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FINAL REPORT
ON THE
FOURTEENTH
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/87/128

14th 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
Plößlgasse 8, A-1040 Vienna, Austria

Director: OSTR Mag. A. Berger
Director of Austrian Man-Made Fibre Institut: Dr. Hans Keiper
Project Manager: Dr. Robert Katschinka

Fourteenth In-Plant Group Training Programme on Man-Made Fibres.

Organized by the United Nations Industrial Development Organi-
sation (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 19th October to 20th November 1987.

Final Report

by L. MACHHERNDL
Executive Manager

1. Acknowledgements

The Höhere Bundes-Lehr- und Versuchsanstalt für Textilindustrie Wien V and the Österreichisches 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. A. Vassiliev (Deputy Director General, Department of Industrial Operation, UNIDO)

Ms. A. T-heknavorian-Asenbauer (Head, Chemical Industries Branch, Department of Industrial Operations, UNIDO)

Mr. L. F. Biritz (Director, Industrial Operations Technology Division, DIO, UNIDO)

Ms. I. Lorenzo (Head, Training Branch, Department of Industrial Operations, UNIDO)

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

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

Mr. K. Sepic (Head, Agro-Industries Branch)

Mr. A. Eraneva (Agro-Industries Branch)

Mr. D. Gardellin (Head, Purchase and Contract Service)

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 Chancellery

Ms. B. Dekrout Mr. C. Krepela

Austrian Federal Ministry for Foreign Affairs

Mr. H. Miltner Mr. F. Schmid

Austrian Federal Ministry for Educations and Art

Mr. W. John Mr. O. Tischler

Austrian Federal Chamber of Commerce

Mr. H. R. Seidl

Mr. K. Haas

Mr. F. Erhart

Association of Austrian Industrialists (VÖI)

Mr. P. Kapral

Mr. H. Krejci

Höhere Bundes-Lehr- und Versuchsanstalt für Textilindustrie

Mr. A. Berger Mr. L. Machherndl (HBLVAT)

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 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 fourteenth in a series of programmes implemented annually since 1974.
2. The trend of training activities in the field of production 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. UNIDO implemented some technical assistance projects and held meetings in the field of man-made fibres and this experience can be available for the developing countries through the training programme.
4. 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. Special fibres, including inorganic fibres, carbon fibres are still very expensive and will for the present continue to be produced only in small quantities.

5. On the whole, the trend is towards modified man-made fibres based on more basic polymer and extensive knowledge of production and conversion techniques. Chemical modification is effected essentially by: copolymerization, introduction of additives, polymer combination, treatment by irradiation, introduction of reactive groups. Physical modification is possible by four principal methods: changing the fibre cross-sections or spinning hollow fibres, mixing elementary of various types, texturing, increasing the number of elementary filaments of synthetic filaments while reducing the general titre.

6. Generally, the following trends are apparant in man-made fibres production:
 - the reduction of process stages e.g. for quasi-textiles by non-woven technology or by film production;
 - the integration of textile treatment stages in the process of fibres, e.g. warping, stretch-texturizing, dyeing, converting;
 - rapid spinning methods, combined shaping, stretching and winding or rapid shaping and winding for polyester and polyamide fibres;
 - extrusion spinning;
 - increasing the degree of automation in fully automatic production.

7. 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 fibre synthesis 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.

8. 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 their problems encountered in their daily work in the field of man-made fibre technology and application.
9. The programme has received the support of the Austrian Federal Ministry of Foreign Affairs, the Austrian Federal Economic Chamber and the Austrian Federal Ministry of Education, Fine Arts and Sports 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.
10. Recently, the main emphasis of 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 1987 the training course will be concentrated on practical technology to improve the quality of cotton yarns by blending and also on quality control of textile products. It will consist of a 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.
11. 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.

12. During the theoretical training, individual appointments were 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 man-made 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 19th October to 20th November 1987. (See appendix I for the time table)

The programme covered the latest technological developments in the field of application man-made fibres in textile processing and consisted of a theoretical part designed to up-date the participants knowledge on man-made 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 man-made 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 institutes 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 possibilities 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: Burma, VR China (2), Egypt, Ethiopia, Ghana, Pakistan, Peru, Sudan (2), Uganda, Vietnam.

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 man-made fibres and blending and quality control in the participants home-countries.

A programme of social activities was organized by HBLVAT 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 Man-made fibres 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986 and 1987 see appendix VIII.

Appendix I

Agenda and programme of work

Opening Ceremony: 19th October 1987, Conference Room
at HBLVAT Vienna V

9:30 Chairman pro tem: Mr. V. Bysyuk of Chemical Industries
Branch, UNIDO

Opening speech: Mr. V. Bysyuk
Chemical Industries Branch, UNIDO

Speeches by: Mr. H. Miltner
Counselor, Federal Ministry of Foreign
Affairs,
Permanent Mission of Austria to the
United Nations,

Mr. K. Haas
Technical co-operation with Developing
Countries
Austrian Federal Economic Chamber

Mr. H. Hördler
Mr. A. Berger
Höhere Bundes-Lehr- und Versuchs-
anstalt für Textilindustrie,
Spengergasse 20
A-1050 Vienna

Mr. H. Keiper
Director
Österreichisches Chemiefaser-Institut
(Austrian Man-made Fibre Institute)

Closing speech:

Mr. V. Bysyuk
Chemical Industries Branch, UNIDO

Monday, 19 th October 1987

11:00 - 12:00

Opening Ceremony, HBLVAT Vienna V

14:00 - 17:00

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

Tuesday 20th October - Friday 20th November 1987

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

Thursday, 19th November 1987

19:00

Farewell Party at Ober St. Veit

Friday, 20th November 1987

08:30 - 12:00

Final session at HBLVAT, Vienna
Discussion about national problems

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

Quality Control

Modal-Fibres - an universal blending component

Ing. G. Neudorfer,
Chemiefaser Lenzing AG
Lenzing Austria

Quality-Control of Man-Made Fibres, Filaments
and Spinn Yarns; Principle and Methods

Dr. Franz Puchegger
Chemiefaser Lenzing AG
Lenzing Austria

Special Fabrics from Blends Cotton with Man-Made Fibres

Prof. Dipl.Ing. W. Herzog
Austrian Textile Research Institute
A-1050 Vienna

Knitted Fabrics from Blended Yarns

Prof. Dipl.Ing. W. Graninger
Member of the staff of the HBLVAT
A-1050 Vienna

Processing of Synthetic Fibres and Blends, Fibre-Blends
and their Properties

Dipl.Ing. J. Hördler
Member of the staff of the HBLVAT
A-1050 Vienna

Cotton, one of the major agricultural Products of this
world and some reflections on deve'opment and Industria-
lization

Ing. G. Grünwald,
UNIDO Textile Expert

Yarn Making - Yesterday - Today - Tomorrow
Ing. K. Schnaubelt
Member of the staff of the HBLVAT
A-1050 Vienna

**Spinning Quality Yarns from Pure cotton and Blends spun
on conventional Systems**
Ing. K. Schnaubelt
Member of the staff of the HBLVAT
A-1050 Vienna

Viscose - Filaments for modern Textiles
Dipl.Ing. Dr. L. Kloimstein
Enka Austria AG
St. Pölten, Austria

Fibre Fineness, Micronaire Reading of Cotton Fibres
Prof. Dipl.Ing. J. Hürdler
Prof. Dipl.Ing. Dr. P. Schrefl
Members of the staff of the HBLVAT
A-1050 Vienna

Introduction to Polyester-Fibre Production and Equipment
Dir. Dr. W. Peters
Austria Faserwerke
Lenzing Austria

The TREVIRA Sortiment - its Properties and Fields of Application
Dr. H. Zimmermann
Farbwerke Hoechst AG
Frankfurt, FRG

Process Planning and Practical work
Dipl.Ing. Dr. N. Mach
Member of the staff of Chemiefaser Lenzing AG
Lenzing Austria

Viscose- and Modal Fibres in Blended Fabrics
A.O.Univ.Prof. Doz. Dipl.Ing.Dr. H. Krässig
Director of the Research Department of Chemiefaser Lenzing AG
Lenzing Austria

**Special Blends, i.e. Viscose, Polyester, Viscose/Cotton and
Viscose/Acrylic Fibres**
Dir. Doz. J. Lenz
Chemiefaser Lenzing Ag
Lenzing Austria

Physiological Aspects with Fabrics Made of Blends
Dr. techn. Dipl.Ing. P. Schrefl
Member of the staff of the HBLVAT
A-1050 Vienna

Dyeing of Synthetic Fibres and Blends
Prof. Dr. W. Lebensaft
Prof. Dr. L. Machherndl
Members of the staff of the HBLVAT
A-1050 Vienna

Deying of Polyester Fibre Blends
Prof. Dipl.Ing. Dr. techn. L. Machherndl
Member of the staff of the HBLVAT
A-1050 Vienna

The Burning Behaviour of Textiles - Textile Floor Covering
Ing. H.P. Bauer
Austrian Textile Research Institute
Vienna

Advanced Drycleaning Technology
Ing. H. Huff
Member of the staff of the HBLVAT
A-1050 Vienna

The Laundry in Theory and Practice
Ing. R. Hetzer
Member of the staff of the HBLVAT
A-1050 Vienna

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
Prof. Dr. Dipl.Ing. H. Lass
Member of the staff of the HBLVAT
A-1050 Vienna

**The new generation of Rota Spinning Machines -
aims of development**
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Comparison - Ring Yarns and Rota Yarns
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Raw Material - related influences on Machine and Yarn
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Interference Factors and their Effect at the Spinning Process
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Technical Application Conditions

Cotton

Blends

Man-Made Fibres

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

A new quality standard - the knot-free package
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

The Piecing Carriage
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

The principal of the automatic package doffer
N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Vaxing

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

The Relationship between density, volume and diameter of
packages

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Installation Planing

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Warp and weft pars in woven fabrics

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Pars and uneven loop formation in knitted fabrics

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Effective doubling in Rota Spinning

N.N., Schlafhorst & Co., Textile Machinery
Mönchengladbach, FRG

Latest Technology in Engineering and Optimizing
Preparation machinery of Fibre Blending (Intimate Blend)
applications: Open End Yarns, - Ring Yarns

M. Schwartz, B.S.C. Engineer
Trützschler GmbH & CoKG
Mönchengladbach, FRG

Transfer of Chemical Technology in Developing Countries
Doz. Dr. Dipl.Ing. K. Czeya
Vienna

The Textile Industry from an International and National
Point of View

Dr. H. Huber
Hauptgeschäftsführer des Fachverbandes der
Textilindustrie
Vienna

Man-Made Fibres - Their Development and economic significance
Doz. A.O.Univ.Prof. Ing. DDr. habil H. Krässig
Formerly Director of the Research Department
of Chemiefaser Lenzing AG,
Lenzing Austria

Sulzer Bros. and the Textile Industry
K. Tunstall
Sulzer Rüti Machinery Works Ltd.
Rüti, Switzerland

Typical Fabrics
K. Tunstall
Sulzer Rüti Machinery Works Ltd.
Rüti, Switzerland

Organisation of a Modern Textile Plant I and II
B. Streng
Sulzer Rüti Machinery Works Ltd.
Rüti, Switzerland

Yarn Preparation
H. Mall
Sulzer Rüti Machinery Works Ltd.
Rüti, Switzerland

Project Studies
B. Streng/H. Mall
Sulzer Rüti Machinery Works Ltd.
Rüti, Switzerland

Industrial Structure and Technology of Knitting Industry
L. Michel
Sulzer Rüti Machinery Works Ltd.
Rüti, Switzerland

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-ZWEIGLE, 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, Ahiba, 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

Appendix IV

Staff of the Training Programme

Director: Mr. OSTR Mag. A. Berger

Managing Director: Dr. R. Katschinka

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

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

Doz. A. O. Univ. Prof. Dipl.Ing. DDr. habil
H. Krässig

Public Relations and social Engagements: Ing. R. Hetzer

Plant Visits: Dr. R. Katschinka

Lectures: Prof. Dr. W. Albrecht

Ing. H. P. Bauer

Doz. Dr. Dipl.Ing. D. Czeja

Dipl.Ing. F. Führinger

Dipl.Ing. W. Graninger

Ing. G. Grünwald

Dr. B. Halder

Prof. Dipl.Ing. W. Herzog

Ing. R. Hetzer

Prof. Dipl.Ing. J. Hördler

Dr. H. Huber

Ing. H. Huff

Ing. R. Kampl

Dipl.Ing. Dr. L. Kloimstein

Dipl.Ing. F. Kneubühler

Dipl.Ing. H. Koppenburg

Ing. A. Kossina

Doz. A.O. Univ. Prof. Dipl.Ing. DDr. habil H. Krässig

Prof. Dipl.Ing. Dr. H. Lass

Ing. J. Lejeune

Dir. Doz. Dr. J. Lenz

Ing. H. Locher

Dipl.Ing. Dr. R. Mach

Prof. Dipl.Ing. Dr. L. Machherndl

Dipl.Ing. H. Mall
Dipl.Ing. Dr. J. M. Meißner
Dipl.Ing. L. Michel
Ing. G. Neudörfler
Dr. G. Peters
Ing. H. Pfister
Dr. L. Puchegger
Ing. R. E. Rebsamen
Dipl.Ing. H. Rüb
Dr. Saßhofer
Dipl.Ing. M. Schwartz
Ing. H. P. Supanz
Ing. W. Schaumann
Dir. Ass. R. Schlie
Dipl.Ing. J. Schmidbauer
Ing. K. Schnaubelt
Prof. Dipl.Ing. Dr. P. Schrefl
Dr. H. Sixta
Ing. H. Strauß
Ing. B. Streng
Dipl.Ing. K. Tunstall
Dr. J. Zauner
Dr. H. Zimmermann

Assistance and Preparation: Ass. C. Hoffmann, Ass. G. Schneider

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

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 an 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,
Sulphuric acid, Synthetic sheets and
foil strips, Machinery for processing
Synthetic sheets, laboratories A-4860 Lenzing
- 2) Austria Faserwerke GesmbH A-4860 Lenzing
- 3) Linz Textil AG
Spinning and weaving mill A-4020 Linz
- 4) Tumfart Comp., Weaving Mill A-4183 Traberg
- 5) Baumann, Textile Printing Factory A-3950 Gmünd
- 6) Schiel Seide AG, Weaving Mill A-3813 Dietmanns
- 7) Triumph International AG, A-2700 Wr. Neustadt
- 8) Salesianer, Laundry - Drycleaning A-2700 Wr. Neustadt
- 9) Chemie Linz AG
Filaments, Spun Fibres, Sheets
Non-woven, Fertilizers,
Pharmaceuticals, Laboratories A-4020 Linz
- 10) Becker & Söhne, Spinning Mill A-4614 Marchtrenk
- 11) VOEST-Linz AG, A-4020 Linz

- | | |
|---|-------------------------------|
| 12) Walek, Spinning Mill | A-2700 Wr. Neustadt |
| 13) Pottendorfer Textilwerke
Spinning and Weaving Mill | A-2603 Felixdorf |
| 14) A. Heinisch GesmbH, Dyeing and
Finishing Mill | A-3952 Gmünd |
| 15) Joh. Backhausen u. Söhne,
Home Textiles | A-3945 Hoheneich |
| 16) Glanzstoff Austria | A-3100 St. Pölten |
| 17) Austrian Textile Research Institute | A-1050 Vienna
Spengerg. 20 |

Appendix VI

LIST OF PARTICIPANTS

Country	Name	Address
Burma	Mr. U KHIN MG.MYINT	Textile Mill No. (5) Rangoon-Insein Road, <u>Rangoon</u> BURMA
VR China	LIN, Mr. Yun Feng	Textile Science & Technology Information Institute of the Ministry of Textile Industry, 12 East Chang An St., <u>Beijing</u> (China)
VR China	YIAN, Mr. Jian-hua	Textile Department, Tianjin College of Textile Technology, Hedong District <u>Tianjin</u> (China)
Egypt	ADLY, Mr. Adel Ibrahim Adly Omer	28, Mahoumd El-deeb st. Giser El-suez <u>Cairo</u> Egypt
Ethiopia	HABTEWOLD, Mr. Mesfin	Ethio-Japanese Synthetic Textile S.C. P.O.Box 2184 <u>Addis Ababa</u> Ethiopia
Ghana	ABANKA, Mr. Forson Kwaku	Loyalty Industries Limited P.O.Box 6358 <u>Accra</u> Ghana
Pakistan	MUGHAL, Mr. Niaz Ahmad	Harnai Woollen Mill <u>Harnai</u> Pakistan
Peru	CASTILLO ALVAREZ, Mr. Daniel	Rayon Industrial S.A. Av. Industrial 491 <u>Lima</u> Peru (private: Cerro Negro 295 Monterrico/Surco Lima)

Sudan	ABU SALIH, Mr. Salah Elding	Sudan Textile Industry Ltd. P.O.Box 1377 <u>Khartoum</u> Sudan
Sudan	EL BAGIR , Mr. Faisal Hamed Dafalla	Blue Nile Textile Co. Box: 260 <u>Wad-Medani</u> <u>Khartoum</u> Sudan
Uganda	NITANDAYARWO, Mr. Emmy Kayongwe	Nyanza Textile Industries Ltd. P.O.Box 408 <u>JINJA</u> Uganda
Vietnam	Ms. HOANG THI <u>XUAN LAI</u>	Textile Research Institute 326D Minh Khai <u>Hanoi</u> Vietnam

Appendix VII

Social Activities

1. Trip to the Wachau, Visit to the Monastery of Melk and Dürnstein
2. Visit to the Empiral Chapel (Hofburgkapelle)
3. Visit to the Spanish Horse Riding School
4. Visit to the Museum of Arms
5. Visit to the Museum of Arts
6. Visit to the Museum of Textiles
7. Visit to the "Schatzkammer"
8. Private Invitations
9. Visit to the Monastery of St. Florian
10. Sight-Seeing Tour in Vienna
11. Visit to the Opera
12. Visit to the Monastery of Klosterneuburg
13. Farewell Party at Ober St. Veit
14. Visit to Castle of Kreuzenstein

Appendix VIII

Home countries of Participants

	74.	75.	76.	77.	78.	79.	80.	81.	82.	83.	84.	85.	86.	87.	Total
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	
Afghanistan									1						1
Argentina	1				1								1		3
Bangladesh	1		1		1	1			3						7
Bolivia				1			1					1			3
Brazil	1				1		1	1	1						5
Bulgaria	1								1						2
Burma											1			1	2
Burundi											1				1
China							1	1				1	1	2	6
Colombia				1		1									2
Costa Rica		1													1
Egypt	1	1	1	1	1	1	1		2			2		1	12
Ethiopia				1	1			1				2	1	1	7
Ghana			1	1		1	1				1			1	6
Guyana										1					1
India		1			2					1					4
Indonesia		1	1	1					1						4
Iran	1														1
Iraq		1	2	2	2	1		1							9
Jamaica		1			1										2
Kenya						1									1
Korea		1								1			1		3
Lybia		1		1				1							3
Malaysia												1	1		2
Mexico	1			1											2
Mozambique								1							1
Nepal											1				1
Pakistan		1		1									1	1	4
Peru		1							1					1	3
Philippines	1	1		1			1								4
PLO							1								1
Poland						1	1								2
Romania	1		1		1										3
Singapore	1	1	1												3
Somalia										1					1
Sri Lanka				1		1							2		4
Sudan									1					2	3
Syria			1			1	1				1	2			3
Tanzania								1		1	2				4
Thailand				1	1	1	1								4
Turkey	1		1			1		1					1	1	5
Uganda										1	1	1	1	1	5
Uruguay			1										1	1	2
Vietnam												1	1	1	3
Yemen A. Rep.									1						1
Yemen VR										1		1			2
Yugoslavia	1										1	1			1
Zambia									1						3
Zimbabwe											1				1
	12	11	12	14	12	11	10	8	12	8	9	11	12	12	154

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.