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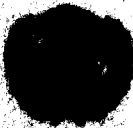
**LEATHER
RESEARCH
AND TRAINING
INSTITUTE
PENDIK/ISTANBUL
(PHASE II)**

BU/TUR/74007

TURKEY

**Technical report:
LEATHER GOODS MANUFACTURING**

**Report for the Government of Turkey by the
United Nations Industrial Development Organization,
in co-operation with the
Food and Agriculture Organization of the United Nations,
the executing agency for the
United Nations Development Programme**

 **United Nations Industrial Development Organization**

United Nations Development Programme

LEATHER RESEARCH AND TRAINING INSTITUTE -

PENDIK/ISTANBUL (PHASE II)

DU/TUR/74/007

TURKEY

Technical report: Leather goods manufacturing

Prepared for the Government of Turkey by the
United Nations Industrial Development Organisation
as an agency associated with the
Food and Agriculture Organisation of the United Nations,
the executing agency for the United Nations Development Programme

Based on the work of Jelko A. Rant, expert
in leather goods manufacturing

United Nations Industrial Development Organisation
Vienna, 1976

Explanatory notes

References to dollars (\$) are to United States dollars.

The monetary unit in Turkey is the lira (LT). In mid-1976, the value of the lira in relation to the United States dollar was \$1.00 = LT 16.50.

A comma (,) is used to distinguish thousands and millions.

LRTI is the Leather Research and Training Institute in Pendik, near Istanbul.

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ABSTRACT

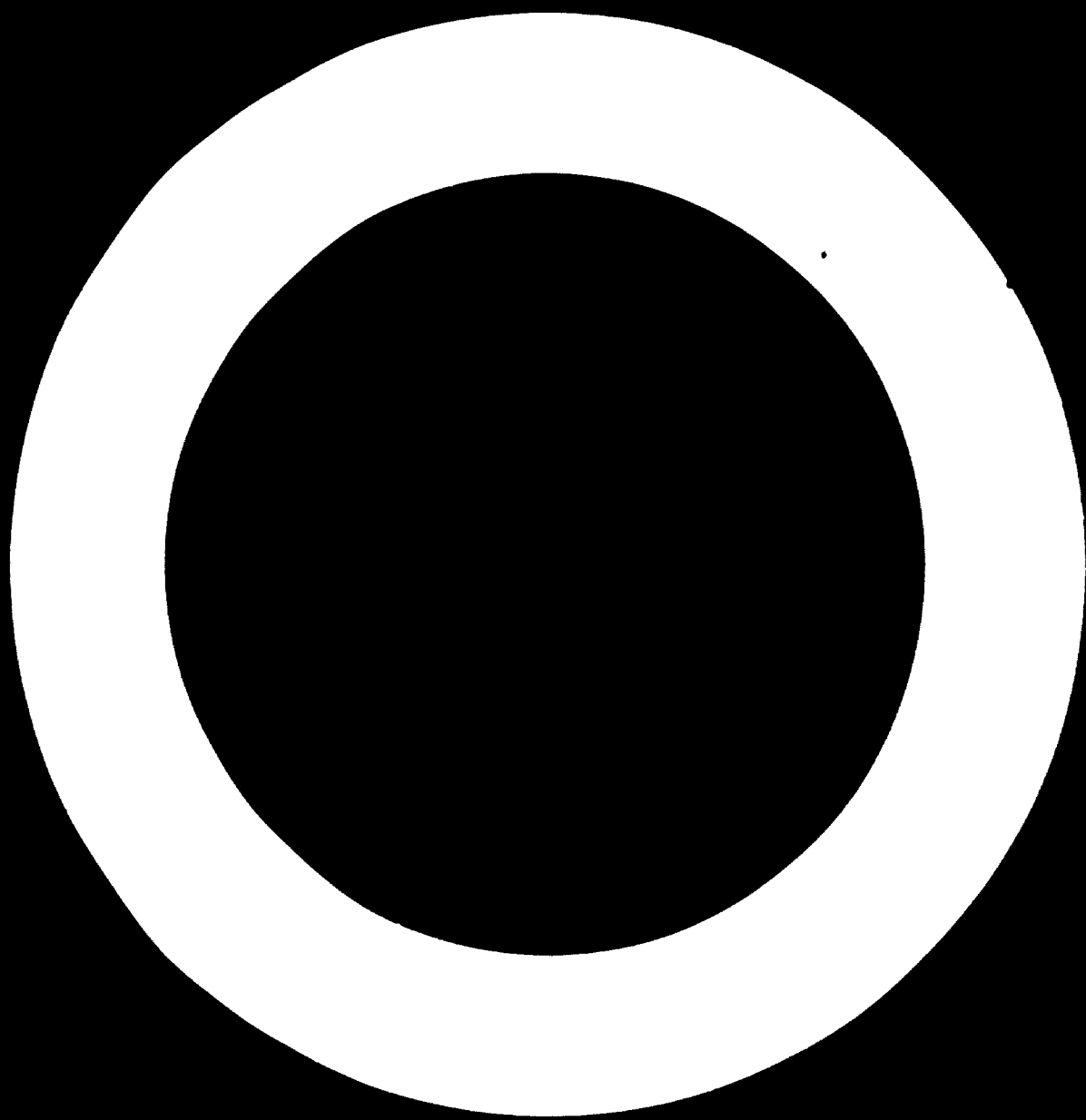
The United Nations Development Programme (UNDP) set up the project "Leather Research and Training Institute" (DU/TUR/74/007) to assist in promoting the further development of Turkey's leather and allied industries, which hold an important position in the economy of the country. The executing agency for the project is the Food and Agriculture Organization of the United Nations (FAO), with the United Nations Industrial Development Organization (UNIDO) as an associated organization. The Leather Research and Training Institute (LRTI) is situated at Pendik, near Istanbul. In February 1976 UNIDO assigned an expert in leather goods manufacturing to LRTI for one month. He was to work as a member of a team of experts under the general supervision of the FAO project manager. Two LRTI staff members were to work with him.

The expert was favourably impressed by the quality of many articles produced by several plants in Istanbul and especially by the capabilities of Turkish leather workers. With proper organization, training, tools and materials, they could produce leather goods that would be salable in the most highly developed countries.

The expert found the Leather Goods and Leather Garments Department of LRTI to be inadequately equipped with regard to both hand tools and certain machines. Some tools were being used improperly. Also, the layout of the department was not functional, so the expert worked out a new and more rational one.

Materials vary in quality. Most ladies' handbags, even high-priced ones, were lined with plastic rather than with leather. The accessories used were partially imported, since those produced locally were not yet of adequate quality. The design of many articles was old-fashioned, bulky and nonfunctional. An important problem was that of cardboard, which is used not only for patterns but as components of some articles and as the primary material for attaché cases.

LRTI should offer courses in the theoretical and practical aspects of leather goods manufacturing at two levels for students of leather goods production and of leather technology respectively. These courses should be parallel but separate. The expert has drawn up detailed programmes for courses of both kinds. He is to return for a follow-up visit to ensure that his suggestions and recommendations have been implemented.



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INTRODUCTION

The leather goods industry and those related to it are important factors in the Turkish economy, particularly in the export trade, where there has been a significant increase in recent years. In 1972, for example, the value of exports of leather and skins was \$24 million; from indirect export of tourist goods, \$15 million; and from exports of leather garments, \$40 million. The present situation of the industry is presented in table 1.

Table 1. Production of the leather goods manufacturing industry of Turkey in 1972

Product types	Number of pieces produced	Materials used ^{a/}
Suitcases	6 250 000	Plastic (95%) leather (5%)
Document cases and school bags	1 600 000	Plastic (90%), leather (10%)
Attaché cases	400 000	Heavy cardboard
Ladies' handbags	5 000 000	Plastic (50%), leather (50%) ^{b/}
Small leather goods	5 000 000	Plastic (60%), leather (40%)
Footballs	300 000	Leather of poor quality (100%)
Travelling bags ^{c/}	1 000 000	Plastic (90%) leather (10%)

Source: Association of Leather Goods Producers.

^{a/} With the exception of frames for ladies' handbags, about half of which were imported, all accessories used by the leather goods industry were produced in Turkey.

^{b/} Four years previously, all leather handbags were made of calfskin. In 1972, 30 per cent were of goatskin, the remainder of calfskin or cattle hide. Some suede skins were used, but no crocodile or lizard. Sheepskin was used to line 90 per cent of ladies' handbags.

^{c/} These are mainly purchased by tourists.

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executing agency for the project is the Food and Agriculture Organization of the United Nations (FAO), with the United Nations Industrial Development Organization (UNIDO) as an associated organization. The Leather Research and Training Institute (LRTI) is situated at Pendik, near Istanbul. In February 1976 UNIDO assigned an expert in leather goods manufacturing to LRTI for one month. He was to be a member of a team of experts under the general supervision of the FAO project manager. Two LRTI staff members collaborated with him. His duties included:

- (a) Surveying and analysing the production methods and techniques used in selected leather goods manufacturing enterprises;
- (b) Conducting short courses in the manufacture of leather goods;
- (c) Preparing a programme for extension services, demonstration and formal training courses directed towards improving the quality of the leather goods produced and preparing lists of equipment that would facilitate such improvement;
- (d) Advising the industry about technical improvements in such areas as processing and plant and product development, with the aim of improving methods of constructing and designing leather goods, and about the proper utilization of leather and other materials.

The expert arrived in Pendik on 5 February 1976 after briefing in Vienna and Ankara. He left LRTI on 24 February 1976 for debriefing before completing his one-month assignment. He is expected to return to the project for a one-month follow-up visit in 1977 to ensure that his recommendations have been executed correctly.

FINDINGS AND RECOMMENDATIONS

Survey of the industry in Istanbul

The expert and a counterpart visited several enterprises in Istanbul to assess the present state of the industry and to offer advice. Detailed reports on some of these visits are reported in annex I.

One enterprise produced expensive ladies' handbags of such high quality that, with some modifications, they could be exported to any developed country. Specifically, they should be lined with sheepskin rather than plastic, the inside pockets should be longer and deeper, and the handles should be better designed. The small items tended to be better than the larger ones. Articles made of plastic, especially ladies' handbags and travelling bags, were of good quality. The footballs produced were not quite satisfactory; the leather used in them was of irregular quality, their components were not matched, and the stitching was done by hand on a homework basis. The cardboard suitcases and attaché cases were very well made, but the cardboard used was unsatisfactory; it was too thick, too heavy and far too hygroscopic. This was true of the material used to make samples and patterns as well as that built into the finished articles. Accessories are largely imported, since locally produced ones are not yet adequate. Even when of good quality, they are old-fashioned and bulky, and their lacquering tends to peel.

The principal problem is that of materials. The quality of the leather used varies widely; some is excellent. Leather for linings, where used, is of good and very good quality. Unfortunately, as noted, most manufacturers use plastic for linings, even in very good and expensive ladies' handbags. On the other hand, workmanship is no problem in the Turkish leather industry. When adequately trained and properly guided, and when provided with good tools and materials, Turkish leather workers can produce goods suitable for export to the most highly developed countries.

Situation at the Leather Research and Training Institute

The expert was in daily contact with LRTI and was thus able to obtain a good over-all insight into the leather goods industry of Turkey. During his assignment, he conducted a seminar for leather goods producers. A summary of this meeting is presented in annex II.

Tools and machinery needed

The Leather Goods and Leather Clothing Department of LRTI was found to be inadequately equipped. It should be made a rule that every worker and student in it have his own set of tools. Also, in addition to these personal tools, the department badly needed two transparent acrylic triangles (90°, 60°, 30° and 90°, 45°, 45°) and a 60-cm transparent acrylic ruler for use in demonstrating the preparation of samples, making cutting patterns and designing styles. Also needed are three iron rulers with special profiles that prevent them from slipping.

As for machinery, the department should have a new sewing machine cylinder arm for leather goods, with different guides for specific work such as U-binding and sewing other profiles. There was also a definite need for an upper-splitting machine. It would be expensive, but if the department is to become a training and demonstration centre for leather goods technicians and students of leather technology, it will be needed. As long as this machine is unavailable, similar thin leathers, such as skivers, can be produced in the tannery of LRTI by shaving hides to the required thickness. This procedure has already been tested.

Suggested changes in layout

The layout of the Leather Goods and Leather Garment Department of LRTI was quite unsatisfactory. At all of the machines, as well as at the cutting boards and benches, the workers had their backs to the infalling light and thus worked in their own shadows. To make matters worse, cupboards had been installed in front of the windows, darkening the entire room. The expert studied the problem and worked out a new and more rational layout, which is presented in annex III. Its basic concept is to place the machines and working surfaces where the best use could be made of infalling daylight. In so doing, the expert took into account the existing electrical outlets and therefore placed the machines near the pillars on which these outlets have been installed. The machines for leather goods production and those for leather garments have been grouped separately.

The expert has measured the infalling daylight under the present arrangement and compared it with the situation that would prevail with the new layout. The difference would be so great as to be nearly incredible. For example, the

operators of the skiving machine and the Pfaff sewing machine would have eight times more natural light than they now do, and there would be fifteen times more daylight at the ironing table for leather garments. This new layout should be implemented as quickly as possible, not only for the sake of the efficiency of the department and the well-being of its staff, but because manufacturers who come to the department for advice should not find it making the very mistakes that it is telling them to avoid.

Proposed courses

LRTI should organize and offer courses in leather goods manufacturing for students both of leather goods production and of leather technology. These courses should cover both the theoretical and practical aspects of their subjects, and they should be parallel but separate. The intensiveness of the instruction should be carefully adjusted to the levels of development of the students.

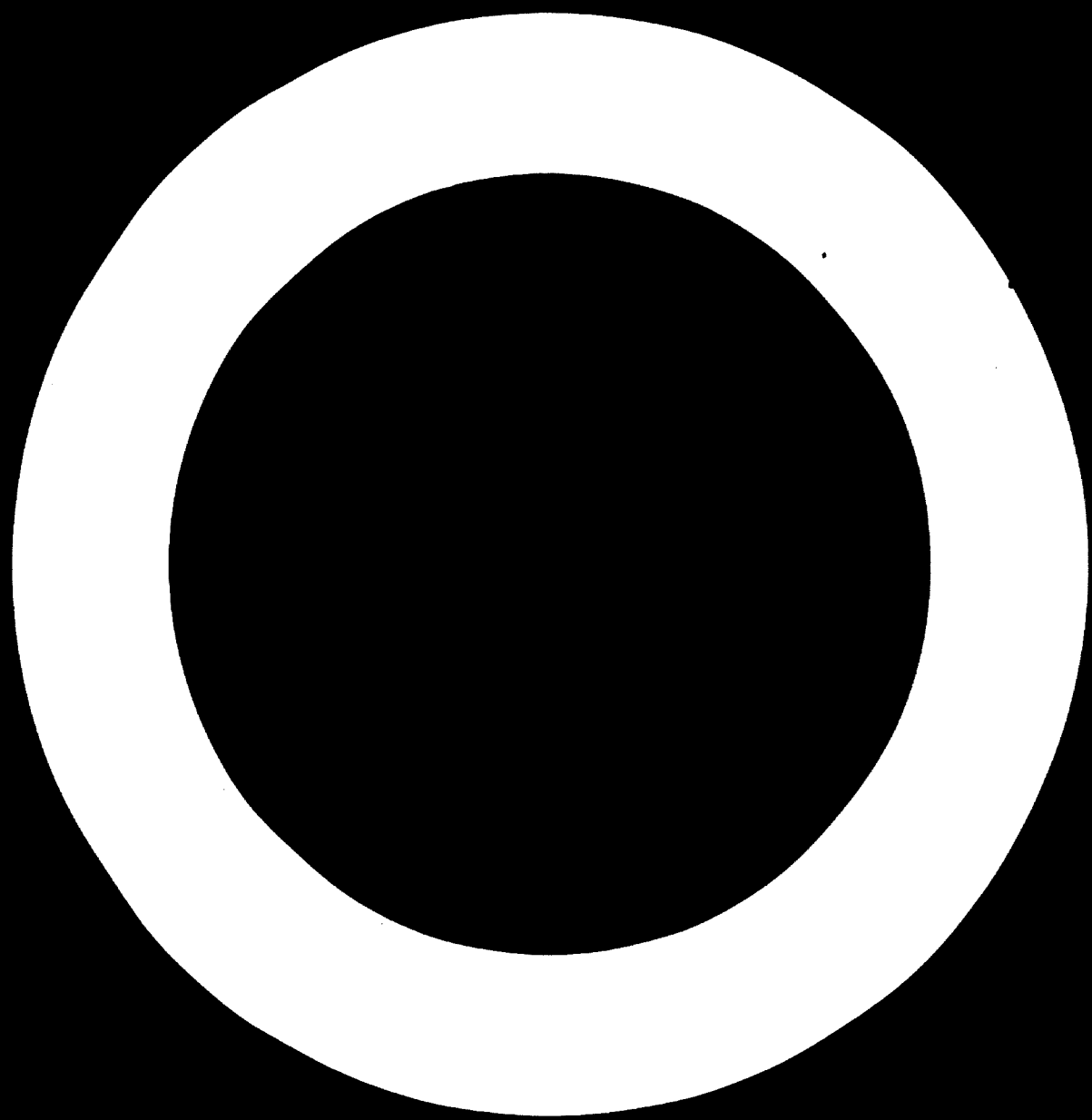
Students of leather goods production should receive intensive training in all of the relevant techniques so that, after completing the course, they would be able to produce any leather article. The students of leather technology, on the other hand, should be made to find out for themselves what qualities leather must have for manufacturing, such as a firm grain that does not break when turned over or skived, resistance when sewn with close stitches, and colour fastness. They should be able to cut out samples of small leather goods, using prepared patterns, but they should not be made to design styles, cut patterns and so on. Such simple cutting from prepared patterns should suffice to teach them all they would need to know about the requirements for leather goods production.

The classes in leather technology should produce only small leather goods (pocketbooks, billfolds, purses, key cases, eyeglass cases and belts); ladies' handbags, attaché cases, travelling bags and other larger articles should be shown to the students and their production demonstrated, but they should not attempt to produce them. As noted, however, students of leather goods production must become able to produce leather goods of any kind. The expert has drawn up full programmes for both courses and submitted them to LRTI.

Future collaborative efforts

LRTI should continue and improve its contacts with leather goods producers. There should be regular visits to the factories, with discussions of specific problems and the provision of on-the-spot advice for adaptations and improvements of procedures and techniques. Such a programme of contacts would convince the industry of the importance of LRTI and cause it to become a source of new students. The existing staff could easily perform these tasks.

The salability of leather goods in the markets of industrialized countries is strongly affected by the quality, design and suitability of the accessories used in their manufacture. Consequently, the Association of Leather Goods Producers should, jointly with LRTI, attempt to convince the producers of these accessories of the need to become more co-operative with the leather goods industry and more aware of its needs than it has in the past. If successful, such an effort would be of benefit to all.



Annex I

DETAILED REPORTS ON SOME LEATHER GOODS FACTORIES VISITED

The expert and Turkish collaborator visited some production shops and selling shops in Istanbul. The same kinds of faults and mistakes were found in nearly all of them, but in varying degrees.

Idris

This small producing shop made ladies' plastic handbags that looked attractive but that showed small errors that could be corrected easily. For example:

Unevenness of stitching, owing to unregulated tension of the two threads

Snap buttons and patent buttons were attached to soft parts of the bags, which made it difficult to close them (functionality problem)

The handles of all of these bags were simple flat straps, which are unsuitable for such articles, even plastic ones

The cardboard in them was too heavy and thick

Yildiz Canta

Some of the articles made in this small shop, especially the ladies' snakeskin handbags, were good, although there were the commonly found faults of execution. Turning of the edges, especially of straps, was done quickly and well. However, the insides of the straps were of cardboard rather than of split leather.

The fastening of accessories (clips, buttons, rings for handles etc.) was done so roughly that the fastening elements were pushed through the lining and were easily visible inside the handbag.

When cutting with large patterns, they were held in place with weights or pieces of iron, which was incorrect. A better method was explained and demonstrated. Rivets were often used needlessly and were attached without the proper tools. The height of the working tables was incorrect. The workers had their backs to the windows and thus worked in their own shadows.

The genuine snakeskin (python) handbags produced in this shop were very good looking, combining different colours in broad stripes. If their insides were as good, they could be sold readily in industrialized countries. However,

for closing the inside pockets, rough and poor-quality zippers, with large teeth, were used. In any case, these pockets were so narrow and shallow as to be useless. Here, too, the cardboard used was too thick and far too heavy, and the handles were simple narrow straps, suitable for only the cheapest plastic handbags and not for quality articles.

Modern Canta

This small shop made only leather and snakeskin handbags. Here again, while some of the styles, and especially the parts made from snakeskin, were good, the same faults in execution and materials were found; poor handles, too-heavy cardboard in the inside partitions, rough and poor-looking pockets. With small changes, these handbags could also be sold in developed countries with no difficulty.

Aksay Canta

This shop produced only ladies' plastic handbags. It was of considerable interest that these plastic articles were on a substantially higher level of quality than some of the more costly leather bags seen elsewhere. The only advice that could be offered was to improve the quality of the handles and especially their fastening, which could be done with rivets.

Nurhan Canta

This shop produces ladies' handbags, some of them in genuine snakeskin (python and water snake). In some of them, the workmanship was excellent; proving again that the expert was correct when he stated, at the seminar, that Turkish leather workers could produce goods that would be salable in western markets. The expert had not expected to find such high-quality production in Istanbul.

Only a few minor suggestions could be made: more suitable handles; in a few cases, better functionality; deeper inside pockets, reinforcement of the places where the handles are attached. Most importantly, however, these handbags, and especially those of snakeskin, should be lined with leather rather than with plastic, as they were. The average price for these handbags is LT 600; to line them with leather would cost about 7 per cent more.

The accessories used were mostly imported from Spain. Production is well organized, the tools are kept in order, and the whole production room makes a good, clean impression.

Abidin Vurgun

This operation produced footballs; the stitching was done on a homework basis. The parts were clicked on a hand-operated press, and they were not pre-punched. While this was incorrect, the expert and his local collaborator were informed that the workers prefer to do the punching themselves, with awls. However, the holes cannot be positioned accurately in this way, and it is rather hard work. The wooden screw used is also obsolete; every two pieces that are to be sewn together must be brought into position by screwing and unscrewing the mechanism, which must be time consuming. When it was explained that the proper way is to clamp with foot pressure, the expert was told that when children did this work they would not be strong enough. He also explained how 90 per cent of the stitching could be done by machine.

There were problems with the leather. The stretching was not done correctly. To make really good footballs, about 40 per cent more leather and 30 per cent more time would be required. The leather presently used is of poor quality; the grain rises, the leather for each ball is not sorted, so it is a matter of chance if the thicknesses of the various parts are about even.

Production seemed to run between 4,000 and 5,000 pieces daily. They were all sold locally.

Annex II

LECTURE AND DISCUSSION AT THE LEATHER RESEARCH AND TRAINING INSTITUTE

The expert conducted a lecture and discussion at LRTI that was attended by the representatives of 13 producers of leather goods as well as by the Project Manager and the Director of LRTI. This account of it presents a clear picture of the present state of the industry and what should be done to promote its further development.

The expert began by pointing out that labour-intensive industries such as this one are moving from industrialized countries to developing ones. For example, enterprises in Western Europe that produced gloves and other leather goods are transforming themselves into buying and selling organizations. He advised the leather goods producers of Turkey to prepare for this development in plenty of time.

He next considered the problem of costing. Leather for uppers is sold by area (square decimetres or square feet), and sole leather is sold by weight. However, data concerning output are calculated in cash value as well. With items such as shoes, such calculations are fairly easy - so many pairs per worker per shift, times the cash value per pair. With other leather goods, and particularly small ones, costing is more difficult, since there are so many different varieties. In this situation, costing can be done by determining how many square decimetres were used in a given period, such as a year, and the value (selling price ex-factory) per worker. In Western Europe, a well-equipped leather goods factory produces the equivalent of LT 106,500 per worker per year. The amounts of leather required for some small leather goods are shown in table 2.

Table 2. Amounts of leather required for some small leather goods

Article	Leather needed (dm ²)
Lady's handbag	58
Document case (simple)	35
Billfold	10.1
Belt	4.5
Attaché case	120
Suitcase (medium size - 60 cm long)	250
Travelling bag (according to size and style)	150 to 250

Tools and their proper use were considered next. The expert pointed out that a very useful and important one that was not yet being used in Istanbul was a 1-metre-long iron ruler with a special profile that prevents it from slipping on the work. He also pointed out that it is both incorrect and time consuming to use pencils to mark leather; the marking thorn should be used so as not to perforate the grain. The folding bone should be used for turning and folding. While the hammer has its uses, as for pounding stuck-together pieces of leather, as in belts, it should not be used in marking and cutting. The brass tool that is so widely used in Istanbul may be used in folding and turning, but it should never be used as a hammer.

The gluing techniques used are frequently substandard; glue is often applied with the fingers. Also, the use of weights or pieces of iron to hold larger cutting patterns in place is incorrect and inefficient. A much better result can be achieved by gluing two strips of very fine (No. 000) sandpaper to the side of the pattern that will touch the leather. This method is very effective.

The expert laid great stress on the importance of factors such as fashion, functionality, weight and bulkiness in various kinds of leather goods, offering examples. He also pointed out that operators should never work with their backs to the source of light (normally, the windows). When they do, they work in their own shadows, and the quality of their work suffers. It is for this very reason that the expert has prepared a new layout for the Leather Goods and Leather Garment Department of LRTI (see annex III).

During the lecture and in the subsequent discussion, much attention was devoted to cardboard attaché cases. While these articles are well made, there are serious difficulties with the cardboard used in them. This problem must be solved before any real improvement can be expected. The expert is to send, from Europe, samples of appropriate materials to LRTI, which will submit them to cardboard manufacturers in Turkey, asking them to try to develop similar materials. Practical suggestions were made on how to prevent wrinkling by adapting and adjusting the functions of the folding machine, as by increasing heat and pressure and wetting the critical points of the cardboard.

Among the other matters that were considered during the discussion, which was animated and lasted for more than an hour, was the important one of accessories such as closures, locks, zippers and frames. The expert noted that,

while the quality of many of these items made in Turkey was not bad, their design was often inadequate. For example, the locks on the attaché cases are far too large and spoiled the appearance of the article.

Some of the manufacturers expressed strong interest in export markets for their products. They were referred to the Director of LRTI. The important point was made that Turkish leather workers are good. When properly trained and led, and when provided with proper tools and good materials, their workmanship can meet western standards. As evidence, the expert cited the large number of Turkish workers in the great leather goods factories at Offenbach, Federal Republic of Germany.

Annex III

PROPOSED NEW LAYOUT FOR THE LEATHER GOODS AND
LEATHER GARMENT DEPARTMENT OF LRTI

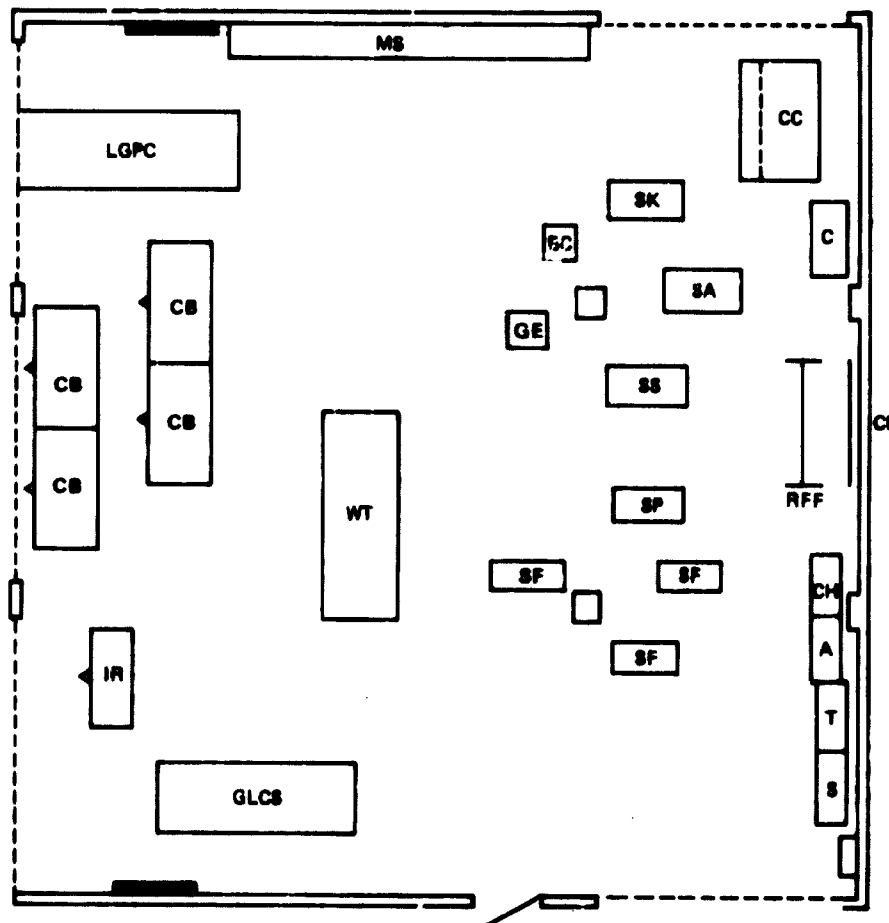
At the time of the mission of the expert to LRTI, the layout of this department was deplorable. The machines and the cutting boards and benches were all placed so that the workers had their backs to the windows and thus worked in their own shadows. To make matters worse, cupboards had been installed in front of the windows, darkening the workroom still further. Under the new layout (see figure), the machines and working surfaces would be situated so as to make the best use of infalling daylight. The machines for leather goods production and those leather garments have been grouped. It was necessary to take into account the already existing electrical installations, so the machines are placed near the pillars on which these outlets are mounted.

The expert measured the infalling daylight under the present set-up and compared it with the situation that would prevail with the new layout. Some of the differences would be so great as to be nearly incredible: by merely turning the skiving machine (SK) around and moving it 50 cm towards a glass door, the machine operator will have eight times more light than previously; the Pfaff sewing machine (SP), when turned around, will also have eight times more light; in its new position, the ironing table for leather garments (IR) will have 15 times more light.

This new layout should be implemented as quickly as possible, since individuals and firms who come to the department for advice should not find the institute making the same errors that it is advising them to avoid.

The scale of the accompanying sketch is 1:100 (1 cm = 1 metre). Only the following items will remain in their present positions:

MS	Shelving for materials
CC	Cardboard-cutting machine
LGPC	Leather goods pattern cutting
GLSC	Garment leather cutting samples

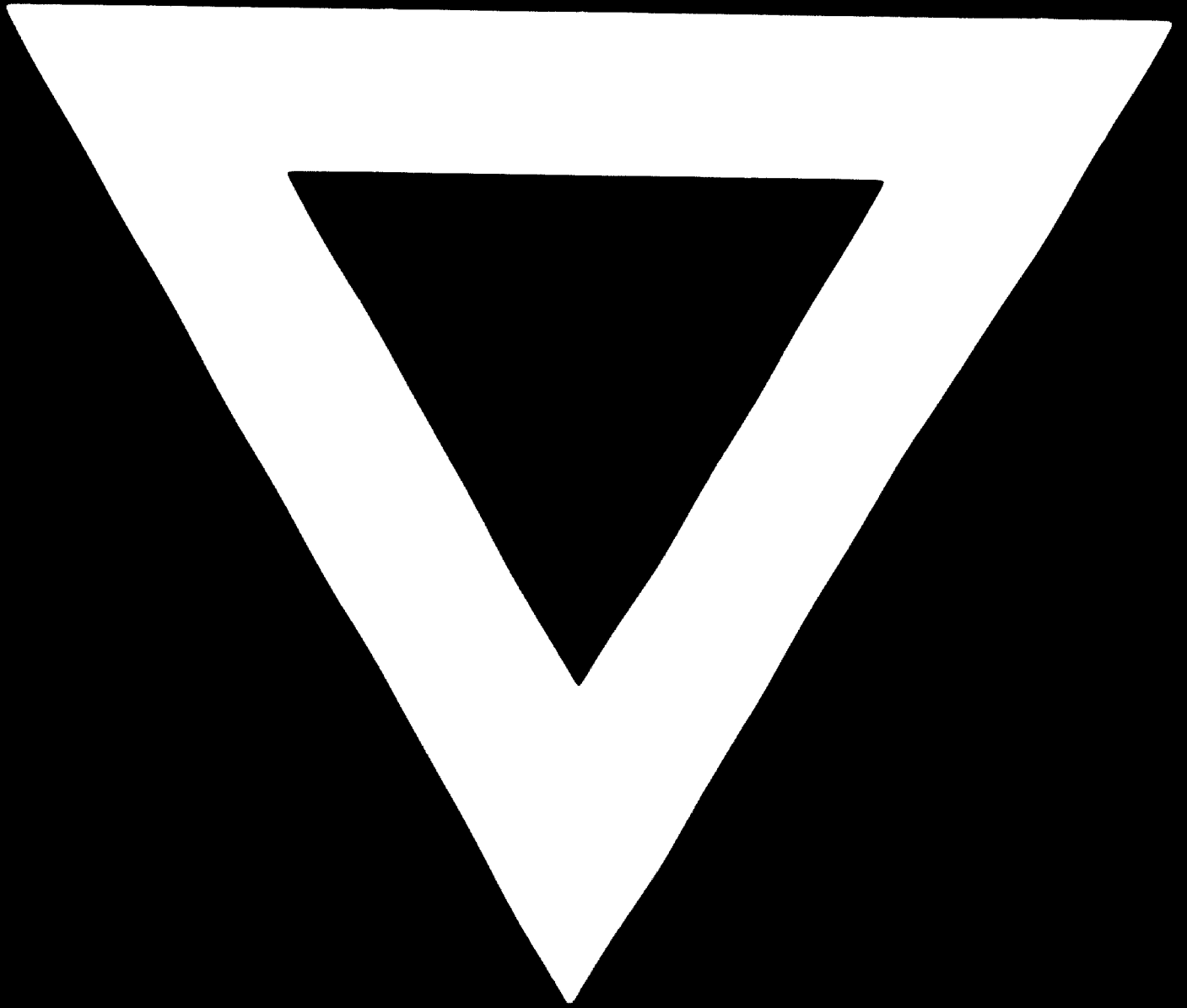


- | | | | |
|------|---------------------------------|-----------------|--------------------------------------|
| MS | Shelving for materials | T | Cupboard for tools |
| LGPC | Leather goods pattern cutting | S | Cupboard for samples |
| CB | Cutting benches and boards (4) | <u>Machines</u> | |
| WT | Working table | CC | Cardboard-cutting machine |
| IR | Ironing table | SK | Skiving machine |
| GLCS | Garment leather cutting samples | SA | Sewing machine (Adler) |
| C | Storage for cardboard | SS | Sewing machine (Singer) |
| CP | Cutting patterns (on wall) | BC | Belt-cutting machine |
| RFF | Rack for fur and leather coats | GE | Gold-embossing machine |
| CH | Cupboard for chemicals | SP | Sewing machine (Pfaff) |
| A | Cupboard for accessories | SF | Sewing machine for fur (Strobel) (3) |

Proposed new layout for the
Leather Goods and Leather Garment Department of LRTI



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