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# ASSISTANCE TO THE KNITTING INDUSTRY

SI/HUN/75/814

HUNGARY.

Technical report:  
MILL MANAGEMENT.

Prepared for the Government of Hungary by the  
United Nations Industrial Development Organization,  
executing agency for the  
United Nations Development Programme



United Nations Industrial Development Organization

United Nations Development Programme

ASSISTANCE TO THE KNITTING INDUSTRY

SI/FUN/75/814

HUNGARY

Technical report: Mill management

Prepared for the Government of Hungary by the  
United Nations Industrial Development Organization,  
executing agency for the United Nations Development Programme

Based on the work of Martin A.M. Minke, expert in mill management/knitting

United Nations Industrial Development Organization

Vienna, 1977

Explanatory notes

All references to dollars (\$) are to United States dollars.

The monetary unit in Hungary is the forint (Ft). During the period covered by this report, the value of the forint in relation to the United States dollar was \$US 1 = Ft 20.52 (currency) and \$US 1 = Ft 40.40 (trade).

References to tons are to metric tons.

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### ABSTRACT

The Government of Hungary requested assistance from the United Nations Development Programme (UNDP) for its knitting industry and, on 12 January 1977, an expert in mill management and knitting (annex I) was sent to Hungary for five months on the project "Assistance in the Knitting Industry" (SI/HUN/75/814)<sup>1/</sup>. He was later extended for one month until 8 July 1977. Two other experts worked on this project for short periods. The United Nations Industrial Organization (UNIDO) was the executing agency.

The knitting industry has been extensively modernized over the last four years and it has an important role to play in the development of industry in Hungary. It is expected to increase production of fabrics and offer a wider choice of products.

There are currently eight large knitting mills and four mills and co-operatives of medium size. After a survey of seven of the nine state-owned mills, the expert worked at Habselyem Kötöttárugyár, Budapesti Harisnyagyár and Váci Kötöttárugyár.

The aims of the project (annex II) were:

- (a) To evaluate the situation in the knitting industry;
- (b) To elaborate and carry out a programme for technological and production development and for the organization of production;
- (c) To award five fellowships in knitting technology.

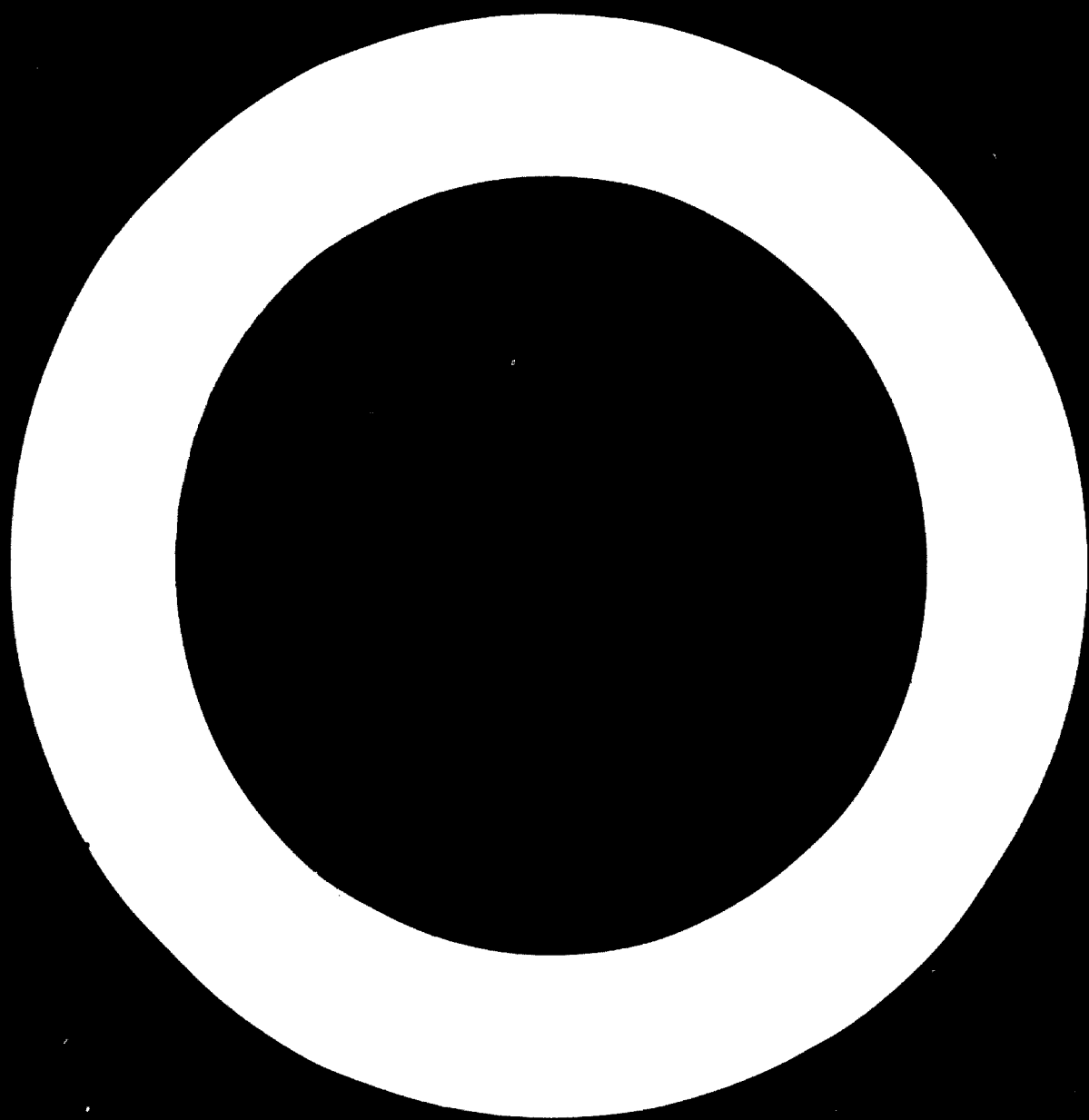
The main recommendations of the expert were that the production sector should be reorganized and made responsible for its own efficiency and control of production, quality, waste, orders and training. To do this, it requires its own staff and a planning department.

He also recommended that some improvements be made immediately, without assistance, such as setting targets for efficiency, quality and waste; selecting the best available staff; modernizing dyeing and finishing equipment and sewing and cutting rooms; setting uniform standards; and organizing training courses.

Five candidates were proposed for fellowships although it was not easy to find suitable candidates because of language requirements.

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<sup>1/</sup> The project number was changed from IS/HUN/75/014 to SI/HUN/75/814 on 1 January 1977.



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## INTRODUCTION

The Government of Hungary requested assistance from the United Nations Development Programme (UNDP) for its knitting industry and, on 12 January 1977, an expert in mill management and knitting (annex I) was sent to Hungary for five months on the project "Assistance in the Knitting Industry" (SI/HUN/75/814)<sup>1/</sup>. He was later extended for one month until 8 July 1977. Two other experts worked on this project for short periods. The United Nations Industrial Development Organization (UNIDO) was the executing agency.

The knitting industry has been extensively modernized over the last four years and it has an important role to play in the development of industry in Hungary. Production has increased by 50% over the last five years, and it is expected that it will increase further and that a wider choice of products will be offered.

The aims of the project (annex II) were:

- (a) To evaluate the organization and productivity of the mills, and to evaluate the quality of their products;
- (b) To elaborate and carry out a programme for technological and production development and for the organization of production. This programme will then be evaluated and applied in other knitting mills;
- (c) To award five fellowships in knitting technology.

There are currently eight large knitting mills and four mills and co-operatives of medium size. After a survey of seven of the nine state-owned mills, it had been intended to carry out the project at Habselyem Kötöttárugyár, chosen by the Ministry of Light Industry. However, as this mill does not represent the full technology of the knitting industry, the Ministry agreed that the expert should also study other mills, namely, the hosiery mill Budapesti Harisnyagyár and the circular knitting mill Váci Kötöttárugyár. While working at Habselyem and at Váci Kötöttárugyár the expert collaborated with the UNIDO expert for product development.

During the first week of March 1977, a UNIDO expert on knitted artificial fur assisted the technologists at Habselyem Kötöttárugyár. A separate report has been made by him.

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<sup>1/</sup> The project number was changed from IS/HUN/75/014 to SI/HUN/75/814 on 1 January 1977.



The degree of upgrading and the assistance required by the knitting industry will largely depend on the marketing policy of each of the mills and may therefore differ from mill to mill. Limited improvements can be made by means already available to the mills and to national institutions. International assistance should only be given under strictly-defined terms and conditions.

Since machines, yarn and equipment are imported against hard currency, to equalize the trade balance it is important to export Hungarian-made products for hard currency. However, although the Government is promoting such trade, it is clear that, for several reasons, industry is bound to produce mainly for markets in centrally-planned economies, which are so-called seller's markets. As long as the terms of trade with Western countries are unchanged, modern business methods will not be adopted although there is an urgent need for more effective control of production and quality.

## I. FINDINGS

The expert surveyed seven of the nine state-owned vertically-integrated knitting mills and eight sub-mills belonging to these seven mills. The organizational structure was studied, particularly production, and shortcomings investigated.

### Production Shortcomings

These are as follows:

- (a) There is a shortage of female labour, hampering the continuity of the process lines. Attempts have been made to overcome this by erecting sub-mills in distant country areas; in a few cases by concentrating on organization; and recently, by installing modern machinery;
- (b) Management lacks the ability to reorganize production to obtain higher productivity. Since most Hungarian products go to a seller's market, the demand for quantity overrides the care for quality;
- (c) Quality control is ineffective, and better quality is not reflected in better prices;
- (d) There is almost no production control;
- (e) Efficiencies are not registered;
- (f) Delivery times are only fixed per quarter;
- (g) There are no proper planning departments, only operational planning groups which work mainly on an extempore basis;
- (h) Export orders for Western markets get special attention to the detriment of other orders;
- (i) There is no systematic training;
- (j) Productivity is low;
- (k) Organization of the sewing and cutting rooms is poor;
- (l) Sewing machinery in general is underused;
- (m) Dyeing and finishing equipment is not modern;
- (n) Waste percentages are high.

### Production organization

In Hungary, it is not easy for a business to show the increasing profit necessary to obtain credit and loans for investments to renew equipment and buildings.

Because of an increasing shortage of female labour, profitability seems to have reached its limits under present conditions. Investing in mechanized equipment is only a partial answer to this problem.

In an attempt to keep pace with the developments of the past 20 years, the technological departments are already well organized, as are the financial departments. Up till now, the relatively low requirements of a seller's market have not encouraged the organization of production, but it is now time for this and a more economical use of equipment and labour must be found. It is an open question what degree of organization must be developed; this may differ from mill to mill and will be determined by the policy of the mill, its market approach and the quality of its products.

#### Market position

The yearly output of the Hungarian knitting industry is approximately 20,000 tons which includes 55,442,000 pairs of socks, stockings and tights. For further details see annex III.

It is estimated that from this production about 20% is exported to member countries of the Council for Mutual Economic Assistance (CMEA) and about 10% to Western countries. The remaining 70% is for the domestic market. Both the domestic market and the markets in the CMEA countries can be regarded as seller's markets. This determines the mill policy and its organizational structure. However, the balance seems to be changing to a buyer's market.

#### Mill policy

In line with the Government policy, the managements of the mills try to cover the highly necessary investments in Western equipment and material by exports to Western markets or by commission work for Western companies. However, because of a weak market in the Western countries prices are relatively low. For several reasons, exports to CMEA countries have preference.

Furthermore, the terms of trade with the countries of the European Economic Community (EEC) are not likely to gain important markets there.

#### Organizational structures

Hungarian knitting mills are large and vertically-integrated, employ 2,500-5,000 personnel, and their organization is based on mass production.

The characteristics of such organization are:

- (a) Systematic marketing hardly exists, and then depends on a single person;
- (b) Product development is determined by the technological staff;
- (c) Sales, performed by central governmental bodies, are registered by the financial sector of the mill;

- (d) Production organization is underdeveloped;
- (e) Quarterly production plans are derived from the yearly production plan made up by the finance department;
- (f) Since there is no real competition, little attention is given to efficiency and quality;
- (g) Production control and progress control exist only for exports to Western countries, and are mainly improvised;
- (h) Quality is according to minimum standards set by governmental bodies. Only in the case of exports to Western countries are other standards used and most of these exports are produced in the smaller sewing departments still in use in the central mills.

#### Processing, equipment and quality

The knitting departments are generally suited to present and future demands but gradual modernization should be continued. Machines in use for bulk production usually operate at 85% efficiency, which should be increased to over 90%.

The supply of modern yarns is vital in the manufacture of knitwear to compete with Western products abroad and at home the mills are too closely bound to the state-governed trade companies for their supply of yarns.

As only a few years ago a greater diversification of yarns could be imported, there is a considerable backlog in dyeing and finishing of fabric made from these modern yarns. This results in irregular quality and, also, the handle and appearance are generally not up to Western standards. Most mills are aware of these facts, and in all investment plans large sums are appropriated for the necessary modernization of dyeing and finishing equipment. Because of this, a danger of over-capacity exists.

The dye-stuff suppliers are co-operative and, as far as possible, provide regular assistance.

The backlog caused by the lack of modern dyeing and finishing equipment interrupts the production flow and the planning and co-ordination of production processes are mainly improvised on a day-to-day basis. This hampers the organization of efficient cutting rooms which, as they are bound to process small lots, have high waste percentages.

Most of the mills have a number of subsidiary plants in country districts. There is a tendency to vertically integrate these plants, but this is not recommended as it complicates their organization. It is preferable that all capital-intensive processes be centralized in the main mill - where know-how

and control are available - and that the more labour-intensive processes, such as sewing, be in the sub-mills. These sub-mills should not be too large; 40-300 employees is generally considered to be the most appropriate size of firm.

Modernization of sewing room equipment is not encouraged in most cases because of low labour costs. The equipment, in general, is not adequate for present and future requirements. However, there are specialized machines in the smaller subsidiary mills.

The increasing shortage of female labour, lack of space and low profit margins on some products are the most compelling reasons for modernization. Products made by modernized units have a higher quality of sewing and the efficiency of these units is up to Western standards. The efficiency of the majority of the sewing departments, which still work with old equipment, is often very low. Huge capacity is available provided attention is given to this sector.

As a result of the full-employment policy, productivity per employee is low. The average turnover in 1976 was \$16,931 per employee. Western knitting firms have a turnover of over \$26,000 per employee. In all firms surveyed, there is no co-ordinated personnel policy, confidential reporting or training programmes for superintendents, foremen and operatives. Wage policy is made by the finance departments. The most capable employees can be found in the technological departments where there are a number of qualified potential production leaders.

## II. RECOMMENDATIONS

### Organization

As the requirements of all the mills are different, each of them has to decide on the desired degree of organization, particularly of production. It must be accepted that the production sector is responsible for its own efficiency, and control of production, quality, waste orders and training. To do this, the production sector requires its own staff and a planning department able to advise the production manager.

The production sector should not only follow the guidelines laid down by the departments of finance and technology, it should also elaborate these guidelines and top management should set production targets. These guidelines will mean a major change in attitude towards production and such a change cannot be achieved at once. International assistance on the changes necessary in the production sector, and also, to some extent, in the departments of technology, finance and personnel and on the outlook of top-management, should be sought.

If international assistance is received for the changes in the production sector, it is recommended that:

- (a) Objectives are jointly formulated and accepted;
- (b) It is clearly stated how decisions between consultants and the mill receiving assistance will be made;
- (c) All the members of the mill receiving assistance should participate and the ideas of these members should be evaluated;
- (d) A group of counterparts be formed from the mill staff.

Separate items such as work study programmes, maintenance procedures and other detailed but limited areas not affecting the entire organizational structure can easily be restructured by the available staff in the mills or in the national institutes.

### Immediate measures to be taken by mill managements

Many improvements could be made without outside assistance, such as:

- (a) The best available forces should be selected for the most important posts in every department, especially where these posts are already occupied by inadequate employees;
- (b) The desired degree of production control should be determined according to the mill's market approach;

- (c) Targets should be set for efficiency, quality and waste;
- (d) The dyeing and finishing equipment should be modernized;
- (e) The standards should be revised for minimum inventory in order to create buffers for better planning of such production units as finishing, cutting and sewing;
- (f) The sewing rooms should be modernized;
- (g) Time and motion studies should be introduced in the sewing departments;
- (h) Uniform standards should be set for all the sub-mills of one mill;
- (i) Costs should be cut and a terminal plan drawn up;
- (j) Training courses should be organized for operatives, superintendents and foremen;
- (k) Maintenance schedules should be drawn up for all types of machinery.

#### Objectives for international assistance

Production management should be reorganized and up-graded to obtain full control of quality, waste, efficiency and the progress of orders at all stages of production.

A new department should be formed that will advise production management on work methods and the proper use of equipment, incentives, training programmes, flow of goods and routing. Control of production, waste and efficiency is to be delegated to this department.

A production planning department should also be formed to plan production orders taking into account capacity, available yarn, delivery times, efficiency and required quality. This department will make detailed plans for each production stage, co-ordinating the flow of goods, including the supply to the sub-mills.

Quality control should be given authority to interrupt and, if necessary, alter production processes.

The department heads should get full authority within their field of operation. Authority should be delegated to alternate or vice department heads who should be given responsibility for the execution of well-defined directives (annex IV).

#### Fellowships

It was not easy to find fellowships candidates owing to language requirements. Finally, the following candidates were proposed for fellowships:

Knitting mill management

Hollosi, production manager at Habselyem Kötöttárugyár

Joseph Peregrí, production manager at Váoi Kötöttárugyár

Modelling and marketing of ready-made knitwear

Márta Vass, section leader of modelling and member of the marketing group at Habselyem Kötöttárugyár

Tóth Gergelyné, fashion forecasting and marketing at Habselyem Kötöttárugyár

Balintné Somogyi, Mode Directrize at Habselyem Kötöttárugyár

Language tests for some of these candidates will be decisive for their acceptance.



Annex I

JOB DESCRIPTION

SI/HUN/75/814/11-01/31.7.B.

<u>Post title</u>	Expert in mill management/knitting
<u>Duration</u>	Five months
<u>Date required</u>	As soon as possible
<u>Duty station</u>	Budapest
<u>Purpose of the project</u>	The Hungarian knitting industry has extensively modernized its production facilities and equipment during the last four years. UNIDO's assistance is requested to ensure optimum utilization of installed capacity, help out with organizational matters and advise on further technological development.
<u>Duties</u>	<p>The expert will carry out his duties in a Hungarian enterprise - Habselyem Kötöttárugyár - chosen by the Ministry of Light Industry. He is expected to:</p> <ol style="list-style-type: none"><li>1. Evaluate and recommend improvements in the present situation in the enterprise, with respect to organizational structure, productivity and product quality;</li><li>2. Elaborate on and initiate the implementation of a programme of technical development and organization of production. The recommended programme of work will be evaluated and then applied further in other enterprises in the knitting sector;</li><li>3. Assist in the preparation of a fellowship programme in knitting management;</li><li>4. Collaborate with a product development expert in the preparation of a programme on product development.</li></ol>
<u>Qualifications</u>	Textile engineer with experience in management of knitting mills.
<u>Language</u>	English, German desirable.
<u>Background information</u>	<p>The knitting sector has an important role to play in the development of industry in the Hungarian People's Republic. It is expected to provide an impetus in the increased production of fabrics and a wider choice of consumer-oriented products. There are currently eight large knitting factories and four factories and co-operatives of middle size.</p> <p>Statistics show that the production of the knitting industry has increased by fifty per cent in the last five years. The recent expenditures for the development of this sector should result in an even higher increase of production and more rapid product development.</p>

Annex II

PROJECT DATA SHEET

Reference data

Country: Hungary  
Project title: Assistance to the knitting industry  
Project number: SI/HUN/75/814/11-01/31.7.B.  
Origin and date of request: Ministry of Light Industry of the Hungarian People's Republic, September 1975.  
Purpose of the project: The Hungarian knitting industry has extensively modernized its production facilities and equipment during the last four years. UNIDO's assistance is requested to ensure optimum utilization of installed capacity, help out with organizational matters and advise on further technological development.

Background information

The knitting sector has an important role to play in the development of industry in the Hungarian People's Republic. It is expected to provide an impetus in the increased production of fabrics and a wider choice of consumer-oriented products. There are currently eight large knitting factories and four factories and co-operatives of middle size.

Statistics show that the production of the knitting industry has increased by 50 per cent in the last five years. The recent expenditures for the development of this sector should result in an even higher increase of production and more rapid product development.

Description of project

The following areas should be covered with UNIDO's assistance:

- (a) Evaluation of the existing situation/organization, modernization and efficiency;
- (b) Elaboration and implementation of a programme in the areas of technical and product development and organization of production;
- (c) Five fellowships in knitting technology.

The recommended programme of work will be first implemented in one factory. The results will be evaluated in order to modify the programme accordingly and apply to the rest of the knitting industry.

Project budget

<u>Components</u>	<u>Duration</u> (months)	<u>Cost</u> (\$)
1 knitting technologist with experience in mill management	5	15,000

<u>Components</u>	<u>Duration</u> (months)	<u>Cost</u> (\$)
1 knitting technologist with experience in product development	3	9,000
Fellowships for 5 persons (3 months each in France and/or the Federal Republic of Germany)	15	<u>9,000</u>
<b>Total</b>		33,000

Request approved

See copy letter from Mr. Babic of 19 September 1975

Date: 3 October 1975

Annex III

DATA ON THE HUNGARIAN KNITWEAR INDUSTRY, 1975

<u>Production</u>	<u>Tons</u>
Underwear and outerwear:	
9 State-owned mills	8,974
Garment manufacturers	2,114
35 Mills controlled by townships	550
Co-operatives	<u>2,532</u>
	14,170
Knitted fabrics, caps, scarves, gloves	<u>5,746</u>
	<u>19,916</u>
	<u>Pairs</u> <sup>a/</sup>
Socks, stockings (tights, 18,640,000)	36,802,000

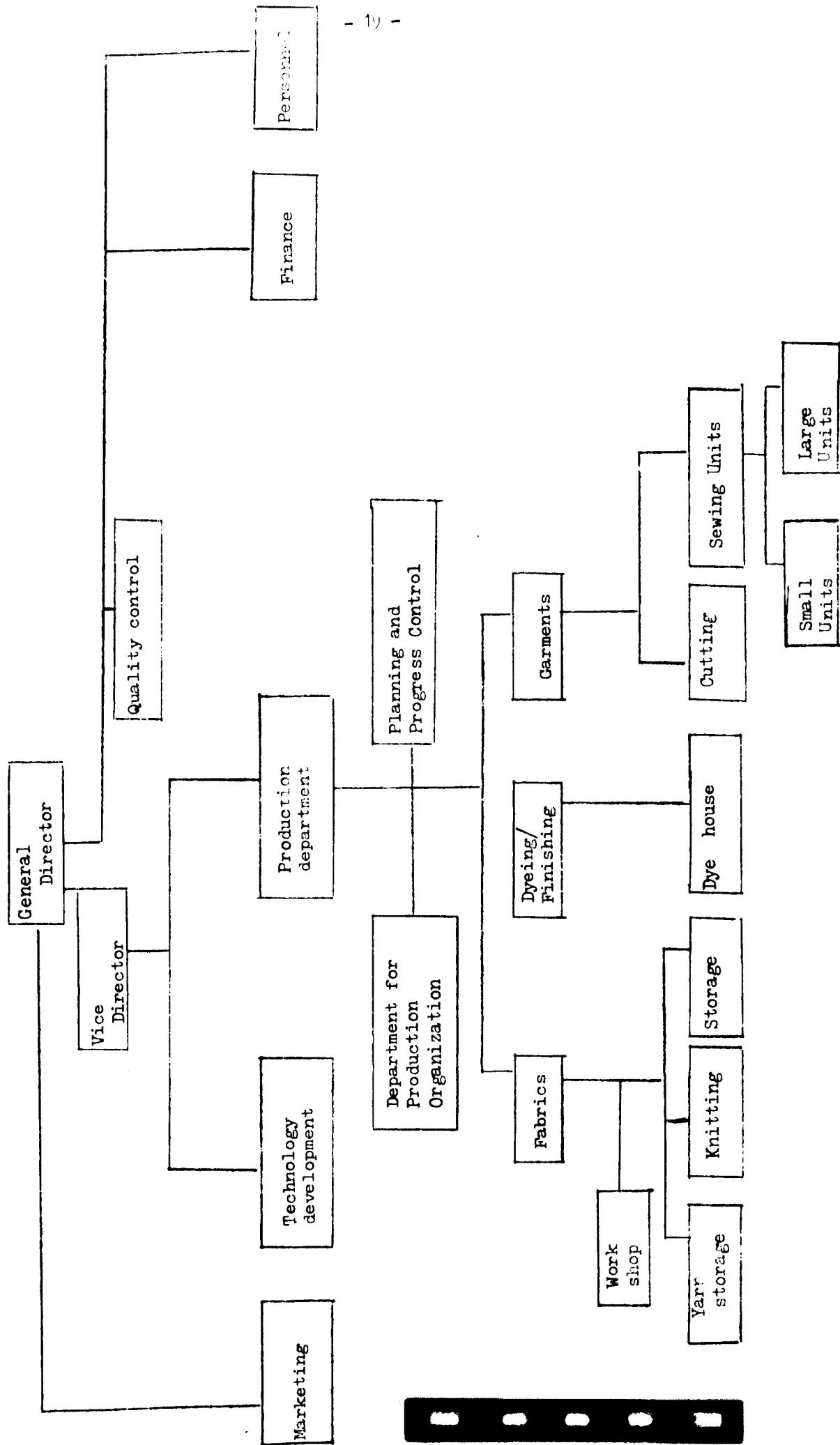
a/ Included in the above total of 19,916 tons.

Employment

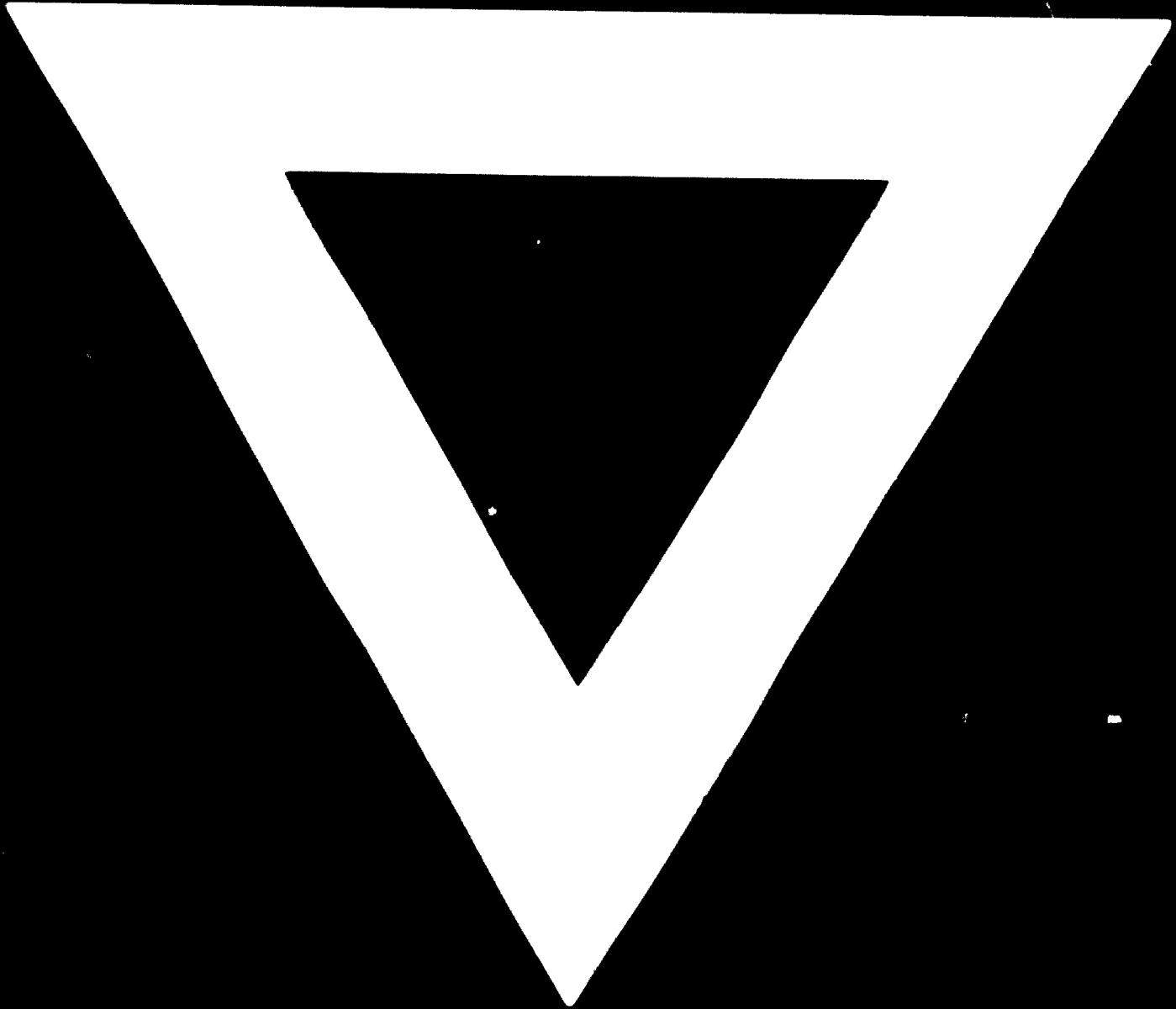
<u>State-owned mills</u>	<u>Sub-mills</u>	<u>Production</u>	<u>Employees</u>
BFK	4	Outerwear, flat and weft knitting	3,786
Budapesti Harisnyagyár	6	Hosiery	4,035
Hodiköt	8	Underwear, outerwear	4,782
Habselyem Kötöttárugyár	11	Underwear, circular warp knitting outerwear	51,701
Magyarovári Kötöttárugyár	4	Underwear, outerwear, flat and circular knitting	2,636
Békésszabai Kötöttárugyár	7	Warp and weft knitting	2,026
Váci Kötöttárugyár	4	Weft knitting, sports- wear	2,709
Győri Kötöttárugyár	1	Gloves	1,441
Halasi Kötöttárugyár		Being erected	150

Annex IV

ORGANIZATIONAL CHART OF HUNGARIAN KNITTING MILLS



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**79.11.15**