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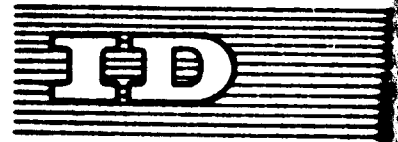
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Expert Group Meeting on Quality
Control in the Textile Industry

Budapest, 6 - 9 July 1970

FINAL REPORT OF THE
EXPERT GROUP MEETING ON QUALITY CONTROL
IN THE TEXTILE INDUSTRY 1/

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TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
AGENDA	1
BACKGROUND DOCUMENTS	2
PARTICIPANTS	3
RECOMMENDATIONS	4
SUMMARY OF THE PAPERS AND OF THE DISCUSSION	6

INTRODUCTION

In accordance with the approved UNIDO work programme for 1970 (ID/B/64/Add.6, para.15), the Expert Group Meeting on Quality Control in the Textile Industry was held from 6 to 9 July 1970. The meeting, at the invitation of the Hungarian Government, was convened in Budapest, and had as its purpose to recommend suitable ways of assisting developing countries in establishing efficient quality control systems in the textile industry.

In addition to the discussion on the agenda items, the programme included visits to the Textile Research Institute, the Institute for Quality Control in the Textile Industry, a special exhibition of textile testing instruments, organized by METRIPEX, and an integrated worsted mill, MAGYAR POSZTOGYAR, in Budapest.

AGENDA

1. Opening addresses; election of Chairman and Rapporteur
2. Survey of statistical methods of quality control in the textile industry
3. General organization of quality control in a textile mill
4. Causes and control of waste in worsted spinning
5. Application of quality control methods in worsted spinning
6. Quality control in cotton spinning, yarn count and uniformity
7. Quality control in winding, beaming and weaving
8. Quality control in knitting
9. Quality control in the finishing of cotton
10. Psychological considerations for an efficient quality control programme
11. Recommendations and conclusions

BACKGROUND DOCUMENTS

The meeting had before it the following documents:

- ID/WG.58/1 The Causes and Control of Waste in Worsted Spinning - by Prof. M. CHAIKIN, University of New South Wales, Australia
- ID/WG.58/2 Application of Quality Control Methods in Worsted Spinning - by H.K. FRANKOWIAN, International Wool Secretariat, London, U.K.
- ID/WG.58/3 Survey of Statistical Methods and Concepts to be Applied in Textile Quality Control - by A. BARELLA MIRO, Director of the Institute for Textiles and Leather, Barcelona, Spain
- ID/WG.58/4 Quality Control in the Knitting Industry - by Prof. P. GROSBERG, University of Leeds, U.K.
- ID/WG.58/5 Quality Control in the Finishing of Cotton - by P.C. MEHTA, Director of Ahmedabad Textile Industry's Research Association, Ahmedabad, India
- ID/WG.58/6 Quality Control in Cotton Spinning, Yarn Count and Uniformity - by T.A. SUBRAMANIAN, A.R. GARDE and S.H. BHADURI, Ahmedabad Textile Industry's Research Association, Ahmedabad, India
- ID/WG.58/8 Quality Control in Winding, Beaming and Weaving - by H.C. PALIWAL and S.H. BHADURI, Ahmedabad Textile Industry's Research Association, Ahmedabad, India
- ID/WG.58/9 The Organization of Quality Control in a Textile Mill: Some General Aspects and Problems - by Dr. T.A. JEDNYKA, Textile Research Institute, Łódź, Poland
- ID/WG.58/10 Psychological Considerations for an Effective Quality Control Programme - by J. STILLER, Werner Management Consultants, Inc., New York, USA
- Study on the Theoretical and Practical Relations of Spinning Plans - by L.A.B. GANGLI, Textile Research Institute, Budapest, Hungary
- (Distributed by the author during the meeting.)

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Professor CHAIKIN was elected Chairman and Dr. SZABO Rapporteur of the meeting.

RECOMMENDATIONS

I. As a consequence of the papers and the ensuing discussion, it was agreed that additional papers and/or contributions should be sought in the following areas:

- 1) (i) Quality control in the finishing of wool and wool-blended woven and knitted fabrics;
 - (ii) Quality control in the finishing of man-made fibre products;
 - (iii) The paper entitled "Quality Control in the Finishing of Cotton" (ID/WG.50/5) should include additional sections on the quality control in the finishing of cotton-blended fabrics and knitted fabrics.
- 2) Quality control of fibre raw materials.
 - 3) Quality control in the garment industry.
 - 4) Case studies on the establishment of quality control systems with special attention to the practical results achieved.

II. It was recommended that, following the receipt of the additional material necessary to give a reasonably complete picture of the application of quality control in the textile industry, UNIDO should seek the assistance of one or more experts to prepare a composite document recommending the procedures to be followed in instituting a comprehensive quality control scheme in a developing country. This should be followed by the actual implementation of the proposed scheme in a consenting country, and the report on the results achieved should be available for distribution. Model quality control organizations should then be set up in other developing countries.

III. In the implementation of the program outlined in II. above, it should be borne in mind that:

- (a) The practical procedures, including systems and techniques followed in existing textile quality control centres, should be taken into consideration;
- (b) If a quality control centre is established, it should in general act as an adviser and consultant to the individual textile mills in the country. It should not be a mere testing house but should become involved in training mill personnel in the use of quality control as a basis for process control. The centre should be encouraged to become involved with firms in the development of new products so as to prevent an excessive rigidity in the formulation of standards which could place a brake on technical developments;
- (c) Additional expert advice should be sought when necessary;
- (d) The educational and training facilities required should receive the special attention of UNIDO.

IV. It was proposed that a series of quality control seminars be held in selected developing countries.

An expert group should be asked to organize and provide the background documents for these seminars which should be repeated successively in the various countries concerned.

V. It was recommended that UNIDO co-operate with organizations involved in quality control programs with special reference to their activities in the promotion of quality control systems.

SUMMARY OF THE PAPERS AND OF THE DISCUSSION

Dr. Barella Miró's paper on statistical methods of quality control consists mainly of a survey of the various techniques previously reported in the literature. After dealing with the definitions, the concept of distortions and the methodology involved, reference is made to the principal statistical tests and their applications. The paper also contains introduction to analyses of variance.

Discussion by the participants centered mainly around the minimum knowledge required by quality control personnel and their training in the basic concepts of mathematical statistics, the use of non-parametric methods - which were not dealt with in the paper - and the role that statistics play in the general establishment of a quality control system.

The actual organization of quality control in a textile mill was outlined in a paper presented by Dr. Jędryka. The essential factors in the introduction of quality control, the responsibilities and interrelationship between the various mill departments and the problem of the development of new processes and products were dealt with in some detail.

As expected, the varying experiences of the participants in the introduction of quality control at the practical mill level highlighted the discussions on the paper, and some useful information was exchanged.

The paper by Prof. Chaikin was mainly concerned with the causes and control of waste in worsted spinning, but a number of more generally applicable factors and procedures were mentioned as well. The discussion brought out the very important role that waste plays in the economics of some parts of the textile industry, and, in particular, the special problems that might be encountered in developing countries in this connection.

Three papers by Messrs. H.K. Krakowian, T.A. Subramanian and L.A.B. Gangli on various aspects of quality control in spinning were presented in sequence. They supplemented each other to the extent that one of the most important areas in quality control was covered quite adequately.

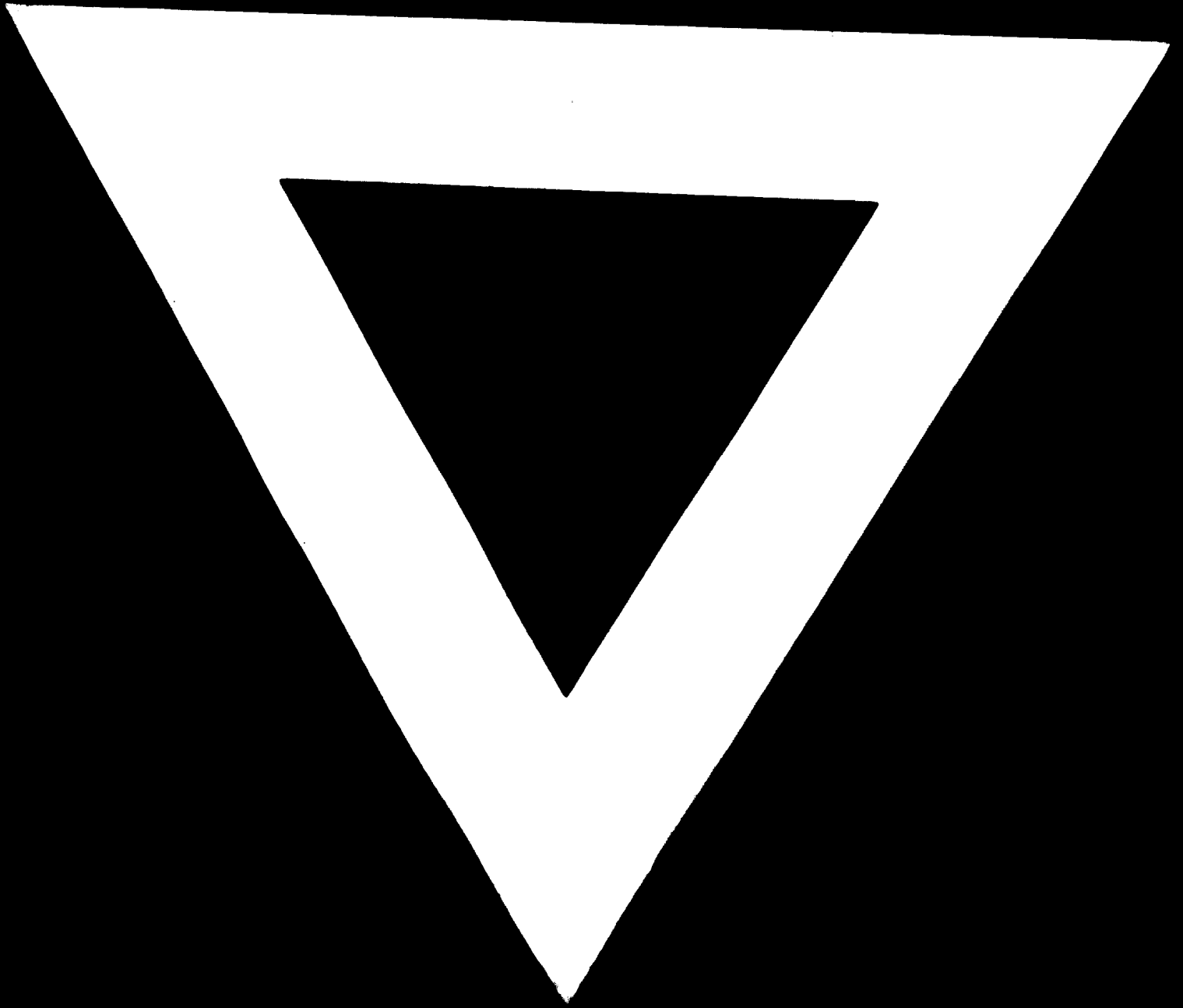
In particular, mean yarn count and yarn irregularity and their significance in process control and product quality were stressed and the various methods discussed. The wide-ranging comments that followed each of these papers indicated the interest they aroused and the considerable amount of work that has been carried out in the past.

The papers by Messrs. M.C. Paliwal and S.H. Bhaduri and by Prof. P. Grosberg were received with a great deal of interest since their topics on winding, beaming and weaving, and knitting, respectively, had not received the same amount of attention in the literature as some of the other issues. The various techniques involved, the especially important role of yarn defects and the parameters that have to be controlled were all outlined, and the subsequent discussion extended and amplified the points raised in the papers.

Quality Control in the Finishing of Cotton, by Mr. P.C. Mehta, was presented by Mr. Paliwal (the third paper presented so competently by Mr. Paliwal to the meeting), and the discussion indicated the very great interest of the participants in the use of quality control techniques in dyeing and finishing. The paper dealt comprehensively with raw materials, dyestuffs, their purity and compatibility with finishing agents and auxiliaries and their quality control and with the control of goods-in-process. The discussion brought out special problems encountered in actual mill experience.

The last paper, on the psychological aspects to be considered when establishing a quality control scheme in a mill, by Dr. Stiller, was presented by Mr. Pitre. The participants outlined their experiences in this connection and during the ensuing discussion the importance of giving attention to this question was fully recognized.

It was agreed that, for the purpose of preparing a composite document on quality control in the textile industry, each author should re-submit to UNIDO corrected copies of his paper and its summary as well as a summary of the discussion relating to it. The authors were further requested to submit as complete bibliographies as possible on the subject matter of their paper, paying special attention to industrial practice.



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