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FINAL REPORT

ON THE

SEVENTEENTH

IN-PLANT GROUP TRAINING

PROGRAMME ON MAN-MADE FIBRES

APPLICATION OF MAN-MADE FIBRES

IN TEXTILE PROCESSING

(BLENDING AND QUALITY CONTROL)

Project No. US/INT/90/058
17th In-Plant Group Training Programme
on Man-Made Fibres
"Application of Man-Made Fibres in Textile Processing"
(Blending and Quality Control)

C O N T E N T

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Höhere Bundes-Lehr- und Versuchsanstalt für
Textilindustrie Wien V.,
Spengergasse 20, A-1050 Vienna, Austria

Österreichisches Chemiefaserinstitut
Plöblgasse 8, A-1040 Vienna, Austria

Director: OSTR Mag. A. Berger

Director of Austrian Man-Made Fibre Institut: Univ.Doiz.Dr.J. LENZ

Project Manager: Univ.Doiz.Dr.J. LENZ

Seventeenth In-Plant Group Training Programme on Man-Made Fibres

Organized by the United Nations Industrial Development Or-
ganisation (UNIDO) in co-operation with

the Government of Austria,
Austrian Federal Chamber of Commerce,
Association of Austrian Industrialists,
Höhere Bundes-Lehr- und Versuchsanstalt für
Textilindustrie, Wien V, and
Österreichisches Chemiefaserinstitut, Vienna

Held in Vienna, Austria
from 24th September to 25th October 1990

Final Report by Prof.Dipl.Ing.Dr. L. MACHHERNDL
Executive Manager

1. Acknowledgements

The Höhere Bundes-Lehr- und Versuchsanstalt für Textilindustrie Wien V, and the Österreichische Chemiefaserinstitut wish to express their appreciation to the UNIDO for organizing this training programme and for the excellent and successful cooperation.

Our thanks are specially directed to

Mr. L. N. Soumarokov (Deputy Director General, Department of Industrial Operation, UNIDO)

Ms. A. Tcheknavorian-Asenbauer (Head, Chemical Industries Branch and Director, Industrial Operations Technologie Division, UNIDO)

Mr. V. Bysyuk (Chemical Industries Branch, UNIDO)

Mr. M. Youssef (Chemical Industries Branch, UNIDO)

Mr. D. Gardellin (Director, General Services Division, Department of Administration)

Mr. M. Kohonen (acting Chief, Contracts Section)

Ms. U. Schandl (Project Assistant, Chemical Industries Branch, UNIDO)

At the same time we give our thanks to the Austrian authorities and corporations, whose aid, preparatory work, valuable aid and understanding enable us to achieve a remarkable effect of the training programme.

Austrian Federal Ministry for Foreign Affairs

Mr. Litschauer

Austrian Federal Ministry for Educations and Art

Mr. W. Heuritsch Mr. O. Tischler

Austrian Federal Chamber of Commerce

Mr. K. Rampitsch

Mr. K. Laaber

Höhere Bundes-Lehr- und Versuchsanstalt für Textilindustrie (HBLVAT)

Mr. A. Berger

Mr. L. Machherndl

We also are indebted to the Austrian Companies which we visited to complete our training programme.

2. Background and objectives

1. The programme, organized by UNIDO in co-operation with the Government of Austria, is one of a series of UNIDO Training Programmes on specific sectors of industry for engineers from developing countries. The programme will be carried out by the Austrian Man-Made Fibre Institute (Österreichisches Chemiefaser-Institut-OCI) and the Federal Institute for Higher Education and Research for Textile Industry (Höhere Bundes-Lehr- und Versuchsanstalt für Textilindustrie - HBLVAT), a leading technological institute in the field of textile technology. The programme is the seventeenth in a series of programmes implemented annually since 1974.
2. The trend of training activities in the field of processing and application of man-made fibres is characterized by increasingly sophisticated nature of the training programme requiring high level experts, consultants and modern specialized equipment. Consultation meetings at plants and companies to deal with specific technological problems are also an important feature of current training activities.
3. Of the man-made fibres developed to date, four principal types, namely polyester, polyamide, polyacrylonitrile and cellulosic fibres, dominate the market at present. This situation will not change substantially in the near future, although olefin fibres have already become important in certain areas of application.
4. The following trends are apparent in the application of man-made fibres in textile processing:
 - improvement of cotton processing with modern textile machinery by blending with man-made fibres (polyester, modal, viscose, acrylic, polyamide);
 - substitution of expensive wool by blending with man-made fibres combined with appropriate finishings;
 - improvement of the value-in-use of textiles by blending natural fibres with man-made fibres;
 - improvement of the quality by automated statistical process control and computer aided quality control (CAQ);
 - application of man-made fibres in the production of industrial textiles, e.g. reinforcement of tires, plastics... personal protection, safety equipment, surgical and medical end-uses, fil-

tration, construction;

- use of man-made fibres for non-wovens.

5. The trend in the field man-made fibres application is characterized by increasingly sophisticated machineries and technologies requiring qualified managerial and technical personnel to be trained at specialized institutions. Consultation meetings at plants and companies to deal with specific technological problems are also an important feature of the current training activities.
6. The developing countries, as a result of the increasing demand from the internal and external markets for man-made fibres products and the availability of comparatively cheap labour, have established man-made fibre industries which are rapidly expanding. A number of these countries lack the required raw materials, financial resources and know-how to start on man-made fibres production in order to meet the growing needs of the industry; but in general they have a relatively well developed industry for processing of man-made fibres for which the acquisition and introduction of new technical developments in this field are important.
7. The objective of the programme is to up-grade the knowledge and professional skills of the participants and to assist them in performing their duties more efficiently and solving the problems encountered in their daily work in the field of man-made fibre technology and application. In particular the training programme includes the following technologies: blending, spinning, weaving, circular knitting, warp knitting, dyeing with respect to fibre and yarn blends, testing of yarns and fabrics, computer aided statistical evaluations, quality control of textiles produced from fibre and yarn blends.
8. The programme has received the support of the Austrian Federal Economic Chamber and the Austrian Federal Ministry of Education and Fine Arts and the Association of Austrian Industrialists. HBLVAT will conduct the training on its premises utilizing its laboratories and equipment for this purpose. The institute has a staff of highly qualified specialists.

The Training Programme

9. Recently, the main emphasis of the textile industry was on technology to improve the quality of cotton yarns by blending with viscose, polyester, polyamide, acryl, polypropylene which required special finishing methods, machines and quality control methods which is very important for the industries in the developing countries. Therefore, in 1990 the training course will be concentrated on practical technology to improve the quality of cotton yarns by blending and on quality control of textile products, as well as on improvement of operational efficiency of existing plants. It will consist of theoretical training and professional discussions designed to update the participants' knowledge on man-made fibre technology, laboratory and in-plant visits to study the latest developments in production and processing equipment and techniques. (For tentative programme, please see Appendix I.)
10. In addition to the programme to be undertaken at the HBLVAT, study visits in Austria will be arranged to provide an opportunity for the participants to study new developments in materials, processes and applications, to exchange technical information with experts as well as to study the possibility of obtaining licenses and know-how on processes and equipment.
11. During the theoretical training, individual appointments could be arranged for the participants to discuss with UNIDO staff members problems affecting the development of the man-made fibre industry in the participant's home country and outline technical assistance projects for eventual implementation by UNIDO.

3. Description of the Training Programme

This Year's training was focused on "Textile Production - Blending and Quality Control". It consisted of a theoretical part designed to up-date the participants' knowledge on synthetic fibre technology and laboratory and in-plant studies to familiarize them with the latest developments in production and processing equipment and techniques.

The programme took place in Vienna, Austria from 24th September to 25th October 1990 (See appendix I for the time table)

The programme covered the latest technological developments in the field of application synthetic fibres in textile processing and consisted of a theoretical part designed to update the participants' knowledge on synthetic fibre technology and laboratory and in-plant studies. The main emphasis of the processing technology including fibre engineering, testing and identification and on the application of synthetic fibres for various purposes.

The Höhere Bundes-Lehr- und Versuchsanstalt gave full co-operation in running the theoretical and practical courses on its premises utilizing its laboratories and equipment for this purpose. (See Appendix II for details of lectures and appendix III for equipment used in the practical classes)

The institute's staff of highly qualified specialists took full charge of the lectures, demonstrations, laboratory work, discussions, in-plant training programme and plant visits. (See appendix IV for list of staff members who participated in the training programme.)

In addition to the course conducted at the Institute plant visits in Austria were arranged to provide an opportunity for the participants to see some new developments in materials, processes and applications, to exchange technical information with experts as well as to study the possibility of obtaining licenses and know-how on processes as well as equipment. (See appendix V for details of in-plant training and plant visits)

The training programme was attended by participants each from the following countries: Argentina, Cameroun, China, Cuba, Egypt, India, Kenya, Nigeria, Pakistan, Sri Lanka, Sudan, Tanzania, Viet Nam, Yemen.

During the course of the training programme individual appointments were arranged for interested participants to discuss with UNIDO staff members problems affecting the development of synthetic fibres and blending and quality control in the participant's home country.

A programme of social activities was organized by HLBVAT and other sponsors for the benefit of the participants. (See appendix VII for details of social activities)

Home countries of participants in the training programme on the production and application of Synthetic Fibres 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989 and 1990 see appendix VIII.

Appendix I

Agenda and programme of work

Opening Ceremony: 24th of September 1990, Conference Room at
Höhere Bundes-Lehr- und Versuchsanstalt Wien V
Spengergasse 20, 1050 Vienna, Austria

11:00 a.m. Chairman pro tem: on behalf of of UNIDO
Mr. J.H. Oxley
Senior Interregional Adviser

Opening Speech: Univ. Doz. Dr. J. Lenz
Man-Made Fibres Institute
(Österreichisches Chemiefaser-Institut)

Speeches: Mr. J.H. Oxley
Senior Interregional Adviser

Dir. Mag. A. Berger
Höhere Bundes-Lehr- und Versuchsanstalt
für Textilindustrie Wien V
Spengergasse 20, A-1050 Vienna

Mr. Litschauer
Austrian Federal Ministry for Educations
and Art

Monday, 24th September 1990

11:00 - 12:30

Opening Ceremony, HBLVAT Vienna V

14:00 - 17:00

Presentation of National Papers at
Höhere Bundes-Lehr-und Versuchs-
anstalt für Textilindustrie

Tuesday, 25th September - Thursday 25th October 1990

Lectures, In-Plant training and
plant visits, laboratory work

Wednesday, 24th October 1990

19:00

Farewell Party at Ober St. Veit

Thursday, 25th October 1990

08:30 - 10:00

Closing session and Distribution of
Certificates at HBLVAT, Vienna

Appendix II

Details of Lectures

Subject

Man-Made Fibre Trends, Raw Materials and the Environment
W.Albrecht, Prof. Dr., Head of Textile
Technology Institute of Enka Glanzstoff AG,
Wuppertal, FRG

Selection of Fibres and Yarn Constructions for Textiles
W.Albrecht, Prof. Dr., Head of Textile
Technology Institute of Enka Glanzstoff AG,
Wuppertal, FRG

Non Wovens
W.Albrecht, Prof. Dr., Head of Textile
Technology Institute of Enka Glanzstoff AG,
Wuppertal, FRG

Processing of Synthetic Fibres and Blends, Fibre-Blends and
their Properties
J.Hördler, Dipl.Ing., Member of the staff of
the Höhere Bundes-Lehr- und Versuchsanstalt
für Textilindustrie, Vienna

Yarn Making - Yesterday - Today - Tomorrow
K. Schnaubelt, Ing., Member of the
staff of the HBLVAT, Vienna

Spinning Quality Yarns from Pure cotton and Blends spun
on conventional Systems
K.Schnaubelt, Ing., Member of the
staff of the HBLVAT, Vienna

Chemistry and Technology of Cellulosic Staple Fibres and
Filaments
Mr. Blaschke, Dr., Dipl.Ing., Enka Austria AG
St. Pölten, Austria

Quality Aspects of PES/Cotton Blends
J.Spijkers, Dipl.Ing., AKZO-Wuppertal
Wuppertal, FRG

Special Fabrics from Blends Cotton with Man-Made Fibres
W.Herzog, Dipl.Ing., Austrian Textile Research
Institute
Vienna - Austria

Fibre Fineness, Micronaire Reading of Cotton Fibres
J.Hördler, Prof.Dipl.Ing., P.Schrefl, Prof.Dipl.Ing.,Dr.,
Members of the staff of the HBLVAT,Vienna

- Introduction to Polyester-fibre Production and Equipment
Straberger Fritz, Dr., Austria Faserwerke,
Lenzing Austria
- Special Blends, i.e. Viscose, Polyester, Viscose/Cotton and
Viscose/Acrylic Fibres
J.Lenz, Dir.DoZ., Chemiefaser Lenzing AG,
Lenzing Austria
- Physiological Aspects with Fabrics Made of Blends
P.Schrefl, Dr.techn.,Dipl.Ing., Member of
the staff of the HBLVAT, Vienna
- Dyeing of Polyester Fibres and Blends
L.Macherndl, Prof.Dr., Member of the staff
of the HBLVAT, Vienna
- The Burning Behaviour of Textiles - Textile Floor Covering
H.P.Bauer, Ing., Austrian Textile Re-
search Institute, Vienna
- Drycleaning in Theory and Practice
H.Huff, Ing., Member of the staff of the
HBLVAT, Vienna
- The Laundry in Theory and Practice
R.Hetzer, Ing., Member of the staff of
the HBLVAT, Vienna
- Viscose and Modal Cotton Blends
G.Neudorfer, Ing., Lenzing AG
Lenzing, Austria
- Blended Fabrics
P.Koppenberg, Sulzer Rütli Machinery Works Ltd.
Rütli, Switzerland
- Top Weaving from one Supplier
B.Christen, Sulzer Rütli Machinery Works Ltd.
Rütli, Switzerland
- Yarn Preparation for Weaving Machines
H.Mall, Sulzer Rütli Machinery Works Ltd.
Rütli, Switzerland
- Organisation of a Modern Textile Plant, Part I and II
B.Strang, Sulzer Rütli Machinery Works Ltd.
Rütli, Switzerland
- Mercerisation and Aftertreatment
H.Lass, Dipl.Ing., Dr., Prof., Member of the
staff of the HBLVAT, Vienna

The raw material and its influences in the rotor spinning process

V.F.Vollmer, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Criteria for the selection of spinning components

V.F.Vollmer, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Disturbing factors in rotor spinning

V.F.Vollmer, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Comparison of production costs of ring-yarn and autocaro yarn

R.Schmidt, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

The processing of viscose fibres in rotor spinning

R.Schmidt, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Yarn monitoring system caroiab

R.Schmidt, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Fine autocaro yarns for weaving

R.Schmidt, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Autocaro 240 for fine yarns

R.Schmidt, Schlafhorst & Co., Textile Machinery,
Mönchengladbach, FRG

Opening Cleaning and Carding of Cottons in Line with Changing Cotton Properties

H.Selker, Trützscher GmbH u.Co.KG
Mönchengladbach, FRG

Waste and Dust Removal Equipment for Opening lines and Carols

J.Fugmann, Dipl.Ing., Trützscher GmbH u.Co.KG
Mönchengladbach, FRG

Preparation Installations for Nonwovens

J.Fugemann, Dipl.Ing., Trützscher GmbH u. Co.KG
Mönchengladbach, FRG

Introduction to Electronic Data Processing Hardware and Software

M.Wohrl, Prof.Dr., Member of the staff
of the HBLVAT, Vienna

Variable and Absorbing Costing
Ch. McFerren, MBA, Finance Program Coordinator
Vienna, Austria

Knitting Machines
Klaus Kunde, Sales Engineer
Terrot Strickmaschinen GmbH,
Stuttgart, FRG

Knitted Fabrics from Blended Yarns
W. Graninger, Dipl. Ing., Prof., Member of the
staff of the HBLVAT, Vienna, Austria

Quality Control
J. Hördler, AV Dipl. Ing., Prof., Member of the
staff of the HBLVAT, Vienna, Austria

Properties of Synthetic Fibres
J. Hördler, AV Dipl. Ing., Prof., Member of the
staff of the HBLVAT, Vienna, Austria

Evaluation and Interpretation of Test Results
P. Schrefl, Dipl. Ing., Dr., Prof., Member of the
staff of the HBLVAT, Vienna, Austria

The Influence of Fine Titre on the
Dyeing Behaviour of Lenzing Modal
W. Schaumann and G. Pirilauer, Lenzing AG
Lenzing, Austria

Appendix III

Equipment for Testing Fabrics and Man-Made Fibres

Programme at HBLVAT Vienna

VIBROSKOP, linear density of fibres
MICRONAIRE, linear density of fibres
AIR-FLOW, linear density of fibres
JOHANNSEN-ZWEIGELE, fibres length distribution by array method
USTER, fibre length and length distribution automatically working
INSTRON, breaking-strength and elongations yarns, fabrics
USTER-DYNAMOMETER, breaking-strength and elongations yarns,
automatically working
ZWICK-TESTIMAT; breaking-strength and elongations yarns,
automatically working
ZWICK-Tearing-Tester
TWIST-Tester
PRESSLEY-Tester, strength of fibres, bundle method
BURSING-Tester, VEB Rauenstein
THICKNESS-Gage
USTER-Tester equipment (Unevenness of textile strands)
ABRASION-Tester
AIR-PERMEABILITY-Tester
RANDON tumble pilling Tester
ACCELERATOR
SCANNING ELECTRON MICROSKOP, PSEM 500, Philips
PRETEMA-Spectromat FS 3 A (Filterspectrophometer) Colour
masurement, Pretema, Switzerland)
FIXOTEST
XENOTEST, Original Hanau Quarzlampengesellschaft, BRD
PRAXITEST
LABOR-STENTER, LABOUR-PADDING Machine, E. BENZ, Switzerland
EPPRECHT RHEOMAT 15 Contraves, Switzerland
FLAMETESTER, Aniba, Basel Switzerland

INFRARED-SPECTROPHOMETER 197, Perkin Elmer

GASCHROMATOGRAPH SIGMA 3 Perkin Elmer

SPECTROPHOMETER PM Q II. C. Zeiss, BRD

ELREPHO, Zeiss, BRD

ELREPHO 2000, Zeiss BRD

HT-Dyeing apparatuses, Scholl, Switzerland

HT-Dyeing apparatuses, Ochsner, Austria

HT-Yet Dyeing machine, Then, BRD

YARN-Tester, Textest, France

Appendix IV

Staff of the Training Programme

Director: Mr. OStR Mag. A. Berger

Managing Director: Univ.Doiz.Dr.J. Lenz

Executive Manager: Prof.Dr.techn.Dipl.Ing.L. Machherndl

Scientific Adviser: Univ.Prof.Dr.W. Albrecht

Public Relations and social Engagements: Ing.R.Hetzer

Plant Visits: Univ.Doiz. J. Lenz

Lecturers: Prof.Dr.W. Albrecht

Ing. P. Backhausen

Ing. H.P. Bauer

Dkfm. W. Baumann

Dr. A. Blaschke

Ing. W. Buhl

Dir. N. Enders

Dipl.Ing. J. Fugmann

Dipl.Ing. N. Führinger

Dipl.Ing. W. Graninger

Dipl.Ing. F. Haider

Dr. D. Heinisch

H. Herdin

Prof. Dipl.Ing. W. Herzog

Ing. R. Hetzer

Prof. Dipl.Ing. J. Hördler

P. Holletz

Ing. H. Huff

Ing. R. Kampl

Ing. A. Kossina

Dipl.Ing. K. Kunde

Prof. Dipl.Ing. Dr. H. Lass

Dir. Univ. Doz. Dr. J. Lenz
Dipl.Ing. Dr. R. Mach
Prof. Dipl.Ing. Dr. L. Machherndl
C. McFerren
Ing. G. Neudorfer
Dir. J. Ribniczek
Ing. W. Schaumann
Dr. H. Schludermann
Ing. R. Schmidt
Ing. K. Schnaubelt
Mag. Ing. G. Schneider
Prof. Dipl.Ing. Dr. P. Schrefl
Dipl.Ing. H. Selker
Dr. J. Spijkers
Dr. F. Straberger
Ing. b. Streng
Ing. W. Tumfart
V. Vollmer
Ing. Waidner
Dr. M. Wöhrl

Assistance and Preparation: Ass. Ing. Ch. Hoffmann
Ass. Ing. H. Klein

G. Gschmeidler	R. Nothelfer
B. Holzner	J. Pichler
H. Neufingerl	M. Schmid

Appendix V

In-Plant training and plant visits

To the special interest of the participants in-plant training at fibre producing companies and plant visits to fibres-using companies during the four week course were organized.

The selection of the companies gave a regional and technical survey on the Austrian man-made fibre-producing and using industry:

- 1) Chemiefaser Lenzing AG
Pulp, Viscose Staple fibre, Acrylic staple fibres, Paper, Sodiumsulfate, Sulphure acid, Synthetic sheets and foil strips, Machinery for processing Synthetic sheets, laboratories A-4860 Lenzing
- 2) Austria Faserwerke GesmbH A-4680 Lenzing
- 3) Tumfart Comp., Weaving Mill A-4183 Traberg
- 4) Baumann, Textile Weaving and Printing Factory A-3950 Gmünd
- 5) Schiel Seide AG, Weaving Mill A-3813 Dietmanns
- 6) Triumph International AG A-2700 Wr. Neustadt
- 7) Salesianer, Laundry - Drycleaning A-2700 Wr. Neustadt
- 8) Asota Ges.m.b.H.
Filaments, Spun Fibres, Sheets Non-woven, Fertilizers, Pharmaceuticals, Laboratories A-4020 Linz
- 9) Becker & Söhne, Spinning Mill A-4614 Marchtrenk
- 10) Linz Textil AG
Spinning and Weaving Mill A-4020 Linz
- 11) Joh. Backhausen and Sons
Weaving Mill A-3950 Gmünd

- 12) A. Heinish G.m.b.H.
Textile Finishing Mill A-3950 Gmünd
- 13) Walek & Co
Spinning Mill A-2700 Wr. Neustadt
- 14) Pottendorfer Textilwerke Ges.m.b.H.
Weaving and Finishing Mill A-2603 Felixdorf
- 15) Glanzstoff Austria AG
Viscose Fibre, Tire Cord A-3100 St. Pölten
- 16) Zentralwäscherei Wien
Centre Laundry for the
Government of Vienna A-1140 Vienna

Appendix VI

LIST OF PARTICIPANTS

<u>C O U N T R Y</u>	<u>N A M E</u>	<u>A D D R E S S</u>
Argentina	Mr. FABRI Alejandro F.	FIBRAFIL S.A. FRENCH 3155-5th Floor (1425) <u>Buenos Aires</u> Argentina
Cameroun	Mr. NJETCHOU Daniel	COTONNIERE INDUSTRIELLE DU CAMEROUN (CICAM) P.G.Box 7012 <u>Douala</u> Cameroun
China	Mr. LIU Heping No	Tianjin Huaxin WoolenMill Xianshuigu Town, South Suburb <u>Tianjin, China</u>
Cuba	Mr. HAY Robert Alberto	Textile Mill Desembarco del Granma, Carretera Camajuani Km 2 ¹ / ₂ Sta. <u>Clara V. Clara.</u> Cuba
Egypt	Mr. EL SAWI ABD EL HAMID	MISR RAYON COMP. KAFF EL DAWAR Egypt
Egypt	Mr. ABED EL AAL Ahmed Gaber	MISR RAYON COMP. KAFF EL DAWAR Egypt
India	Mr. PAL Soumyen Kumar	Man-Made Textiles Research Association - Ring Road <u>Surat - 395002, India</u>
India	Mr. SHAH Sunil J.	Petrofils Cooperative Ltd. PO: Petrofils, Dist:Vadodara <u>Gujarat - India 391 347 India</u>
Kenya	Mr. LIHEMA, Barnabas Mungasia	Kenya Bureau of Standards P.O.Box 54974 <u>NAIROBI</u> Kenya
Nigeria	Mr. IBRAHIM Daniel Bako	KADUNA TEXTILES LTD P.O.Box 68 Kaduna, Nigeria
Nigeria	Mr. OIAI EYE Sunday Kehinde	Federal Institute of In- dustrial Research OSHOBI-NIGERIA P.M.B.21023 Ikeya Lagos Nigeria

Pakistan	Mr. SIDDIQUI Mohammed Saheeruddin	National Fibres Ltd. Plot No.13-20 Sector 22 KORANGI INDUSTRIAL AREA <u>Karachi, Pakistan</u>
Sri Lanka	Mr. DOUGLAS L.M.B.	CEYLON PETROLEUM CORPORATION P.O.Box 18 <u>Kelaniya, Sri Lanka</u>
Sudan	Mr. DAQUD Hassan Osman	Industrial Research and Consultancy Centre P.O.Box 268 <u>Khartoum, Sri Lanka</u>
Tanzania	Mr. KABELEGE Raymond William	MUSOMA TEXTILE MILLS LTD P.O.Box 652 <u>Musoma, Tanzania</u>
Tanzania	Mr. MAKULE Edward Thomas	MUSOMA TEXTILE MILLS LTD P.O.Box 652 <u>Musoma, Tanzania</u>
Viet Nam	Ms. TRAN THI HANH	General Department of Chemistry 2 Pham ngu Lao <u>Hanoi, Viet Nam</u>
Yemen P.D.R.	Mr. MOSUNNA Mohamed Sail	Textile and Spinning Factory P.O.Box. 2003 <u>Aden, P.D.R. Yemen</u>

Appendix VII

Social Activities

- 1) Trip to the Wachau. Visit to the Monastery of Melk
- 2) Visit to the Empiral Chapel (Hofburgkapelle)
- 3) Visit to the Spanish Horse Riding School
- 4) Visit to the Museum of History of the Army
- 5) Visit to the Museum of Fine Arts and the treasury of the court
- 6) Visit to the "Schatzkammer"
- 7) Private Invitations
- 8) Sight-Seeing Tour in Vienna
- 9) Visit to the Opera (Volksoper)
- 10) Visit to the Monastery of Klosterneuburg
- 11) Farewell Party at Ober St. Veit

Appendix VIII

Home countries of Participants

	74 - 80	81	82	83	84	85	86	87	88	89	90	Total
	1.- 7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	
Afghanistan			1									1
Angola										1		1
Argentina	2						1				1	4
Bangladesh	4		3									7
Bolivia	2					1						3
Brazil	3	1	1							1		6
Bulgaria	1		1									2
Burma					1			1				2
Burundi					1							1
Cameroun											1	1
China	1	1				1	1	1	2	1	1	9
Colombia	2									1		3
Costa Rica	1											1
Cuba									1		1	2
Equador										1		1
Egypt	7		2			2		1		1	2	15
Ethiopia	2	1				2	1	1	1	1		9
Ghana	4				1			1	1	1		8
Guinea									1			1
Guyana				1								1
India	3			1					1		2	7
Indonesia	3		1									4
Iran	1											1
Iraq	8	1								1		10
Jamaica	2											2
Kenya	1									1	1	3
Korea	1			1			1		1			4
Lybia	2	1										3
Malaysia						1	1					2
Mexico	2											2
Mongolia										1		1
Mozambique	1											1
Nepal					1							1
Nigeria									1		2	3
Pakistan	2						1	1		1	1	6
Peru	1		1					1				3
Philippines	4											4
PLO	1											1
Poland	2											2
Romania	3											3
Singapore	3											3
Somalia				1								1
Sri Lanka	2						2				1	5
Sudan			1					2	1	1	1	6
Syria	3											3
Tanzania		1		1	2				1	1	2	8
Thailand	4											4
Turkey	3	1					1					5
Uganda				1	1	1	1	1	1	1		7
Uruguay	1						1					2
Vietnam						1	1	1		1	1	5
Yemen A.Rep.			1						1			2
Yemen PR				1		1			1		1	4
Yugoslavia	1											1
Zambia				1		1	1					3
Zimbabwe						1						1

The UNIDO in Vienna has to be congratulated in bringing about this Training Programme and we want to express our appreciation to all UNIDO members who have contributed to the realization of this project.

We hope that we could fulfill the intentions of UNIDO by giving the participants as much as possible of insight, knowledge and experience.

We also want to give our thanks to the participants for their co-operation and wish them an effective evaluation in their native countries.