOL COMPANIES

- 1 LeBlond Pte Ltd
- 2 Pittler Asia Pte Ltd
- 3 Koyo Seiko Co
- 4 Hilgeland
- 5 Okamoto Machine Works
- 6 Philips Machine Factory





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