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BRAZIL

Technical report: Findings and recommendations\*

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

Based on the work of Gary W. Smith  
Knitting technologist

Backstopping officer: J.P. Moll, Agro-based Industries Branch

United Nations Industrial Development Organization  
Vienna

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\* This document has not been edited.

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1. SUMMARY OF RECOMMENDATIONS

(i) The repetitive seminar approach advocated by Mr. John-Peter Moll and implemented by this technologist should be continued. However, the number of companies and participants should not be too restrictive.

(ii) Because of the newness of this type of approach where on-site recommendations are combined with seminars, more time must be allowed for planning in the Rio de Janeiro and Sao Paulo districts. In this context, promotional brochures could be sent in the mail and lecture outlines could be published in the CETIQT newspaper (Centro de Tecnologia da Industria Quimica e Textil). In Santa Catarina where the program is better known, not as much time would be required.

(iii) The knitting teachers at CETIQT need more up-grading; in this context, not only should the CETIQT Professors sit in on the seminars (as much as possible, when possible) but money should be allocated so that they can visit more plants. Furthermore, it would be advisable for the two knitting teachers at CETIQT to receive individual knitting courses to up-grade their skills. Although CETIQT is working very hard in this respect, much work still needs to be done; especially in the sense that course outlines need to be modified in order to keep in touch with industrial needs and world trends.

(iv) More effort must be put into the planning of both short and long range training for operators, mechanics and supervisors. In this context, a UNIBO sponsored technologist could develop a set of "universal" training aids that could be used in most weft knitting plants. Since there is a demand for yarn forming seminars also, a similar set of "universal" training aids could be developed in this area also. Video tapes would also be very useful.

(v) A series of "problem solving techniques" articles should be written and published in the CETIQT newspaper. This approach to problem solving and prevention would be very beneficial to the smaller companies which have great difficulty in discovering the true cause of their problems.

(vi) It is highly desirable to encourage the writing of booklets that supplement the material discussed in seminars and on-site recommendations.

## 2. INTRODUCTION

In the original contract description, the project assignment was stated as follows: " conduct, during his mission, an evening seminar of approximately 20 hours on modern knitting methods with special emphasis on modern machinery, optimum workplace layouts, quality requirements, machine settings and productivity; repeat the seminar at 2 or 3 other locations; visit and audit various small and medium factories and give on the spot recommendations for technical improvements; submit written seminar papers prior to his fielding, enabling CETIQT to translate these and finalize the preparation of the seminars; to prepare a technical report; and write a quality control booklet."

During initial discussions with Professor Alexandre Rodrigues of CETIQT, the objectives of the program were discussed. At that time it was decided that initially a period of time would be spent in Rio de Janeiro to prepare the seminar material and the quality control booklet that was required in the contract. After a period of approximately two weeks, this technologist and a Professor from CETIQT went to five different locations to visit plants in the morning (and give technical advice) and lecture in a seminar in the afternoons (see ANNEX I).

Further preparation for the booklet material was to be done in the evenings when possible. Because the material in the booklet had to be translated into Portuguese and published, this technologist suggested that the submission of the final report should try to coincide with the publication of the booklet in late September or early October. This booklet (with the proper number of copies) would be sent by CETIQT.

It was also decided that the content of the booklet would differ somewhat from the original proposal because of the obvious lack of problem solving skills inherent in most of the companies visited. During the on-site audits, the concept of writing procedures for cleaning, reneedling and fabric handling et cetera was addressed.

During the final period of time in Rio de Janeiro, if there was any time, CETIQT requested articles to be written that would compliment the work done (so that they could be published in the CETIQT newspaper); one article was eventually written and submitted. Other articles have been promised.

The seminars in Rio de Janeiro and Sao Paulo were to be organized by CETIQT whereas the seminars in Joinville, Jaragua do Sul and Blumenau were organized by industry.

### 5. FINDINGS

Common observations and problems relating to many of the small to medium size knitting companies are listed below:

- (i) Because of the high rate of inflation (approximately 750% on an annualized basis) the market for knitted products was relatively soft and instead of thinking primarily about plant problems, attention was often primarily focused on the making or preserving of capital. As such, the discussions relating to productivity and quality were often not as effective as they could be. Too often the phrase "but that will be very difficult to impliment" was heard. The people in Santa Catarina who had previous exposure to the program were much more receptive than those in areas where the offerings were new.
- (ii) Productivity and quality improvement techniques were quite well received especially when they were linked to a "cause and effect" approach.
- (iii) The underutilization of people, machinery and technology is still a problem and will remain a problem unless an organization such as UNIDO helps both CETIQT and the Brazilian government. Poor yarn, needle, machine and in-plant training quality aggravate the situation.
- (iv) There is a lack of short, easy to read training manuals or articles in Portuguese that could help the smaller plants cope with their problems. Too often material that is available is either not applicable or too theoretical.
- (v) Because of financial and time restrictions, the knitting professors at CETIQT do not have enough exposure to plant situations. The result is that courses are somewhat behind industrial trends and needs. CETIQT is trying hard to remedy the situation but it is difficult.
- (vi) Based upon observations, it is fairly safe to conclude that much of the textile industry that is associated with knitting is non-competitive with Asia, Europe and North America.
- (vii) There is a need for one on one knitting and yarn courses for the knitting teachers at CETIQT in order to bring them up to date as quickly as possible.
- (viii) Reception to the material in Santa Catarina was much better this year than last; indeed, many of the recommendations have been implimented.

#### 4. BACKGROUND TO RECOMMENDATIONS

Although essentially all of the small to medium size knitting companies in Brasil buy their yarn externally, most of them try to be vertical from knitting onwards. Because the majority of these companies do not know much about yarn manufacturing and thus yarns are not adequately specified.

Similarly, many of these companies do not have access to the techniques that could minimize many of their problems. Unfortunately, for the companies that do have access to outside technology et cetera, such techniques and people skills are not used efficiently. In addition, the debt crisis make the purchasing of up to date technology difficult.

The coordination of any serious efforts to remedy the situation is often hindered by a lack of support from upper management and government inaction.

ANNEX I

Diary of Events

May 23, 1988 Left Raleigh, received visa in Miami  
24, Arrived Rio de Janeiro, preliminary discussions  
25, Further discussions, seminar and booklet preparations  
26-27, Seminar and booklet preparations  
30-31, Seminar and booklet preparations  
June 1-3, Seminar and booklet preparations  
6, Visited Malharia Iracema, Joinville/ Seminar  
7, Visited Fiacao Joinvilense, Joinville/ Seminar  
8, Visited Fiacao Comfio, Joinville/ Seminar  
9, Visited Malharia Campea, Joinville/ Seminar  
10, Visited Malharia Nerisi, Joinville/ Seminar  
13, Visited Malharia Marisol, Jaragua do Sul/ Seminar  
14, Visited Malharia Dalmar, Jaragua do Sul/ Seminar  
15, Visited Malharia Nanete, Jaragua do Sul/ Seminar  
16, Visited Malharia Fruet, Jaragua do Sul/ Seminar  
17, Visited Malharia Marisol, Jaragua do Sol/ Seminar  
20, Visited Malharia Hering, Blumenau/ Seminar  
21, Seminar, Blumenau  
22, Visited Malharia Maju, Blumenau/ Seminar  
23, Visited Malharia Thiemann, Blumenau/ Seminar  
24, Visited Malharia Mafisa, Blumenau/ Seminar  
27, Visited Malharia Full Fit, Sao Paulo/ Seminar  
28, Visited Malharia Mundial, Sao Paulo/ Seminar  
29, Visited Malharia Budi, Sao Paulo/ Seminar  
30, Visited Malharia Oriente, Sao Paulo/ Seminar  
July 1, Seminar, Sao Paulo  
4, Seminar, Rio de Janeiro  
5, Visited Malharia Esperanca, Rio de Janeiro/ Seminar  
6, Visited Malharia Oslo, Rio de Janeiro/ Seminar  
7, Visited Malharia Mena, Rio de Janeiro/ Seminar  
8, Visited Malharia Raylane, Rio de Janeiro/ Seminar  
11-13, Worked on booklet, wrote article for CETIQT, helped  
write examination questions for CETIQT examinations  
14, Visited Malharia Vencedor, Rio de Janeiro  
15, Finalized report  
18, Completed report, completed assignment



ANNEX II

Seminar Topics

YARN

implications of fiber blend  
yarn buying considerations  
yarn testing  
factors influencing knitability  
yarn specifications  
yarn specification forms  
yarn storage practices

KNITTED FABRIC

properties and problems  
loop classifications  
notation  
knitting actions  
fabric construction sheets  
influence of yarn and mechanical variables  
knitting room problems and layouts  
auditing practices  
production influences  
quality factors  
production calculations  
productivity improvement techniques  
lint and yarn breakage reduction  
cause and effect analysis  
machine purchasing considerations  
structural modifications  
caming diagrams

ANNEX III

List of Seminar Participants

Joinville

Ana Maria Perini  
Daginor Rubins Raptke  
Gdenir Lennert  
Udo Brietzig  
Ilario Zietz  
Nelson Klug  
Jose Hoffmann  
Delcio Pereira  
Sebastiao Narch  
Umberto Perini

Blumenau

Elmo Francisco  
Murilo Sergio Santos  
Nelson Dietrich  
Joao Carlos Vieira  
Antonio Goncalves  
Erenandes Schrann  
Arnaldo Pochecho  
Vitor Petermann  
Adalberto Barth  
Eduardo Becker  
Alexandre Roeder

Jaragua do Sul

Aristides Conti  
Paulo Giancesini  
Joao Batista Ronci  
Idelson Marcos Dalpra  
Gunther Boss  
Marcio Schmalz  
Jose Clenio Ostetto  
Zenilto Furlaneto  
Aldecio Gasda  
Ulmar Doj  
Mahool Joares  
Mario Jung  
Jasw Ocenz

Sao Paulo

Durval Alvessaraiva  
Arquimedes Prando  
Michel Hamoui  
Arieh Hamoui  
Aleksandar Tomic  
Jorge Devechi

Rio de Janeiro

David Gohlart  
Maria Bastos  
Milton de Oliveira  
Orlando Palermo  
Jose Marcelo Macedo  
Rubens Ramires  
Jackson Nog

ANNEX IV

List of Participating Companies

Malharia Iracema	Fiacao Joinvilense
Malharia Campea	Fiacao Comfio
Malharia Nerisi	Malharia Marisol
Malharia Dalmar	Malharia Nanete
Malharia Fruet	Malharia Hering
Malharia Maju	Malharia Thiemann
Malharia Mafisa	Malharia Full Fit
Malharia Mundial	Malharia Budi
Malharia Esperanca	Malharia Oslo
Malharia Mena	Malharia Raylane
Malharia Venceor	

ANNEX V

Copy of CONTROLE DE QUALIDADE NA INDUSTRIA DE MALHAS - Volume 3\*

- \* Note: Even though this report was written and typed in July, it is being submitted at approximately the same date as the expected publication date of Volume 3.  
CETIQT will send the appropriate number of copies to UNIDO.