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## United Nations Industrial Development Organization

Regional Seminar on Machine Pools in Developing Countries of Europe, Middle East and North Africa Slatni Pjassazi (Golden Sands) near Varna, Bulgaria, 18 - 27 October 1971

COUNTRY STUDY REPORT

ON

THE MACHINE TOOL INDUSTRY

IN

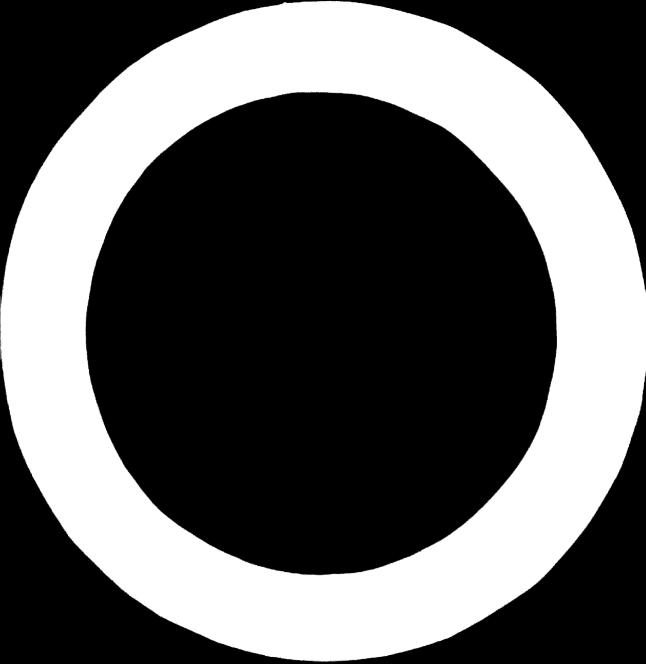
THE SYRIAN ARAB REPUBLIC 1

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W. Rihawi
Director of Mechanical Designing Office
Winistry of Petroleum, Electricity and Mineral Resources
Damascus, Syrian Arab Republic

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



There is an increasing use of machine tools in different industries and in workshops throughout the world. This is true also in Syria where the machine tool is a fundamental item, which helps in developing the industry of the country.

The trade statistics of the last five years show an increase in the imports of machine tools. This trend has been accounted for in the five year plan according to which it is planned to establish a machine tool manufacturing industry based on a series of studies conducted in 1969.

The machine tool industry is expected not only to cover local demand, but also to export a part of the production to the Arab countries and other nations.

The production programme is divided into two parts or stages as set forth in Annex I which refers to the kind and quantities of machine tools and accessories it is planned to produce.

During the initial period (stage I) the production of only simple machines of prime necessity is planned to gain experience and improvement of professional skill. The second stage comprises the production of more complicated machines. This production programme has been worked out with due consideration to the economical kind and quantities of the products.

We want to refer to some figures with regard to the last production programme:

- The necessary capital is 33.5 million Syrian Pourds or about 3.35 m English pounds.
- The material needed, such as steel and cast iron, is 1400 tons per year, will be imported in the first period until the iron and steel manufacturing project realises in Syria and is put into production.
- The machine tools factory will need 780 technical workers and 220 employers in other different working positions.
- In the first stage the factory will work in one shift.

## The auxiliary industries

In Syria there are a number of small foundries to satisfy the castings for pumps factories.

In addition to the relatively larger governmental workshops and foundries, a great number of small and medium sized mechanical workshops and small foundries are distributed throughout the country, and these manufacture some of the spare parts needed also for maintenance purposes.

Also we can refer to the electrical motor factory, which will be put into operation this year and produce 2,,000 motors of power 0.25 - 7 Hp.

We can consider a number of big workshops and other training centres which can be used as production workshops according to certain programmes.

The project of machine tools namufacturing an 1969 did not materialize in Syria because of certain commical conditions and because of other more necessary and urgent projects, but the Government looks on this project scriptually and if we get the necessary capital with repayments over a long period with reasonable interest, or the supply of the necessary equipment for this factory, manufacturing can began under a license agreement.

The UNIDO can advise on the method of supplying the necessary equipment and the technical audistance adverding to the previous conditions. At the same time UNIDO can help spria by another progresses for establishing the necessary re-building of the machine tool factory by supplying the supervising experts and necessary equipment. The Syrian Government will prepare the suitable building, manpower and other necessities. The same expert could train the Syrian bechnicians on controlling and adjusting the tools of the machine tools, and the Government could prepare one of the training centres for this perpose.

### Numerically Controlled Lachine Tools

With reference to the availability of manpower and man-hour costs in Syria, we think that an an not recommany and uneconomical to use numerically controlled machine looks, but after the next four years it will be necessary to use the lest automatic eachines in any field, because the Alfurat Dump Project will be finished and agriculture and other industries will attract and centain the workers in Syria, so it will be necessary and economical to use automation.

We hope that in this short report to have covered the main questions concerning the machine tool industry and its difficulties in the Syrian Arab hepablic.

## PROPOSITION OF PRODUCTION FROORAN

roduot Technological Parameter		dirimum the sconomical number of pieces per annual	
Piret stage:	2		
Bench drilling machine	You discuss of an		
Pillar drilling machine	Max.diameter 16-13 mm	180	
Hacksaw machine	Max.diameter 20-25 mm Hacksaw blade 630 mm	120	
Sliding, surfacing and screw-outting lathe	Length 800 and 2000 mm Swing diameter 355 mm	80 100	
Hericontal milling machine	Milling table 355 x 1250 mm	80	
Grinding wheet head, bilateral working	Grindings diameter 250 and 350 mm	120	
Bandsaw for wood	Diameter of hand 1800 mm	60	
Swivel vice for machine	Span length 120, 180 min	120	
Vice for manuel working	Span length 60, 120 mm	3000	
Pace-plate for lathes	from 300 to 500 mm diameter	100	
Three-jaw ohuk for lathes	Diameter 250, 400 mm of hard-and soft-wares	.co €co	
Centre point for lathes	Morse taper 1 to 5	5000	
Circular dividing table for milling & drilling machine	Diameter 400 mm	•	
Milling muchine arbor	Diameter 16 99 97 30 40 76	200	
Spacers for milling machine arbor	Diameter 16, 22, 27, 32, 40, 50 mm Interior diameter 16, 22, 27, 32, 40, 50 mm	1000	
Drill chuck		5500	
Straigth roughing tools high speed steel	Morse taper 1 to 5 From 10 to 40 mm square	10000	
Bent roughing tools	dito		
Straight finishing tools	d <b>1 to</b>		
Bent side tools	dito		
Mfset side tools	dito	68000	
ent finishing tools	<b>41 to</b>	60000	
dectangular bent under-	dito		
M.a., .a.	From 10 to 40 um square		
internal roughing tools	From 6 mm 9 x 125 mm to 32 mm 9 x 355 mm		
traight recessing tools	From 6 x 10 x 100 mm 25 x 40 x 280 mm		

	2	7
Lathe tools with clamp type tool-holder for carbide tip straight lathe tools	From 12 x 12 x 110 mm to 32 x 32 x 250 mm	500
dito bent lathe tools	di to	
Offset lathe tools	dito	كين الشاعد ويوانيون
Plain milling outters for special hard materials	Diameter from 40 to 100 and	
Plain milling cutters for very soft & tough materia		
Shell and mills for nor- ual milling operation	d1 to	40000
Shell end mills for special hard materials	dito	4000
Plain willing outters for normal milling operation		
Shell end mill for very soft and hard materials	dito	
Staggered tooth side milling normal milling operation	diameter from 50 to 100 mm	
Staggered tooth side milling cutters for very seft & hard materials	dite	
Side milling cutters wit radial teeth	h Diameter from 50 to 100 mm	
Tapped shank end mill with machine taper	Nominal dismeter from 10 to 55 mm	30000
End mill outters with parallel shank	No dissel disseter from 6 to 88 am	
forond stage:		
Shaper	Stroke length 400 or 630 ma	50
Hydraulic surface grinding machines with horizontal spindle	Table working surface 250 x 600 nm	50
Universal wood working machine for drilling and milling	Height of contres 150 mm	60
Universal grinding machine hydraulic	Rominal diameter 200 mm grinding length 400 or 600 mm	40
Sharpening machine for fools and cutters grinding	Nominal diameter 200 nm grinding length 400 mm	80
Wood planer cilateral working		60
Dividing head for milling wachine		60

	2	
Total drill with machine taper	Nominal diameter	300000
Point drill with parallel shank	Mowinal diameter from 3 to 12 mm	500000
Machine tenner with	Nominal diameter from 5 to 45 am	50000
Rend recover with square	Meminal diameter from 5 to 10mm	50000
and blade for hack cowing machine	Length from 300 to 600 am	10000
Notel outting news for band saws	Length 300 mg	30000
Plat file for . ough	Press 6 to 12 inch	30000
half-round file for rough and finish	di to	20000
Sound file for rough and finish	di te	10U00
Princular file for rough and finish	di t.	20000
Square file for rough and finish	<b>41</b> +•	20000

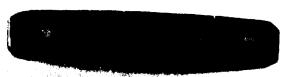
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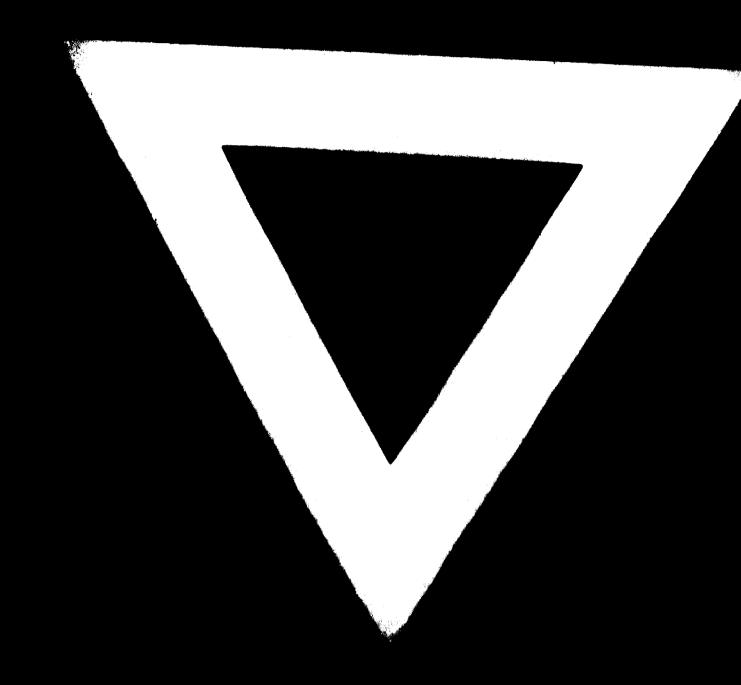
## STATUS OF MACHINE TOOLS

## Machine Tools \*

1960   1150   1970   1980   4130	Years	Number of Nachine tools produced	Number of Machine tools imported	Number of Machine tools exported	Stock of Nachine tools	Demand
1970 1980 4130 4130 4134  4. Hilling Machine Tools  1960 50 50 1970 120 120 1980 250 250  B. Brilling Machine Tools  1960 100 100 1970 200 1980 450 450  G. Lathes  1960 120 120 1970 230 350  D. Grinding Machine Tools  1960 220 350  D. Grinding Machine Tools  1960 50 900 900  E. Fresses  1960 50 180 180  F. Others  1980 500 180 180			1150			
1980			The same of the sa			+
### ### ##############################	1980					4130
1960   50   120   120   1980   250	A. Millin	Az Machine Tools				1 7-2-
1970			50	T		7
1980   250   250    B. Brilling Machine Tools 1960   100   100   1970   200   450   450    G. Lathes 1960   120   1970   230   1980   350   350    D. Grinding Machine Tools 1960   220   1970   400   1980   900   900    S. Presses 1960   50   180   180    F. Others 1960   500   180    F. Others 1960   500   180    F. Others 1960   500   1970   990   1930   990   1930   19	1970		-	<u> </u>		
B. Drilling Machine Tools   1960   100   1970   200   1980   450	1980		-		<del> </del>	250
1960   100   1970   200   1980   450	R. Deilli	ine Machine Maale	-			
1970	1960	IN MEDITING TOOTS	100			7:
1980 450 450  G. Lathes  1960 120					<del> </del>	-
G. Lathes  1960	1980					+
1960		_		<u></u>		450
1970 230 350 350 350  D. Grinding Machine Tools  196C 220 1970 400 1980 900 900  E. Fregses  196C 50 1970 80 180 180  F. Others  196C 500 1970 900 1980			120	<del></del>		<del></del>
1980 350 350  D. Grinding Machine Tools  196C 220			A STATE OF THE PARTY OF THE PAR	<del> </del>		<del> </del>
D. Grinding Machine Tools  196C		-			<del></del>	1
1960 220 1970 400 1980 900 900 900  E. Presses 1960 50 1970 80 180 180  F. Others 1960 500 900 1930					Propriedural American American	350
1970 400 1980 900 900  E. Fregges 1960 50 1970 80 1980 180 180  F. Others 1960 500 1970 900		ng Machine Tools		<del></del>	Marcella Michigal Maryanani di suma di sungge	
900 900  E. Presses  1960 50 1970 80 1980 180 180 180  F. Others  1960 500 1970 900			-			
900   900						
1960 50	1980	1	900			900
1970 80 1980 186 186  F. Others 1960 500 1970 900	S. Presser	в				
1970 80 1980 186 186 180  F. Others 1960 500 900 1930 900	1960		50		,	
1980 180 180 180  F. Others  1960 500	1970					
F. Others 1960 500 1970 900	1980					180
1960 500 1970 900	F. Others			-		400
1970 900 1980 2000	1960		500			<del> </del>
1980						
2000	1980		2000			

<sup>\*</sup> The term machine tools includes metal cutting, metal forming, physics, chemical processing, welding and other related machines.





74.09.13