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Regional Seminar on Machine Tools
in Developing Countries of
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Elatri Pjassasi (Golden Sands) near
Varna, Bulgaria, 18 to 27 October 1971

REPORT ON
THE MACHINE TOOL INDUSTRY
IN IRAQ

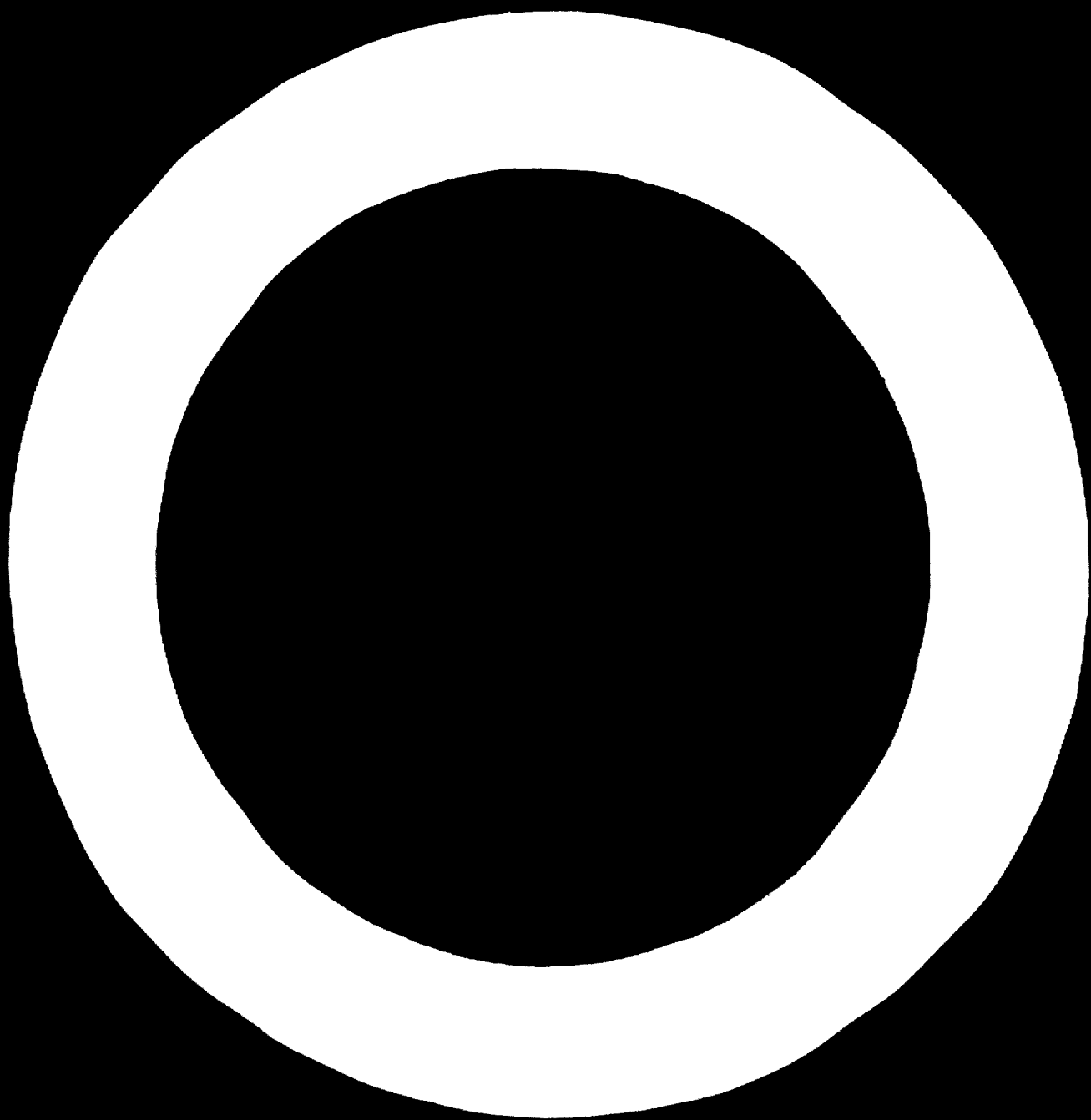
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P A R T I

POLICIES AND GENERAL ASPECTS

Status of Machine Tools in Iraq:

Iraq is one of the developing countries which is not starting a machine tool industry, neither on governmental level nor in the private sector. This is probably due to the facts that such an industry needs high investment, high technical knowledge and substantial demand. Furthermore, unfortunately, no serious study has been done to evaluate the possibility of establishing a machine tool industry. In the five years plan (1970 - 1974), the industrial sector does not show any project for machine tool industry. It is more likely that a machine tool industry in Iraq might not appear in the coming ten years.

Regarding the existing stock of machine tools in Iraq, there is no statistical data related to this subject and it is rather hard to collect such data in the short time given for writing this report. To handle this problem and other aspects of the report, a plan was made for the UNIDO expert Mr. Gabriel to visit the main metal working industries and training centres in Iraq. According to this plan we visited the following :

1. Railway Workshop Centre
2. Transport Administration Workshop
3. State Mechanical Industries Co.,
Plant in Eskandaria
4. State Electrical Industries Co. Plant
5. Training Centre of National Oil Co.

The number of the machine tools in the above listed shops are:

	Milling	Drilling	Lathe	Grinding	Presses	Other
1. Railway shop	7	32	71	32	11	39
2. Transport Administration Workshop	1	4	8	2	9	12
3. State Mechanical Industries Co. and the Training Centre	62	104	177	83	81	184
4. State Electrical Industries Co.	10	20	52	29	35	11
5. Training Center of National Oil Co.	5	9	18	3	4	13
TOTAL	111	175	326	149	140	259

Beside the above figures, the industrial statistical survey for 1968 showed that there are 1435 industrial establishments of which 226 are metal working industries. On the assumption that each of these metal working industries had three machine tools as an average, the total will be 678 machines. If we also assume that the rest of different industries had one machine tool each as an average, the total will be 1209 machine tools. Basing on the above assumption the total machines in all kind of industries are 1887.

A report written by Mr. M. A. Daffaei, Director of Man Power in the Ministry of Industry, showed that there are twelve technical schools and eight engineering colleges. If we assume that in each of these schools and colleges there are ten machine tools, the total would be 200 machines. It is also indicated in the same report that there are six training centres. The machine tools of two centres out of these six are already counted. It is estimated that each of the remaining four centres had thirty machine tools which makes a total of 120 machines. The estimated grand total of the machine tools in Iraq will be 2207 (plants and centres visited not included). From our experience and observation we can classify the above machines as follows:

Lathe machines	30%	1545
Press	12%	265
Drilling	8%	177
Milling	1%	22
Grinding	2%	44
Others	7%	154

T O T A L 2207

The estimated stock of the machine tools in Iraq for the year of 1971 is 3867 distributed as follows:

Milling	Drilling	Lathe	Grinding	Presses	Other
133	352	1871	193	405	413
4.1%	10.4%	55.5%	5.7%	12.1%	12.2%

The importation of machine tools for 1960 and 1970 as given in foreign trade census, is as follows:

	1960		1970	
	Qty Ton	Value I.D	Qty Ton	Value I.D
1. Machine tools for working metals or metallic carbides	226	113,787	289	174,782
2. Machine tools for working ceramics concrete, asbestos cement and like mineral materials for working glass in the cold.	314	138,149	524	293,587
3. Machine tools for working wood, carbon ebonite, hard artificial plastic materials	155	59,745	183	166,725
T O T A L	695	311,681	996	635,094

The expected importation for 1980 can be estimated to be about ID1,000,000 (1 I.D (Iraqi Dinar) = \$2.8). On the assumption that the average value of machine tools is I.D 1500, the number of machines imported is:

	<u>app. Qty. of machine tools</u>
1960	700
1970	420
1980	660 (estimated importation)

These machines can be classified in the following types on the basis of the stock percentage:

Year	Qty.	Milling	Drilling	Lathe	Grinding	Press	Other
1960	200	88	21	11	11	24	25
1970	1120	19	44	233	24	50	50
1980	660	27	69	366	38	80	80

Please, see the table on page 5 summarizing the status of the machine tools in Iraq (Form 1).

Years	Number of Machine tool produced	Number of Machine tool imported	Number of Machine tool exported	Stock of machine tools	D e m a n d
1960		200			
1970		420		3357	
1980		660			

A. Milling Machine Tools

1960		8			
1970		19		133	
1980		27			

B. Drilling Machine Tools

1960		21			
1970		44		352	
1980		55			

C. Lathes

1960		211			
1970		233		1871	
1980		366			

D. Grinding Machine Tools

1960		11			
1970		24		193	
1980		30			

E. Presses

1960		24			
1970		50		405	
1980		60			

F. Others

1960		25			
1970		50		413	
1980		20			

From our visit to different plants and workshops we notice that the selection by types of machine tools was not properly done according to production lines. This is certainly due to the fact that such plants are designed for some products which are different from their present products. This is exactly the case in the State Electrical Industries plant and State Mechanical Industries plant in Eskandaria. Other reasons might be poor planning for production and insufficient knowledge of technological processes.

The Government's policy related to machine tools is the same as to any other industrial project. The Iraq industrial development law gives the following assistance to industrial establishments: duty free for

- (a) imported machines, spare parts and materials;
- (b) all stamps;
- (c) property;
- (d) profit does not exceed 10% of invested capital;

and other incentives such as low rent on Governmental land and low interest on the loans from the State Industrial Bank.

Extensive technical assistance in the development of the machine tool industry is not required since there is no such industry at the present time, and will not be established in the next ten years. However, it will be a great help if the UNIDO assigns an expert to make a feasibility study which might show in some ways a possibility of establishing some type of machine tool industry.

Regarding the technical assistance, it is appropriate to say that any help from the UNIDO concerning the machine tools will be very appreciated. We require training for our engineers in:

1. Maintenance
2. Technological processes
3. Designing of moulds, jigs and fixtures.

Another important assistance urgently needed is the re-arrangement of machine tools in big metal working plants.

PART II

TECHNICAL ASPECTS

Problems in the Development and Utilization of
Machine Tools

During the visit of the UNIDO expert Mr. Gabriel to the main metal working plants and workshop centres, a long discussion was made with the production and maintenance engineers. It is found that quite a number of machine tools are idle for a period of time and others are not fully utilized. The basic reasons differ from one plant to another. In general these causes can be summarized as follows:

- (a) New Establishment;
- (b) Poor planning;
- (c) The present products are different from the products for which the plant was designed;
- (d) Bad maintenance;
- (e) Insufficient knowledge of technological processes.

The ways and means for effective utilization are to overcome the points above: namely b), d) and e).

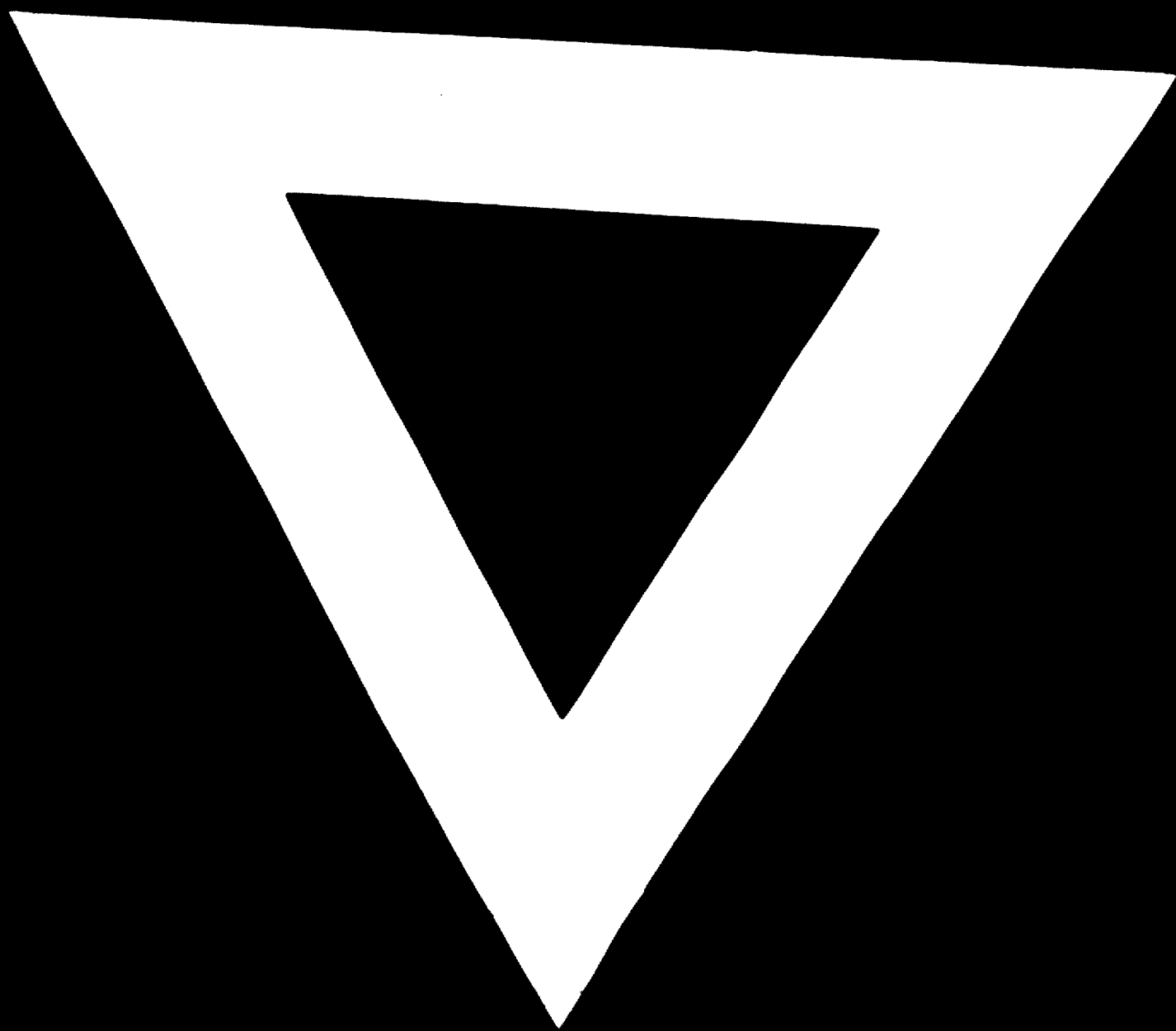
Although the re-building of the machine tools, especially in the developing countries, is economical, Iraq at the present time does not face a big problem in re-building machine tools since most of the stock in existence has recently been procured. Even though the machine tools are new, maintenance and repair as mentioned before is quite a problem and this may increase in the future.

The numbers of skilled workers, technicians and engineers specializing in metal working, are still insufficient considering the actual needs of the country. The Government of Iraq and the Ministries concerned, especially the Ministry of Industry and the Ministry of Education, are taking emergency actions to overcome this problem. More technical schools and training centres are being established and others will start soon, such as the training centre in Eskandaria and the training centre in National Oil Co. in Baghdad.

Consideration for the Introduction of Numerically
Controlled Machine Tools in Iraq

From the census we made, we found that there is not a single numerically controlled machine tool in Iraq. Frankly speaking, I do not have enough information concerning such machines. All I can say is that the introduction of simple machines in developing countries is urgently needed. And this should be arranged with the assistance of UNIDO.





74.09.13