



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

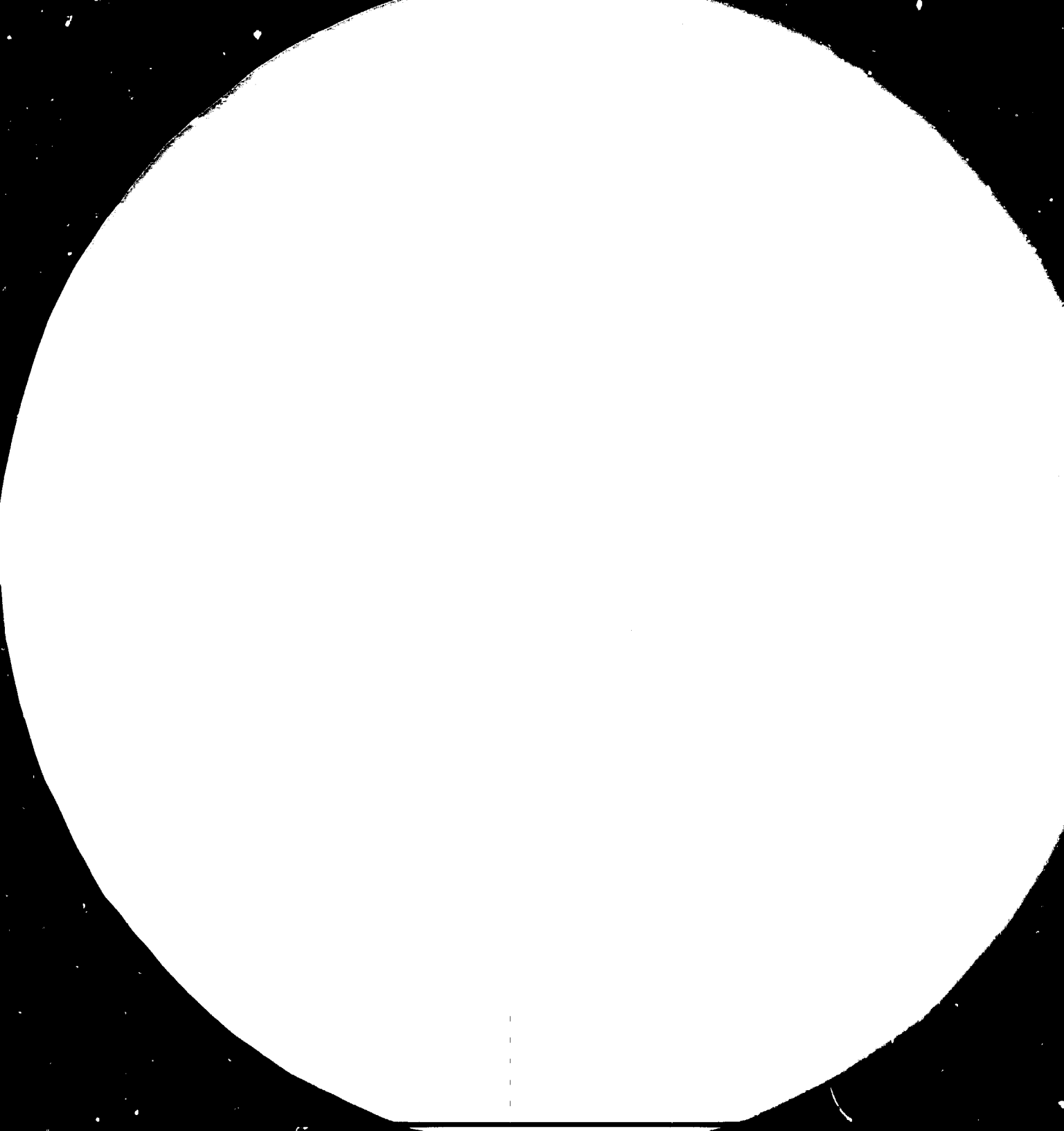
## FAIR USE POLICY

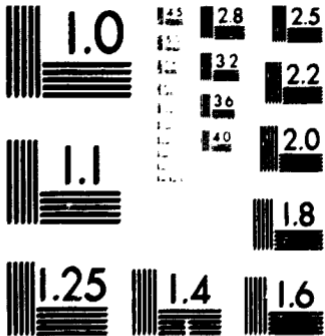
Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)





MICROCOPY RESOLUTION TEST CHART  
 NATIONAL BUREAU OF STANDARDS-1963-A

RESTRICTED

13017

IP/ID/SER.A/477  
20 October 1983  
English

India.

APPLICATION OF RESEARCH RESULTS IN EASYCARE  
COTTON FABRICS IN THE TEXTILE INDUSTRY,

DP/IND/82/011

INDIA

Technical report: Initial review of project\*  
(No.1)

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

Based on the work of T.A. Marsland  
Chief Technical Adviser

United Nations Industrial Development Organization  
Vienna

1132

---

\* This document has been reproduced without formal editing.

V.83-63070

<u>INDEX OF CONTENTS</u>		<u>Page</u>
1.0	INTRODUCTION .....	3
2.0	OBSERVATIONS .....	4
3.0	CTA VISIT ACTIVITIES	
	3.1 Work Plan .....	5
	3.2 Project Equipment .....	5
	3.3 UNDP Inputs .....	6
	3.4 Market Survey Input .....	6
	3.5 Industry - Project Involvement .....	7
	3.6 Study Tours .....	7
	3.7 Tripartite Meeting .....	8
	3.8 Project Outputs .....	8
4.0	RECOMMENDATIONS .....	9
5.0	CONCLUSIONS .....	9
	Attachment I - Work Plan .....	11
	Attachment II - Study Tour .....	22

## 1.0 INTRODUCTION

The Chief Technical Adviser (CTA) briefing for the project visit was concluded at the UNDP in New Delhi on Monday, 29 August 1983.

Present at the briefing were:

Mr. T.R. Maakan - Programme Officer  
Mr. S. Ramamurthy - Assistant Programme Officer

The prime objectives of the visit were given as being:

- i) Preparation of a Work Plan;
- ii) Completion of a Project Progress Report;
- iii) Completion of a Project Evaluation Report - (Form PC/1 - series);
- iv) Preparation of Study Tour Specifications;
- v) Presentation of Agenda for Tripartite Meeting originally to take place 26/7 September 1983;
- vi) Comment on the decision to appoint a national organization/individual for the Market Survey Component of the project;
- vii) Preparation of visit report, in accordance with the terms of reference issued.

The constraints stipulated being:

- i) The Project Document and Objective to stand;
- ii) That the Revised UNDP input - Project Budget Code 'B' - could not be exceeded.

## 1.2 The Project

The project was conceived in 1978 and finally activated in December 1982. Its aim and objective is to research and development within ATIRA easycare chemical finishes for cotton fabrics, rendering these more acceptable in the consumer markets and thereby increasing the demand for these goods in both home and export markets. On completion of the project work, the technical information and experience gained from field scale trials will be disseminated to the industry through the medium of technical publications and seminars.

## 2.0 OBSERVATIONS

Project work was commenced in December 1982 with the appointment of project staff, the allocation of office accommodation and buildings' floor space for the equipment placed on order. The initial Research and Development work, necessary at the initial stages of the project has proceeded with qualified satisfactory progress, and the initial technical parameters for the project defined.

### 2.1 Work undertaken during this period includes the following:

- i) Establishing preparatory processes for cotton fabrics most suitable for the application of easycare chemical finishes. The method selected being based on sodium carbonate scouring (as opposed to sodium hydroxide) followed by conventional hydrogen peroxide and sodium hypochlorite bleaching;
- ii) Laboratory trials establishing the precise chemical formulations and application conditions for imparting optimised easycare properties - consistent with retained fabric physical properties;
- iii) Evaluation of differing fibre compositions and fabric constructions suitable for the application of easycare chemical finishes. The scope of this work has since been enlarged to include dilute blends of polyester and cotton;
- iv) Selection of product areas, namely - shirtings, suitings, bedsheets and dress fabric;
- v) Selection by laboratory evaluation of fabrics intended for initial, local wearer trials.

### 2.2 Of late, project work has been impeded to some extent by the late arrival of equipment, a delayed CTA input and external factors having an influence on the project - necessitating decisions that could not be taken in isolation. All such matters have or are in the course of being resolved; however, for the continued successful progress of the project, it was evident that some modification to the work content and inputs, within the framework of a detailed work plan were called for if this was to be achieved - and for the project to maintain a creditability with the industry.

### 3.0 CIA ACTIVITIES

Following a period of familiarisation with the project and revue of the progress to date, work was commenced on resolving those matters impeding progress, and in executing the main tasks given as prima objectives of the visit.

#### 3.1 Work Plan (see Attachment I)

A revised detailed Work Plan has been drawn up in conjunction with Mr. J.R. Modi - Project Co-ordinator, and is presented for approval by the appropriate authorities. Apart from timing, the main modifications in work content from that outlined in the project document are:

- i) Elimination of the Flame Retardancy element;
- ii) Inclusion of dilute polyester/cotton blends in the R+D work;
- iii) Increased evaluation element;
- iv) An increase in the Market Survey input;
- v) Two study tours are planned, the first in 1984 and the second in 1985;
- vi) Planned inputs/outputs have been rephased.

A reasoned explanation for these modifications is contained in the preamble to the Work Plan.

#### 3.2 Equipment

All required equipment has been or is in the course of being ordered. Comment is reserved for those items requiring an element of finalisation.

Garment Curing Oven - The intended supplier for this equipment has declined from making a quotation. An alternative supplier - Froll and Lohmann, has been identified and his quotation is awaited. Other alternative suppliers will be identified by UNIDO staff attending the ITMA exhibition, and by the author on his return to UK.

Micro Film Reader  
cum Printer

- This equipment has been received minus requested accessories and spares; this matter is being rectified by UNIDO Purchasing Section. The equipment console was received in a damaged condition and is the subject of an insurance claim.



Sewing Machines (2) - Received in a damaged condition (slight), are the subject of an insurance claim.

Gel Permeation  
Chromatograph

- This item of equipment is not essential to the success of the project - further, insufficient funds remain for its purchase. By agreement with ATIRA and UNIDO, the order placed for this equipment is to be cancelled, any charges arising from this action to be defrayed from the remaining equipment budget balance.

### 3.3 Revised UNDP Input

The budget document IND/82/011/B/01/37 has been revised as Code 'C' and is attached to the Work Plan. Budgeted expenditure has been contained to that previously approved; but rephased to coincide with project activities. The previously budgeted allocation for the Flame Retardancy Consultant has been incorporated into that allocated for the Market Survey element - reflecting the increased work content of this activity. It is possible that a proportion of this allocation may be required to fund the garment manufacture in Stage 6; depending upon whether alternative sourcing becomes available. In response to the confirmed request that this work is to be undertaken by a national organization/individual, the budget allocation for this activity has been transferred to line 20 of the document.

### 3.4 Market Survey Input

The detailed Work Plan calls for a greater Market Survey input than previously envisaged. Within the context of the present project, allocated inputs would not permit meaningful field work in potential export markets. On the premise that a healthy home market will provide a sound base for a viable export trade, it is considered that the main market survey effort should be directed to the former, and the export aspect considered as a Desk Survey. Such an approach would be facilitated by recent restricted publications surveying potential export markets; in addition to which there are federation and governmental bodies actively engaged in this work who could be approached.

For the above reasons, a national organisation or individual would be more suited than an overseas expert.

As the Market Survey input is planned for a later stage of the project work, specifications for this will be prepared during the next visit.

### 3.5 Industry Involvement

Earlier work by ATIRA staff had identified companies expressing positive interest in the project work, and initial discussions had taken place regarding product and fabric selection. Once an outline work plan had been formulated, a project Steering Committee Meeting was called and took place on 8 September 1983. At the meeting, the project objectives and work plan were outlined and discussed in detail.

The organised industry, including those represented at the meeting are experiencing difficult trading conditions - mainly because of increasing competition from the power loom sector. Comment was passed regarding the increasing volume demand for polyester/cotton blend fabrics; the decision to include dilute blends of polyester/cotton fabric in the project work was unanimously approved and several offers of assistance in kind were received.

Subsequently, visits were made to these mills when the project work, and the company's interests were discussed in greater detail.

### 3.6 Study Tours (see Attachment II)

During the visit, and itinerary for the first study tour was prepared and will be presented to the Training Section - UNIDO during de-briefing in Vienna. In accordance with current practice this has been restricted to a period of six weeks.

Nomination forms for this have already been prepared and submitted to the Government of India (May 1983) for approval and forwarding to UNDP-New Delhi. Since the first of these tours is planned for May-June 1984, ATIRA will require early advise if there is an impediment in this processing.

### 3.7 Tripartite Meeting

The annotated agenda presented during UNDP-New Delhi briefing is considered to be inappropriate to the present stage of project progress. An alternative agenda more compatible with this is forwarded for consideration. It is understood that this meeting will be arranged to take place in November 1983.

### 3.8 Project Outputs

Project progress in the present instance is monitored by the scheduled production of technical reports, publications and dissemination seminars by ATIRA. The detailed work plan produced calls for outputs at specific stages of the projects progress, the nature and timing of these outputs being as follows:

Output No. 1	The establishing of chemical formulations and conditions of application, for imparting optimised easycare properties to cotton and dilute blends of polyester/cotton fabrics.	February 1984
Output No. 2	Results of comparative laboratory testing of 100% cotton and dilute polyester/cotton blended fabrics having had an easycare finishing treatments.	November 1984
Output No. 3	Correlation of laboratory testing and wearer trial responses on easy-care garments. Criteria for the selection of fabrics in the intended product areas.	May 1985
Output No. 4	Project Technical Report	May 1986
Output No. 5	Market Survey Report	June 1986
Output No. 6	Dissemination Seminars/Publications	September 1986

If approved by Tripartite agreement, the above outputs would replace those annotated in the Project Document.

#### 4.0 RECOMMENDATIONS

All the actions taken during the CTA visit and related above have been discussed and agreed with the Project Co-ordinator and Directorate at ATIRA.

For the project to attain it's set objectives and to proceed without further impediment, the following recommendations are presented for approval by the appropriate authorities:

- 4.1 That the detailed Work Plan, including the modifications referred to in the forgoing are given early approval by the appropriate authorities.
- 4.2 That the revised outputs referred to above are given approval, and should replace those contained in the Project Document as outputs and intermediate objectives for the purpose of assessing future project progress.
- 4.3 In view of the essential role of the Market Survey element to the success of the project, the means of funding this activity should be established without delay.
- 4.4 With regard to 4.3 above, ATIRA does not have the means of funding this activity. That the nomination of an Indian organization/individual for the Market Survey work would preclude UNDP funding was not appreciated until being de-briefed in New Delhi. As no resolution of the matter was immediately available, Mr. T.R. Maakan undertook to pursue this subject during his forthcoming visit to Headquarters in New York.

#### 5.0 CONCLUSIONS

At the conclusion of the initial project visit, all of the objectives and tasks set for the visit have been completed.

Given early approval of the recommendations put forward in 4.1. - 4.3. above, the project can be proceeded with in a manner ensuring that intermediate and project objectives are attain and at the specified times.

In conclusion to this report, the author would wish to record his appreciation of the kind hospitality and co-operation extended to him by the Directorate, Project Co-ordinator and Staff, during the course of this work.

Attachment I

UNITED NATIONS DEVELOPMENT PROGRAMME

Project of the Government of India

Application of Research Results  
in  
Easycare Cotton Fabrics in the Textile Industry

(IND/82/011/A/01/37)

PROJECT WORK PLAN

22nd Sept., 1983

1.0

The ab  
activa  
various  
bearing

For th  
to ret  
eviden  
should  
changes  
project  
these

2.0

2.1

During  
of the  
and du  
blend  
fabric  
by the

2.2

Polyest  
high co  
fabric  
made o  
have re  
and co  
respect  
grade  
inferio  
polyest

2.3

High co  
an eas  
therefo  
applied  
fabric  
the tra

1/37

WORK PLAN

D

ect was originally conceived in 1978 and finally December 1982. During this intervening period, al changes have taken place which have a direct project and anticipated outputs.

t to maintain a reality with external events, and editability with the industry at large, it was he work content - as originally envisaged - fied to an extent that would reflect the external e same time permitting the attainment of the ive. The work plan presented, aims to satisfy ents in all respects.

L CHANGES

c Market

t five years, a large and increasing proportion purchasing public have experienced the easy-care operties afforded by high content polyester/cotton. to the extent that there is a demand for such ference to cotton. This demand is currently met c industry and the importation of made-up garments.

c

e and yarn are expensive in India, consequentially polyester/cotton blend (48/52, 67/33 respectively) rments are considerably more expensive than those . To counter this differential, many manufacturers to producing composite blends of polyester, polynosic re in the proportions of 15:52:33 and 33:33:34 The polynosic fibre, whilst - cheaper than medium is an imported item, and produces a fabric having rmance properties than the higher content on blends.

al

polyester/cotton fabrics are not normally given hemical finish for the domestic market. It, ws, that a high performance easy-care finish & cotton fabric or low content polyester blend duce a fabric surpassing those manufactured from nd referred to in 2.2 above; and at the least,



equate to the 48/52 and 67/33 blends, in easy-care properties. It is anticipated that such fabrics will compete successfully with the latter on a price basis, and should therefore stimulate the sale of textiles in domestic markets; at the same time providing a sound base for the further development of a finished fabric and made-up garment export trade.

### 3.0 WORK PLAN

3.1 In preparing a Work Plan that reflects, and takes into consideration the external changes that have taken place, it has been necessary to modify the project work content and work plan contained in the Project Document. The modifications incorporated in the revised Work Plan are as indicated in the following paragraphs.

#### 3.2 Modifications

- (i) The inclusion of dilute blends of polyester/cotton in the R&D programme.
- (ii) An increased element of evaluation in the project work.
- (iii) The elimination of the 'Flame Retardancy Expert'. This has no relevance to the successful attainment of the project objective. Input information required for the formulation of a forward R&D programme will be forthcoming from planned study tour work.
- (iv) The Work Plan presented requires a larger Market Survey input than that previously envisaged; this has been increased to a level considered necessary for the success of the project.
- (v) Planned Study Tours have been reduced from three to two.
- (vi) Planned inputs and outputs have been rephased to correspond with project work and activities.
- (vii) The project completion date has been extended to September 1986.

#### 3.3 Work Plan Presentation

The work plan is presented in graphical form on page 8 of this annex, previous pages state the project methodology, the activity net work and detailed project activities in tabular form.

For internal monitoring and control purposes, the project work content is presented in ten progressive stages.

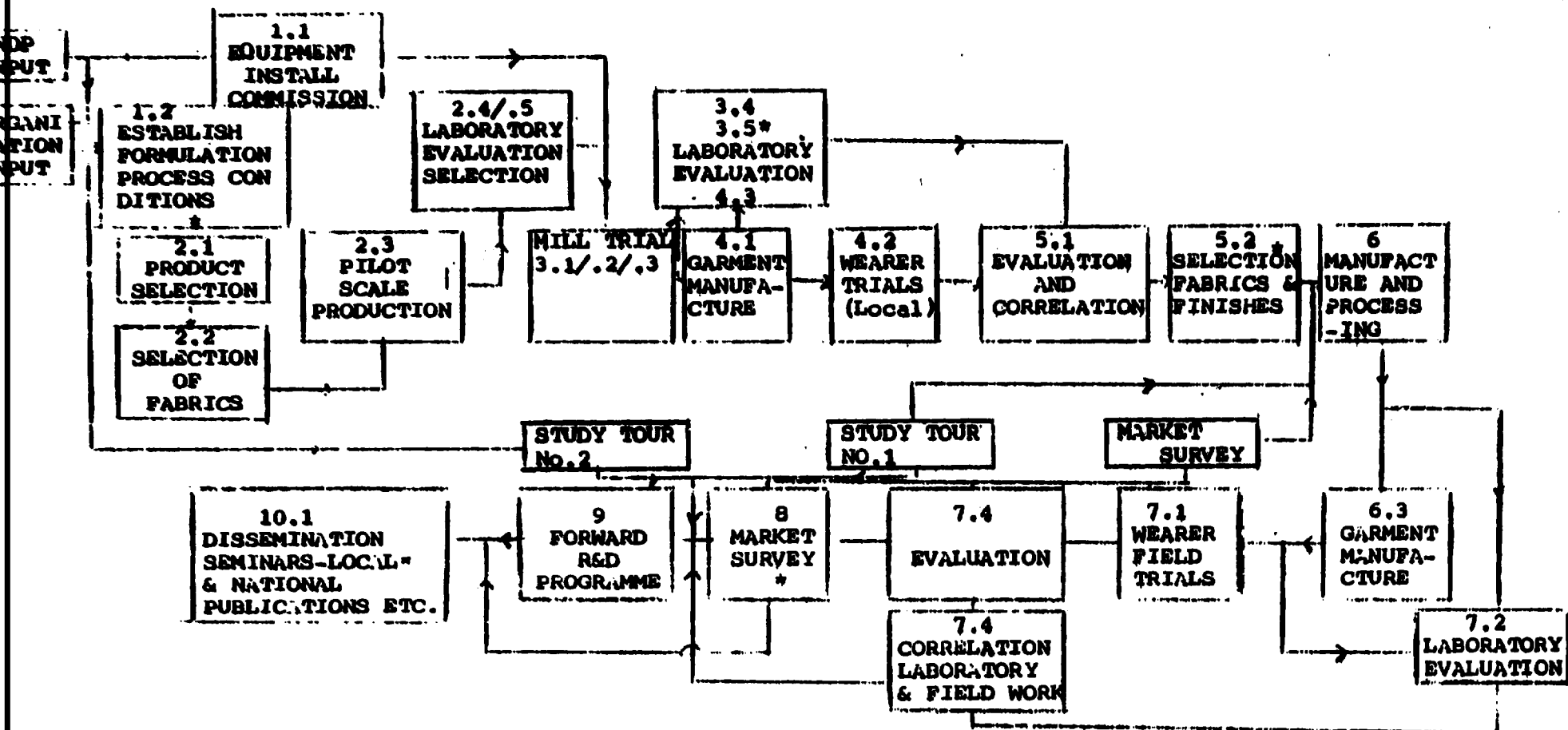
3.4 On receiving Tripartite Approval the presented Work Plan will replace the provisional one attached to the Project Document as Annex.III.

ATIRA

WORK PLAN - PROJECT PROGRESS STAGES

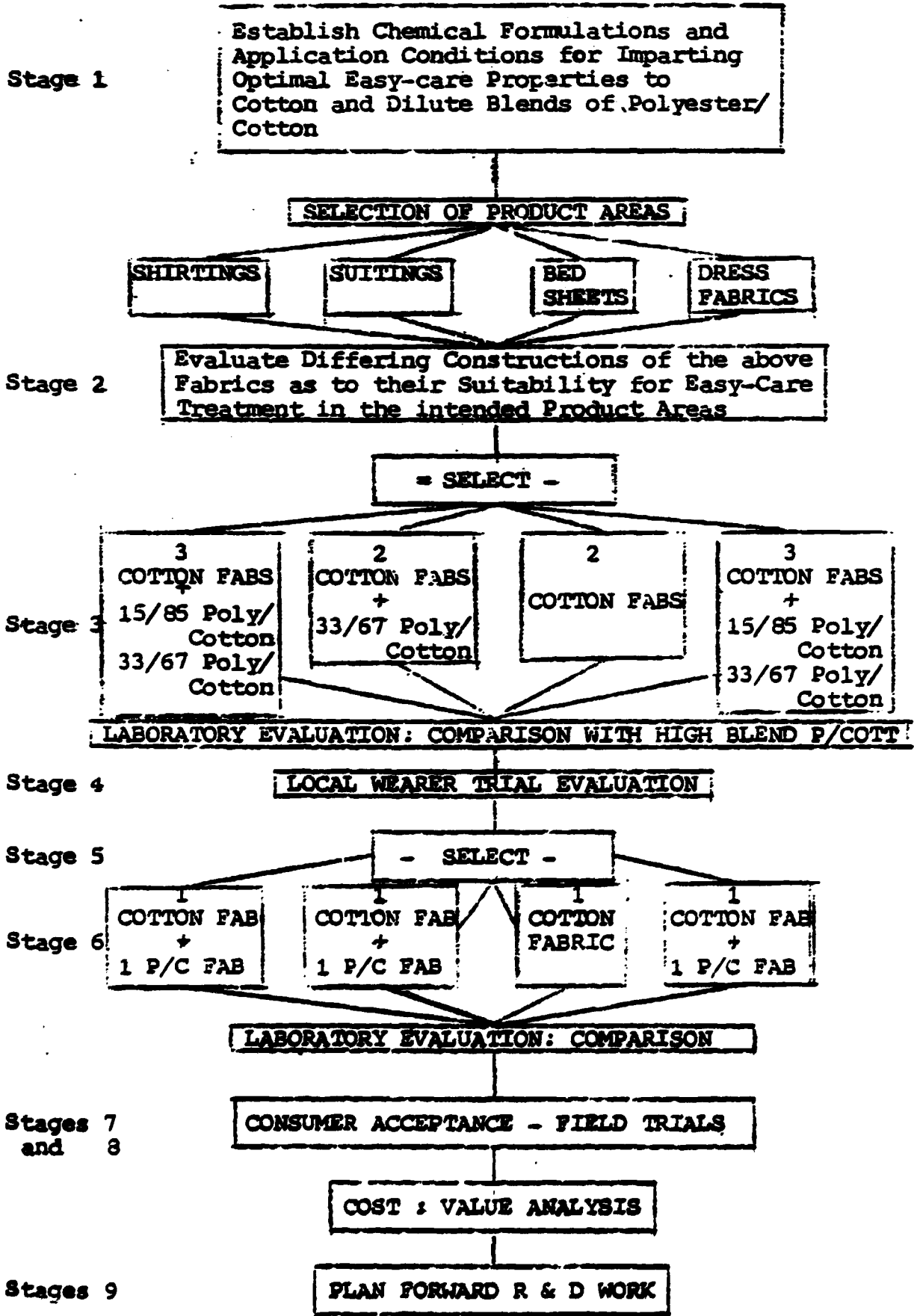
Stage	Main Activities	Duration Months	Elapsed Time Months
1 Preparatory Work	1 Acquisition, Installation & Commission- -ing Equipment		
	2 Laboratory Evaluation of Preparation Methods, Formulations and Conditions for Optimal Easy-Care Properties		
	3 Progress Report		
	Sub Total	14	14
2 Pilot Scale Trials	1 Product Selection	)	
	2 Selection of Fabric Ranges	)	9
	3 Pilot Scale Manufacturing & Processing Trials	)	
	4 Laboratory Evaluation of These Results	)	2
	5 Rationalisation of Fabric Ranges	)	
	Sub Total		6
3 Mill Trials	1 Manufacture of Mill Trials Fabric	)	3
	2 Supervision of Mill Processing Trials	)	6
	3 Establishing Standards for Garment Manufacturing	)	2
	4 Laboratory Testing and Evaluation- fabrics	)	
	5 Laboratory-Comparative Testing of 48/52 and 67/33 Polyester/ Cotton Blends	)	2
	6 Progress Report	)	1
	Sub Total		4
4 Wearers Trials	1 Supervision-Garment Manufacture	3	2
	2 Preparation and Supervision Wearer Trials	3	2
	3 Laboratory Garment Assessment	1	
	Sub Total		4
5 Evaluation & Selection	1 Evaluation of Wearer Trials	1	1
	2 Selection of Fabrics for Mill Production Runs with Market Research Assistance		
	3 Progress Report		
	Sub Total		1

Stage	Main Activities	Duration Months	Elapsed Time Months
6 Manufacturing	1. Mill Manufacture of Selected Fabrics 2. Supervision of Mill Finishing 3. Supervision of Garment Manufacture	6 2 3	5 1 1
	Sub Total		7
7 Garment Field Trial	1. Consumer Acceptance-Field Trial 2. Laboratory Evaluation Fabric and Garments. Comparison with Competitive Products - domestic/ Overseas Origin 3. Establish Production/Manufacturing Costs - Liaison with Market Research 4. Evaluation of Field Trial Responses	4 3 1	3  1
	Sub Total		4
8 Market Research	1. Market Research-Home & Export Markets Market Size ( EEC ), Distribution Patterns, Tariffs Trade Restrictions Price Structures etc. Economic Assessment of Product Viabilities and Forecasted Sales	3	2
	Sub Total		2
9 R & D Planning	1. Preparation of Forward R & D Program Inputs - Project Work - Study Tours - Market Research Recommendations	1	-
	Sub Total		-
10 Dissemina- tion	1. Dissemination - Seminars (Commercial & Market Research Inputs) - Project Publication/Report	4	3
	Sub Total		3
	Total Elapsed Time		45



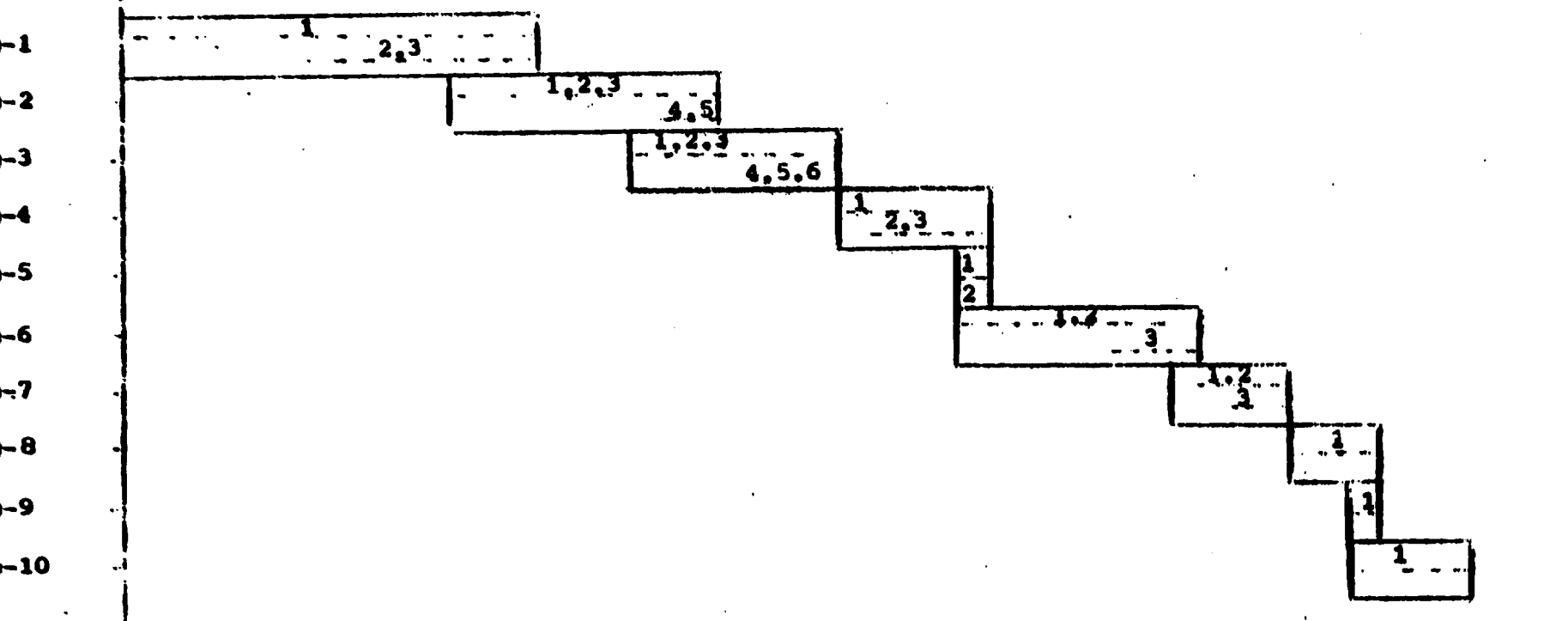
\* REPORT OUTPUTS

PROJECT METHODOLOGY



PROJECT NUMBER : IND/82/011/A/01/37 - WORK PLAN

J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D



Y TOUR	No. 1	No. 2		
RES.		5.2	7.17.4	8.1
CON.				
REPORTS				
ST SURVEY				
OF INDIA				
PROGRESS				
EVAL.				
ARTITE EVAL.				
AND REVIEW				

**PROJECT BUDGET COVERING UNDP CONTRIBUTION (IN U.S. DOLLARS) REVISION**

Country : INDIA

Project No. : IND/DP/82/011/C/01/37

Title : APPLICATION OF RESEARCH RESULTS IN EASY CARE COTTON FABRICS IN THE TEXTILE INDUSTRY

	TOTAL		1982		1983		1984		1985		1986	
	m/m	\$	m/m	\$	m/m	\$	m/m	\$	m/m	\$	m/m	\$
<b>10 PROJECT PERSONNEL</b>												
<b>11 International Professionals</b>												
11-01 Senior Consultant	8	62,400			1.5	12,000	2	16,700	2.5	16,700	2	17,000
11-02												
11-03												
11-04												
11-05												
11-06												
11-07												
11-08												
11-09												
11-10												
11-60 Consultants						-		-		-		-
11-61												
11-62												
11-99 SUB-TOTAL	8	62,400			1.5	12,000	2	16,700	2.5	16,700	2	17,000
<b>13 Admin. Support Personnel</b>												
15 Travel Cost		1,950				450		500		500		500
16 Other Cost		5,000						5,000				
18 Prior Year's Adjustments												
<b>19 COMPONENT TOTAL</b>		<b>69,350</b>				<b>12,450</b>		<b>22,200</b>		<b>17,200</b>		<b>17,500</b>

contd....



PROJECT BUDGET COVERING UNDP CONTRIBUTION (IN U.S. DOLLARS) REVISION (contd.)

Country : INDIA

Project No. : IND/JP/82/011/0/01/37

Title : APPLICATION OF RESEARCH RESULTS IN EASY CARE COTTON FABRICS IN THE TEXTILE INDUSTRY

	TOTAL		1982		1983		1984		1985		1986	
	m/m	\$	m/m	\$	m/m	\$	m/m	\$	m/m	\$	m/m	\$
20 SUBCONTRACT												
21 Subcontracts	3	37,400							1	23,700	2	13,700
28 Prior Yr. Adjustments												
29 COMPONENT TOTAL	3	37,400							1	23,700	2	13,700
30 TRAINING												
31 Fellowships												
32 Group Training (Study Tour)		32,000					18,000			14,000		
38 Prior Yr. Adjustments												
39 COMPONENT TOTAL		32,000					18,000			14,000		
40 EQUIPMENT												
41 Expendable Equipment												
42 Non-expendable Equipment		134,000				95,210	38,790					
48 Prior Yr. Adjustments												
49 COMPONENT TOTAL		134,000				95,210	38,790					
50 MISCELLANEOUS												
51 Miscellaneous		7,000				2,000	2,000			2,000		1,000
59 COMPONENT TOTAL		7,000				2,000	2,000			2,000		1,000
99 PROJECT TOTAL		279,750				109,660	80,990			56,900		32,200

Attachment II

IND/82/011/B/01/37

STUDY TOUR NO.1

Nominee : Mr. J.R. Modi  
Duration : 9 weeks  
Timing : May - June 1984  
Countries to Visit : W. Germany, U.K., U.S.A., Korea  
Objective :

To gain experience in present day practices adopted for the manufacture of easy-care fabrics and garments; to gain knowledge of current research and development work on this and related subjects in the above countries.

Purpose :

For the more effective execution of the above project and to provide an input for the forward ATIRA Research and Development Programme.

Field of Study :

- (i) Easy-care Chemical Finishes and their application
- (ii) Factory production of garments made from such fabrics e.g., Shirts, trousers etc.
- (iii) Developments in preparatory processes

SUGGESTED ITINERARY

2 Weeks approximately

WEST GERMANY

- |    |  |        |   |
|----|--|--------|---|
| 1. | B.A.S.F. AG<br>6700 Ludwigshafen<br>Rhein<br>W.Germany | 3 Days | Technical discussions<br>related to wet processing.                     |
| 2. | Institut Fuer Textiltech<br>D.7306 Denkendorf -nik     | 3 Days | )<br>) Pollution and Textile<br>) Processing.                           |
| 3. | Institut Fur Textiltech<br>D.7410 Reutlingen -nik      |        | ) Technical discussions<br>) relating to wet processing.<br>)           |
| 4. | <u>FIRST CHOICE</u><br>Factory Visits                  | 4 days | Manufacture of garments -<br>preferably including easy-care<br>garments |



U.S.A.

4 Weeks Approximately

Preference

1st	Cluett Peabody Corp. Sanforised Corp. 530, Fifth Avenue New York NY 10036	2 Days	Technical Discussions related to Wet Processing
2nd	United States Department of Agriculture, Southern Region Research Centre, P.O.Box 19687 New Orleans	4 Days	Technical discussions related to wet processing and easy-care chemical finishes and garments
3rd	Garment Manufacturing	7 Days	
4th	Gillette Research Inst., Rockville, MD Garfield, N.J.07026	1 Day	Easy-care fabrics & Garments-comfort aspects
5th	J.P. Stevens & Co Technical Centre 141 Lanza Avenue	1 Day	
6th	DuPont De Nemours & Co R & D Division Organic Chemicals Dept Wilmington DE.19898	1 Day	
7th	Dow Corning Corp Midland Michigan	1 Day	Technical discussions Wet Processing and chemical finishes
8th	Cotton Incorporated Crabtree Raleigh (NC)	1 Day	--- , , ---
9th	North Carolina State University Textile Chem.Department Raleigh (NC)	1 Day	--- , , ---
10th	Textile Department Clemson University Clemson South Carolina 29631	2 Days	--- , , ---

KOREA

1 Week

Korea Textile Testing Inst., 43-8 Kwanchul-dong Chongno-ku Scul (74)	Discussions and factory visits to processors and garment manufacturers
---	--

\* Re. factory visits : It is believed that the International Institute for cotton in W.Germany, U.K. and USA would be cooperative in arranging visits to garment factories. Also-the American Apparel Manufacturers'