



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

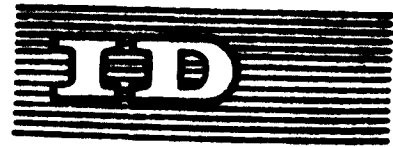
CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org



05684



Distr.
LIMITED

ID/WG.187/3
15 August 1974

ORIGINAL: ENGLISH

United Nations Industrial Development Organization

Meeting of Experts/Decision Makers for
Promotion and Development of Machine Tool
Industries in Developing Countries of Asia
and the Far East

Tbilisi, Georgia, USSR
5 - 15 October 1974

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

by

Abelardo D. Viray*

and

Raul M. Consunji**

* Chief Analyst, Machinery and Transportation Section, Fabrication Industries Department, Board of Investments, Pasig, Rizal, the Philippines.

** President, Machine Tools Manufacturing Company of the Philippines Incorporated, Manila, the Philippines.

^{1/} The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

PART I

POLICIES AND GENERAL ASPECTS

1. Status of Machine Tools in the Country

The machine tool industry in the Philippines is, compared to other industries, relatively a new one. There are about 1,500 metal working establishments, dispersed throughout the country, manufacturing various metal products, utilizing some 260,000 to 300,000 machine tools of all types. Almost all of these machine tools have been imported since domestic production is minimal. Exports are negligible.

The machine tools imported in the country are mostly the general-purpose types, such as engine lathes, universal milling machines, drill presses, shapers, grinders, power presses, etc. These are used by industrial firms for maintaining their machinery and equipment and by machine shops which are principally jobbers. Special types of machine tools such as automatic lathes, gear hobbers, etc. are utilized by a few industrial firms for the manufacture of metal products or parts.

One domestic company has been registered with the government for the manufacture of lathes. This company will produce 400 mm x 1,000 mm engine lathes with a volume of 106 units in the first year of operation, increasing to 1,900 units in the tenth year. The lathes will be manufactured under a progressive manufacturing programme. Domestic value added is estimated at 40% during the first year, increasing progressively to 60% in the second, and 80% in the third year. This company will likewise adhere to the horizontal manufacturing scheme, i.e., it will make use of components or parts which can be manufactured or procured locally.

Another local company, whose application for registration has been approved, will manufacture lathes and shapers. The lathes to be produced will have swings ranging from 305 to 457 mm and with 1,219 to 1,329 mm beds. The shapers to be manufactured will have ram strokes of from 406 to 160 mm. This firm will produce 240 lathes and 96 shapers in the first year of operation and it expects to turn out 1,320 lathes and 312 shapers by the tenth year. On the average, domestic value added on lathe manufacturing is about 50%; that on shaper manufacturing, 70%.

Like the first company mentioned, this firm will utilize components produced by other domestic companies.

A third company proposes to manufacture drill presses of various capacities to complement its other product lines. It will produce 76 units in the first year, increasing to 1,000 units in the fifth year of operation.

A fourth domestic company will have a joint venture with a foreign firm for the manufacture of lathes and vertical milling machines. Expected to be operational by the middle of 1975, approximately 50% of its production will be for export.

The bulk of the country's machine tool requirements, particularly those for special purposes like gear making, will have to be imported. The types of machine tools to be locally manufactured will meet only a portion of the domestic demand and therefore a substantial volume of general-purpose machine tools will still have to come from foreign sources.

There are a number of domestic companies with forging facilities. Recently, a well-known foreign firm has been registered with the Government for the manufacture of closed impression die steel forgings. To be established primarily to serve the forging needs of various automotive component manufacturers, the forging plant will likewise serve the requirements of other industries.

There are no facilities for the manufacture of ball and roller bearings. Thinwall automotive type engine bearings are, however, produced domestically on a commercial scale. Numerous jobbing shops are engaged in the rebarbitting or repair of journal bearings.

There are two firms manufacturing electric motors. One manufactures motors ranging from 1/3 to 30 hp, while the other is concentrating on general-purpose motors with hp ratings of from 1/3 to 3.

One domestic company turns out hand tools such as wrenches, spanners, pliers and screw drivers, while another produces metalworking files.

With the implementation of the country's Progressive Car Manufacturing Programme, component manufacturing has been given a big boost so that many who were engaged in mere jobbing work are now manufacturing components on a larger scale.

There are presently about 150 firms casting metals locally. These foundries are dispersed throughout the whole archipelago with an overwhelming concentration in the Greater Manila Area, where roughly 75% of the foundries are located. About 20 firms control 75% of the total foundry output. The other 25% of the total production is distributed among 121 firms. The

remaining nine are technical schools and Government agencies with minimal foundry operations. Most of the foundries are basically jobbers.

The manufacture of machine tools, specially lathes, shapers, and drill presses, is included in the Government's Investment Priorities Plan under "pioneer status".

The incentives available to "pioneer" industries are the following:

1. Tax exemption on imported capital equipment
 2. Tax credit on domestic capital equipment
 3. Tax credit for withholding tax on interest
 4. Exemption from all taxes under the Philippines' Internal Revenue Code (except income tax) on a gradually diminishing percentage
 5. Deduction from taxable income of organizational and preoperational expenses
 6. Deduction for expansion reinvestment
 7. Deduction of labor training expenses
 8. Accelerated depreciation
 9. Net operating loss carry-over
 10. Post-operative tariff protection
 11. Anti-dumping protection
 12. Employment of foreign nationals
 13. Protection from Government competition
 14. Priority in the allocation of foreign exchange
2. External Technical Assistance in the Development of the Machine Tool Industry in the Country.

The first local company mentioned has a licensing agreement with Hindustan Machine Tools Ltd. of India. HMT will make available to the local firm documents, drawings, information and its technical expertise. Also included in the agreement is the training of the local company's personnel in India.

The lathe and shaper project is a joint venture between the second domestic firm previously mentioned and Ta Shing Machine Works Ltd. of Taiwan, in which the local firm will contribute 60% of the equity and Ta Shing the balance.

3. Co-operation and Technical Assistance Needed^{1/}

Initially, arrangements can be made on a regional co-operation basis for an exchange of study teams in the machine tool industry. These arrangements can be expanded later for the training of personnel from less-developed countries in machine tool factories, preferably the newly established ones, of better developed countries. Workers would then gain well rounded experience in problems encountered in setting up and operating machine tool plants.

^{1/} Details of the technical assistance required by the Philippines from UNIDO will follow.

PART II

TECHNICAL ASPECTS

1. Problems in the Development and Utilization of Machine Tools

As the machine tool industry in the Philippines has only seen its origin in recent years, it has not had much experience to fall back on. The founding of this industry, therefore, relies much on foreign technological collaboration in terms of designs and manufacturing techniques.

Through this set-up, time is gained in learning what is essential to the industry. Adaptation to local conditions can be possible only if the industry is already existing. The latter is a pre-requisite to the former.

In this case it shall depend on co-operation and adaptability of both the foreign and host company.

As local manpower skills are geared to piecemeal production, reform in this light is necessary in order to achieve proper utilization of factors of productivity. Cultural and social studies should also be made so that adaptation difficulties are minimized for the foreign company. Time is often lost due to cultural and language differences.

Basically, the development of business organization, quality control and testing techniques as such will take the pattern of the foreign company's usual standards, modified and adopted to suit the host company's requirements.

The under utilization of existing machinery is the cause of the delay of the machine tool industry's implementation. This is due to many reasons - namely, proper tooling and maintenance for one is neglected or not appreciated existing machinery is, needless to say, outdated, and the lack of comprehensive knowledge on the part of the capitalist on what the machine tool industry is all about.

2. Consideration for Introduction of Numerically Controlled Machine Tools in the Country.

The introduction of numerically controlled machine tools and concepts is of recent innovation in the Philippines. However, as capital outlay is often balanced against productivity alongside low cost of labor, reliability in maintenance and service, the idea has not caught on overwhelmingly. A few companies are at the trial stage with their NC machines at present - we will have much to learn from them. Maintenance personnel training, we understand, is rather difficult and high initial capital equipment make most entrepreneurs hesitate to invest on them.

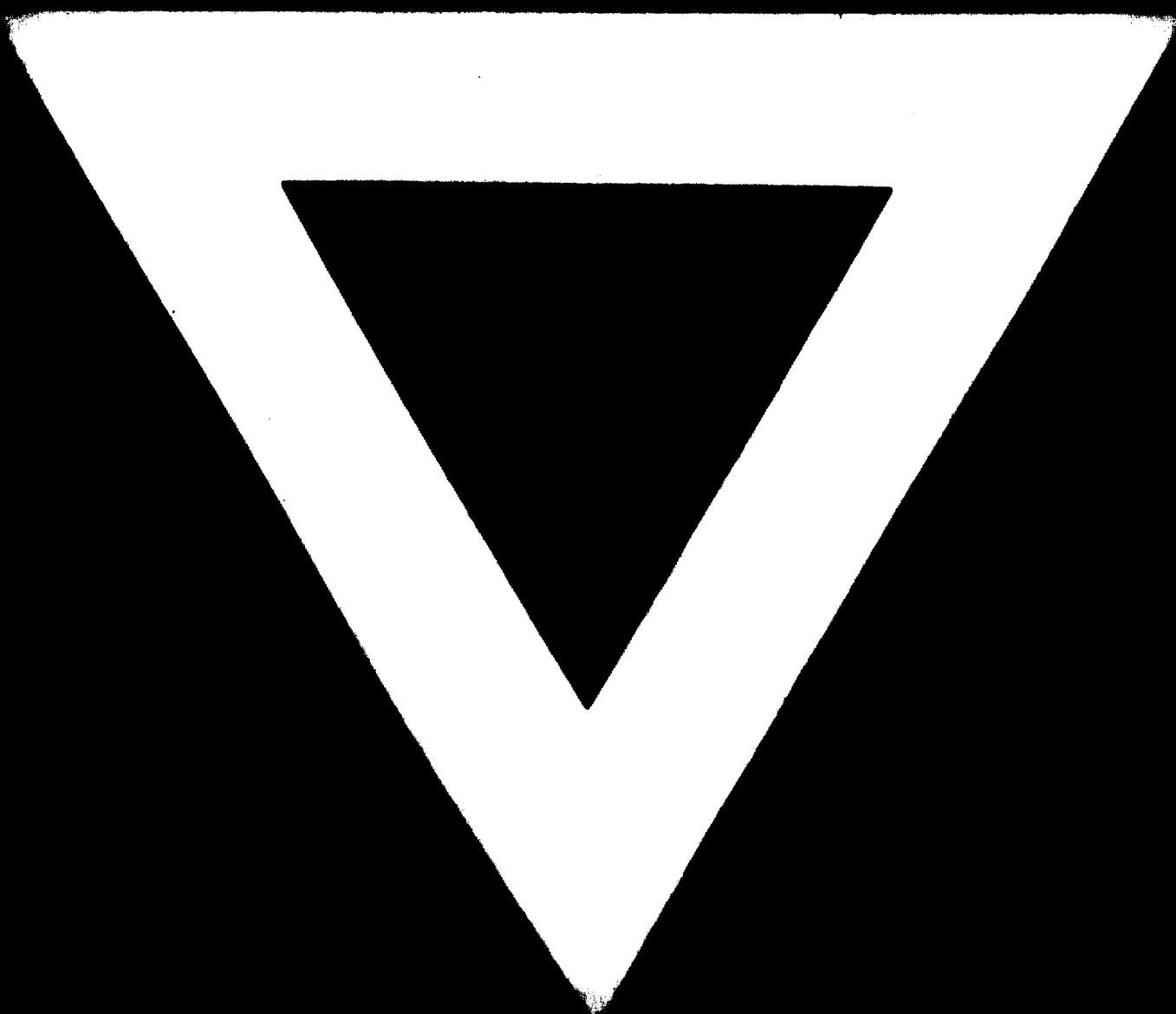
Country PHILIPPINES

STATUS OF MACHINE TOOLS

Machine Tools*

| <u>Years</u> | <u>Number of Machine tools produced</u> | <u>Number of Machine tools imported</u> | <u>Number of Machine tools exported</u> | <u>Stock of Machine tools</u> | <u>Demand</u> |
|----------------------------------|---|---|---|-------------------------------|---------------|
| 1970 | - | 7,956 | - | - | - |
| 1975 | 1,400 | 10,400 | 90 | 190 | |
| 1985 | 7,220 | 15,600 | 490 | 890 | |
| <u>A. Milling Machine Tools</u> | | | | | |
| 1970 | - | 320 | - | - | |
| 1975 | - | 730 | - | - | |
| 1985 | 400 | 1,100 | 200 | 50 | |
| <u>B. Drilling Machine Tools</u> | | | | | |
| 1970 | - | 2,000 | - | - | |
| 1975 | 800 | 2,300 | 20 | 100 | |
| 1985 | 1,000 | 3,000 | 50 | 300 | |
| <u>C. Lathes</u> | | | | | |
| 1970 | - | 3,200 | - | - | |
| 1975 | 250 | 3,800 | 20 | 20 | |
| 1985 | 3,000 | 5,000 | 120 | 200 | |
| <u>D. Grinding Machine Tools</u> | | | | | |
| 1970 | - | 400 | - | - | |
| 1975 | 120 | 620 | 20 | 20 | |
| 1985 | 200 | 940 | 60 | 60 | |
| <u>E. Presses</u> | | | | | |
| 1970 | 100 | 400 | - | - | |
| 1975 | 200 | 720 | 10 | 10 | |
| 1985 | 600 | 1,100 | 60 | 60 | |
| <u>F. Others</u> | | | | | |
| 1970 | - | 1,000 | - | - | |
| 1975 | 200 | 2,220 | 20 | 20 | |
| 1985 | 2,000 | 2,700 | 200 | 200 | |

*The term machine tools includes metal cutting, metal forming, physico-chemical processing and others.



74. 10. 11