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16137

DP/ID/SER.A/809  
13 February 1987  
ENGLISH

PRODUCTIVITY AND QUALITY IMPROVEMENT IN  
THE GARMENT INDUSTRY

SI/MEX/86/860/11-51

MEXICO

Technical report: Findings and recommendations \*

Prepared for the Government of Mexico  
by the United Nations Development Organization,  
acting as executing agency for the United Nations Development Programme

Based on the work of Roger A. Harkness,  
Garment Technologist

Backstopping Officer: A. Eräneva, Agro-based Industries Branch

United Nations Industrial Development Organization  
Vienna

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INTRODUCTION

Compania Manufacturera de Ropa Aristos, S. A. de C. V. was founded in 1943, is privately owned, employs 450 persons and produces annually approximately 800,000 units of jeans, slacks and shirts for the domestic market.

The Company, one of the largest in the country is located to the south of Mexico City and was purpose built on one level some ten years ago.

The local labour force is very stable some 70% being employed continually for the past 6 years or more.

Prior to the move the Company was located in the centre of Mexico City and employed approximately 600 persons for a similar output. The manufacturing areas were distributed over 4 floor levels.

Since the earthquake in 1985 there is a real need for employment and in the present location there is a good supply of available labour and very little or no competition from other sources.

TERMS OF REFERENCE

In co-operation with the counterpart staff, assigned to the expert by the Ministry of Industry Through Compania Manufacturera de Ropa Aristos to:-

Assess the current situation of the manufacturing plant and draft a detailed work plan for the subsequent ten week assignment, indicating what preparatory measures are required prior to commencement.

1. REVIEW OF CURRENT SITUATION IN COMPANIA MANUFACTURERA DE ROPA  
ARISTOS

The observations set out below are based on information gathered from the manufacturing departments in the available time. Compania Manufacturera de Ropa Aristos is the only significant employer of female labour in the immediate area.

FINDINGS

1.1 Manufacturing Area

The manufacturing, warehousing and storage area are located on the ground floor and follow a straight line system of goods in, cutting, manufacturing, warehousing and despatch.

The manufacturing departments are controlled by supervisors and they in turn by product production managers.

Piece rates are applied on most operations and the pace of work indicative of its success. Total number of direct machinists approximately 130 persons.

Very little use made of progressive bundle system in factory.

1.2 Products and Material Used

There are three garment types manufactured, jeans, slacks and shirts.

Two design staff are continually revising styles - size/age range and garment style are very diverse within these three types, to meet with domestic requirements.

Shirting fabrics are mainly lightweight polyester/cotton blends all manufactured and purchased locally.

Jeans/slack fabrics are mainly denim, corduroy and polyester/cotton blends all manufactured and purchased locally.

Buttons, cotton, zips, elastic and other accessories are manufactured and purchased locally.

All fabric and accessories are tested in plant to ensure quality is maintained and improved upon.

### 1.3 Machines Used

Cloth spreading activities are completed manually without the aid of trolleys, on eight tables each twenty metres long.

Cutting activities are accomplished using Eastman straight knives on large parts, small parts blocked out and cut on band knives. No die cutting due to very poor quality and warping of dies alter little use.

All machines, single needle lockstitch, two needle lockstitch and chainstitch, overlock, button hole and button sew are electrically driven, treadle controlled industrial type. Power is derived from overhead power source.

The shirt department has 20 machines, on average two years old and thirty machines approximately fifteen to twentyfive years old.

The jeans/slacks department observed to have machines from twelve years to twentyfive + years of age.

Modern machinery with delicate and sophisticated circuit boards and electrical components are very expensive to purchase. Maintenance work needed beyond the simplest repair entailed the despatch of the faulty equipment to the supplier.

## 2. SUMMARY OF FINDINGS

During the visit the following points in need of consideration were noted:-

- 2.1 The large range of sizes and styles within each product type has a negative effect on efficiencies, more so in the jeans/slack department because of the different construction methods required.
- 2.2 The pace of work of machinists or persons on piece work is high, but no on going assessment of work values is carried out.

- 2.3 Good use made of folders and attachments but very little or no work place engineering observed other than the obvious, for instance - box in front of machine to trap work sewn in a chain.
- 2.4 All machines used are electrically driven, treadle controlled, industrial type. The majority are very old, ranging from twelve to twentyfive + years of age.
- 2.5 No formal selection procedures for recruitment of sewing personnel.

### 3. RECOMMENDATIONS

With the assistance of Messers del Angel and Hernandez the following steps are required to increase productivity and garment quality:-

- 3.1 Re-organisation of shirt line lay-out. Duration of project 5 weeks, see Annex I of this report.
- 3.2 Project a floor lay-out for the re-organisation of the jeans/slack line into two separate lines for use at a later date.  
Duration of project, 4 weeks, see Annex I of this report.
- 3.3 Train two production managers in garment factory organisation and overall management. Messers del Angel and Hernandez will work closely with the expert for the duration of the project, see Annex I of this report.
- 3.4 Increase productivity and quality through the use of simple work aids manufactured/purchased locally. The Company can extend this idea to increase productivity and quality after the mission has ended.
- 3.5 Arrange for supervisors to attend training course on garment technology.
- 3.6 Purchase 4 Singer Sewing Machines with under bed trimmers, needle positioning and programmable back tack facilities for demonstration and training purposes during the mission.
- 3.7 Arrange the ordering and despatch of items of equipment to Compania Manufacturera de Ropa Aristos as listed in Annex II of this report.



4. ACKNOWLEDGEMENTS

I would like to thank all those with whom I have come in contact for the kindness, understanding and hospitality shown to me during the mission.

I would give special mention to:-

Mr. Gabriel Carrasco	-	Director General
Mr. Maurice Carrasco	-	Translator
Mr. Poly Hernandez	-	Production Manager
Mr. Olivo del Angel	-	Production Manager

And all staff at the unido office in Mexico City.



ANNEX I (CONTINUED)

ASSIGNMENT WORK PLAN

2. a. Detailed lay-out of shirt line and floor re-organisation: 2 weeks.
- b. Survey of operations and methods used and introduction of work aids, folders or attachments: 3 weeks.
- 3/4 a. Proposed lay-out of a separate jeans and slacks line: 2 weeks.
- b. Survey of operations and methods used and introduction of work aids, folders or attachments: 2 weeks. Due to style range, work place engineering very limited.
5. Messers del Angel and Hernandez to be present through mission. They will train two jeans/slacks and two shirt supervisors in new developments and floor supervision.

ANNEX II

EQUIPMENT

NON - EXPENDABLE EQUIPMENT

	US\$
4 Electronic stop watches 1/1000 Min. callibration	300
4 Singer Sewing Machines (Model 5071)	8000
Work Aids	1200

ALL EQUIPMENT AVAILABLE LOCALLY

1 Supervisor Training Course	500
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TOTAL US\$ 10000

ANNEX III

MEMORANDUM

FROM: R.A. HARKNESS - UNIDO EXPERT ON GARMENT INDUSTRY PROJECT.

TO: MR. GABRIEL CARRASCO - DIRECTOR GENERAL COMPANIA MANUFACTURERA  
DE ROPA ARISTOS, S.A. DE C.V.

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I am taking this opportunity to record some of the actions which need to be taken to complement any action taken by the expert and help ensure the success of the project.

1. Arrange the use of a carpenter for the manufacturer of a small quantity of work aids.
2. Arrange the availability of labour (mechanics) for the re-organisation of the shirt line, to take place during a weekend.
3. Confirm the availability of two shirt and two jeans/slacks supervisors for a training course.