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THE SITUATION OF THE MACHINE TOOL INDUSTRY  
IN PARAGUAY<sup>1/</sup>

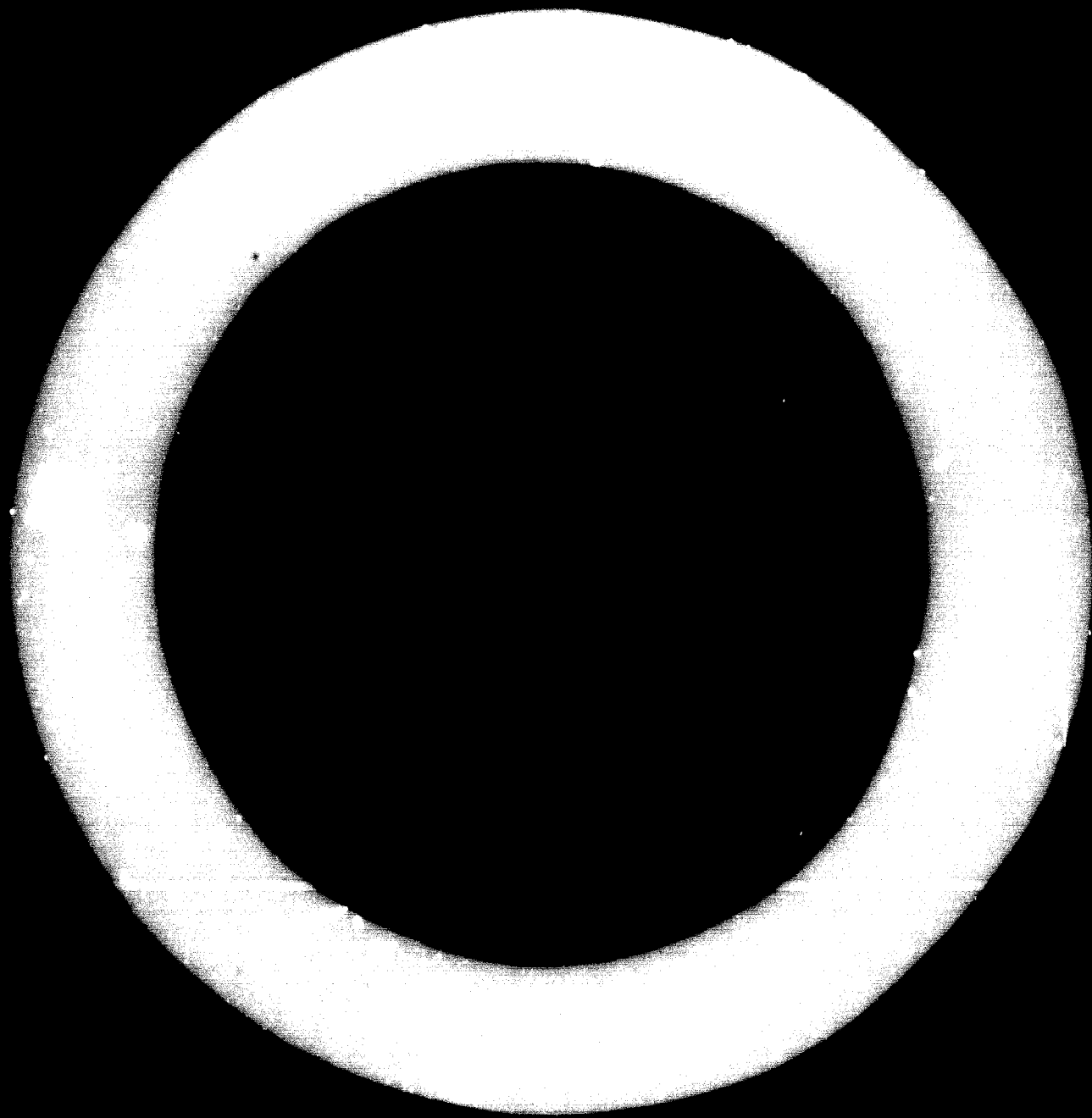
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<sup>1/</sup> The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO. This document has been translated from an unofficially edited text.

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## 1. GENERAL ASPECTS AND POLICIES

The development of this industry in the country can be dealt with under the following headings:

1.1. Machine tools

1.2. Casting

Forging

Maintenance and repair

### 1.1. MACHINE TOOLS

So far there has been no major increase in the development of this industry. That fact is due to a combination of several factors that are analysed below:

1.1.1. Scanty demand in the local market

1.1.2. Production at uncompetitive prices

1.1.3. Lack of skilled manpower

1.1.1. The country is at the moment in the initial phase of industrial expansion, with the result that demand for machine tools has so far been limited and existing needs have been covered mostly by means of imports from neighbouring countries or other areas.

Although some metal-working plants have produced equipment such as small lathes, band saws, presses, fly presses and machines for carpentry, as well as machines for grinding sugar-cane, no constant line has been followed in production, but, in general, work has been done to special order.

1.1.2. Owing to the factors indicated in the previous paragraph, costs are generally high, because, there being no continuity in production and furthermore almost complete dependence on imported raw materials, it is difficult to maintain costs at a level that will compete with those in neighbouring countries and still less with the traditional machine tool producing countries.

Furthermore, as a very significant factor, there is the constant devaluation of the currencies of Argentina and Brazil that has been going on for some years, which has the effect that machine tools and other related articles have very competitive prices as compared with those domestically produced articles.

Furthermore, fiscal incentives in the form of reimbursement on export are granted on the equipment produced by the countries mentioned, the purpose being to promote the growth of exports.

1.1.3. The further difficulty encountered by the machine tool industry is the shortage of the manpower with sufficient skills which would be necessary to ensure efficiency in this type of industry. Nevertheless, the industrialists are greatly interested in the availability of this factor of production which is significant in industrial growth.

## 1.2. AUXILIARY INDUSTRIES

Under this heading, mention can be made of:

1.2.1. Casting

1.2.2. Forging

1.2.1. This industry has developed very favourably and has most promising prospects, but there are still several negative factors in the way of more active growth.

1.2.1.1. There is a metallurgical centre in the country that embraces all the industrial enterprises in this sector, numbering forty-seven firms. Approximately 30 per cent of this total are engaged in metal casting and the rest in structural steelwork, house and office furniture, forging and the repair of machines.

Certain castings are at present being mass-produced in several establishments to meet domestic needs. Among these can be mentioned fire grates for boilers, coulters for ploughs, castings for various automotive vehicles, for industrial engines, sewer manholes and drains, various pipe fittings, cases for meters and a wide range of other articles. In all these articles, iron is used for preference, but aluminium, bronze, etc. are also used.

At the moment, the Directorate for Shipping and Shipyard Equipment has a 5 tonne furnace for ingot casting in the final phase of installation, with which it will manufacture iron rods for construction and rolled products. This furnace will be in operation from the coming year.

All these industries use as raw material various types of scrap which, by the way, were previously exported, mainly to Argentina.

The consumption of metal in the casting industry can be summed up by the following approximate values in tonnes per month:

Iron 65

Bronze 5

Aluminium 3

1.2.2. Forging supplements the other related metal-working activities. This activity can be considered as of the cottage industry type, production being limited to artistic railings and doors, various types of wall lamps, chandeliers, especially for interior decoration in artistic styles.

This activity is supplemented by the repair and maintenance of industrial equipment.

Metallurgy has not high priority within the Government's industrial development programme, and thus assembly, agricultural and shipyard tools are classified as desirable industries of degree 15-17 and 18.

To illustrate the development by means of figures, the total production of machines in general during 1970 reached the sum of 168,760,000 guaranies (one hundred and sixty-eight million, seven hundred and sixty thousand) equivalent to US\$1,400,000 (one million four hundred thousand). It is estimated that machine tools account for approximately 5-15 per cent by value.

### 1.3. TECHNICAL ASSISTANCE

Thus, all industrialists in the sector agree on the need for foreign technical assistance in order to raise the technological level of equipment and manpower, in order to achieve better products and more moderate costs.

At the end of 1969, UNIDO made an evaluation of the situation, arriving inter alia at the following conclusions, which agree with the information obtained in the preparatory work for the present report.

The metallurgical industry lacks technical assistance from bodies capable of providing such assistance. Therefore all those interested in raising the level of the industry are obliged to call in foreign technicians. Owing to the high cost of private technical assistance, few industries can contract for such services.

The lack of a private or official metallographical laboratory considerably affects the quality of the final product, since the composition of the metals and the casting additives cannot be verified. Similarly, it is also impossible to analyse the moulding earths existing in the country in order to ascertain how they should be used. For all these reasons, it is necessary to send them to foreign metallurgical laboratories for analysis, with consequent loss of time and increased costs.

Should technical assistance be offered, it will be possible, by using the services of experts, to train local manpower, to evaluate existing plants and to propose rationalization plans for production at more moderate costs.

It would be desirable to select a metallographical laboratory and train local personnel in order to make it possible to work with mixtures of known composition and thus contemplate a positive expansion of the casting industry, as the basis for the development of machine tools.





**12.7.74**