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INTRA-REGIONAL COOPERATION IN DEVELOPMENT OF  
PLANTATION-BASED FOREST INDUSTRIES (PTA)

DU/RAF/87/117

Technical report on the "Technical Workshop on Production of  
Wooden Furniture and Joinery", held in Blantyre, Malawi,  
from 10 to 21 February 1992\*

Prepared for the Secretariat of the Preferential Trade Agreement  
by the United Nations Industrial Development Organization

Based on the work of Antoine V. Bassili,  
course director

Backstopping officer: Robert M. Hallett  
Agro-based Industries Branch

\* This document has not been edited.

V.92 53530

Robert M. Hallett

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1. Purpose of the Mission:

A staff member of the Agro-based Industries Branch of the Division of Industrial Technology, Antoine V. Bassili, travelled to Blantyre, Malawi, from 5 to 24 February 1992 to conduct and lecture at the Technical Workshop on Production of Wooden Furniture and Joinery, financed from project "Plantation-based Forest Industries" (RAF/87/117).

2. Preliminary preparations:

This course was organized as part of an interagency letter of agreement dated 11 June 1991 concerning UNIDO's involvement in the above mentioned project.

Originally, the course was intended to be held in September 1991, but was delayed due to the late approval (on 24 October 1991) of the host government to have it held in Blantyre.

Preliminary arrangements were made during a technical assistance assignment by a UNIDO consultant, Mr. Stephen J. Taylor, in February 1991 (Report No. IO/R.207 dated 7 August 1991). These were followed up by the backstopping officer at UNIDO Headquarters and letters of invitation and the aide-memoire were sent to the UNDP offices in PTA member states by telex on 29 October 1991. As a result of this, 61 candidates were nominated (seven were cabled nominations, the forms never reached UNIDO). The list of countries invited and their response is given in Annex I. Their candidature was evaluated and 28, from 8 countries, were selected. Two from Ethiopia and one each from Burundi, Lesotho and Zambia did not attend and no explanation as to why they did not turn up had reached UNIDO, except for Mr. Mulenga from Zambia, who claimed that he travelled to Lilongwe and was refused admittance because of long hair.

Four observers from Malawi and one from Tanzania attended the Workshop at no cost to the project. The list of participants, observers and lecturers is given in Annex II.

3. Participants:

The 22 participants and five observers who attended were a homogeneous group. All but two (from Burundi) were directly involved in the production of furniture and joinery and this helped their work as a group. Only one participant from Ethiopia seemed to have some difficulty in expressing himself in English. All were very keen on getting as much information as possible from the lecturers, visits and UNIDO consultants and did so continuously.

Bearing in mind the lateness of issuance of the letters of invitation, the response that UNIDO received for this Workshop was encouraging.

4. Programme of the Workshop:

The programme is given in Annex III.

The breakdown of the programme, expressed in tabular form is giving below:

- Opening and closing ceremonies	3 hours (4%)
----------------------------------	--------------

- Lectures	56 hours (71%)
- Factory visits and demonstrations	12 hours (15%)
- Presentation of assignment work	5 hours (6%)
- Round table discussions	3 hours (4%)
Total	79 hours (100%)

The figure given above for the assignment work represents only the time for presentation. Considerable time was spent by all participants in preparing for these presentations. Some of these meetings lasted to the small hours of the night.

5. Documentation:

The UNIDO publication "Furniture and Joinery industries for Developing Countries" (ID/108 Rev. 2) in English was handed out to all participants as were two of the project's technical reports (the first one entitled "An overview of the furniture and joinery industries in the following PTA countries: Burundi, Comoros, Djibouti, Ethiopia, Kenya, Malawi, Mauritius, Mozambique, Rwanda, Swaziland, Uganda, Zambia, Zimbabwe" based on the work of Messrs. Pietro Borretti, Bretislav Trac and Stephen J. Taylor, document No. IO/R.213 and the second one, "Marketing secondary wood-based products in the PTA context" based on the work of Mr. Douglas F. C. Ede, document No. IO/R.222).

A complete set of UNIDO publications related to the wood processing industries sector was available for reference. At the end of the course it was handed over to the library of the Polytechnic in Blantyre.

6. Assignment work:

At the beginning of the Workshop the participants were requested to indicate their interest in the following fields:

1. Production planning and control for a batch of 1000 chairs (16).
2. Design and use of fixtures and gauges of jigs for the production of 1000 chairs (7).
3. Plant layout and equipment selection for a door factory to produce 1000 solid wood panel doors per month (7).
4. Organization, manning table etc. for a factory to produce 1000 chairs (12)

The numbers in brackets indicate the number of participants in each group and also reflects their interest in the various topics. Because of the number interested in the first group, it was divided in two and both of the subgroups presented their work.

Details on the topics, objectives and methodology are given in Annex IV. A discussion leader was nominated for each group to coordinate the work and present the conclusions. The names of these persons and their nationality are given in Annex V.

The three expatriate consultants also guided the work of the groups. Each group was allocated some one and a half hours to present its conclusions and full use was made by all groups of audio-visual facilities available.

7. Administrative matters:

As indicated above, preliminary arrangements were made by Mr. Stephen J. Taylor, one of the project's consultants during his survey of the Malawian furniture industry in February 1991. At the time, it was agreed that the Workshop would be held at the Polytechnic. Because of the need to postpone it, the conference facilities at the Polytechnic were no longer available at the new date (being during term) and alternative arrangements had to be made.

The hotel selected (Ryall's Hotel in Blantyre) was to provide the meeting room free of charge, bearing in mind that the course would have ensured them with 30 clients staying at least two weeks each. Some two weeks before the start of the course, UNIDO was notified that the conference room at Ryall's hotel was only available for the second week. Ad hoc arrangements had to be made at the last minute. A room at Mount Soche Hotel was booked from Victoria by the backstopping officer, while Prof. G. Mhango of the Polytechnic arranged for the booking of the Kwacha Conference Centre in Blantyre. Upon his arrival, the UNIDO staff member inspected both and it appeared that, although the location of Mount Soche was better, the room was too small and the booking at the Kwacha Conference Centre was confirmed for the first week.

Because of lateness of notification of the bookings made by the participants to arrive, it was impossible to arrange that they be met at the airport. This proved to be no problem except for a group of eight which arrived and could not find transportation to town. Two taxis were sent to meet them.

The necessary visual aids (slide projector, overhead projector, screen, and white board) were provided, on a rental basis by the Polytechnic who also provided the necessary photocopying services at cost.

8. Press coverage:

An interview was given on the opening day by the UNIDO representative to the local radio station and the local newspaper.

9. Evaluations:

UNIDO's form for the evaluation of the Workshop were handed over to the participants and observers on 19 February and a total of 26 forms, duly completed were returned by the end of the Workshop. The replies were compiled and the detailed compilation is given in Annex VI. By and large, its assessment by the participants was very positive.

The lectures were, with one exception, of an acceptable standard. It is the author's opinion that the participants' evaluation of these lectures is not correct. For instance, all lectures by Mr. George Mbekeani deserved a far better rating than they got. This could be attributable to the fact that the hand-outs he gave them were rather skimpy.

The presentation of the assignments revealed that the participants working on them had not grasped certain of the intricacies of production planning and control and this was explained to them and all misconceptions cleared during the presentation. Notwithstanding this, the presentations were of a somewhat higher level than what was expected.

The Project's Chief Technical Adviser, appointed by FAO, Mr. Francis M. Kamau, attended the Workshop for three full days (18-20 February). He had the opportunity to listen to lectures, and to discuss with the participants. He was satisfied with the level of participants, the level of the lectures and also with the system of group work and their presentations.

#### 10. Round-table discussion

The participants were asked, on 19 February, to suggest topics for the round-table discussion which was held in the afternoon of 21 February 1992. They identified the following topics:

- Training
- Data bank and transfer of technology
- Standards
- Marketing
- Design
- Study tours and visits
- Automation
- Informal sector

During the three-hour discussions on the afternoon of 21 February, the following points emerged:

**Training:** There was consensus that a course on machine woodworking at the basic, advanced and full technological level should be introduced in the PTA countries. Participants from Kenya felt that a one-week national course for machine operators was needed.

Other participants felt that the second phase of the Plantation-based Forest Industries Project should take up this recommendation and recruit a consultant to come up with a common syllabus, manuals and visual aids which should be tested by a course, funded by the project, for the training of trainers. It was also emphasized that in the proposed machine woodworking courses the trainees should be allowed to produce in small batches and therefore break the barrier of the "machine serves man approach".

**Data banks and transfer of technology:** There was consensus that the second phase of the project should have on board an associate expert, a PC computer and a fax terminal that would be used to compile data banks on equipment available, processing technologies (eg. drying schedules, preservation processes, designs, standards, etc.) as well as on the properties of pines grown in the PTA region. This associate expert would make the data compiled in the data bank available to enquirers throughout the PTA and the availability of his/her services should be diffused through the project's newsletter.

**Standards:** While some participants felt that PTA standards for wood products were needed, the majority realized that such standards would need to be based on the availability of national standards for these products, or at

least the willingness of national bodies to promulgate standards, and that the issuance of standards was the responsibilities of other bodies than the project "Plantation-based Forest Industries".

**Marketing:** It was felt by all concerned that, in its second phase, the project should compile information on tariffs and non-tariff barriers. Information on transport and communications, a data bank on the potential suppliers of wood and wood products and on the requirements of documentation for export should also be established and maintained.

A suggestion for a roving trade fair of PTA made furniture was mentioned but did not meet much support.

**Design:** There was consensus that a course on product development for serial production of furniture was needed. It should be along the same lines as the current Workshop, emphasizing design, aesthetics, standardization of components, standardization of tooling, technical specifications of inputs, and, last but not least, ergonomics. Such a course should be financed from the next phase of the project.

**Study tours, visits to equipment fairs and factory visits:** There was consensus that the project should organize tours to factories and equipment fairs by entrepreneurs and production managers of furniture factories in PTA countries, accompanied by internationally recruited impartial consultants to advise them on the relative merits of various equipment they will be seeing at the fair. It was felt that such study tours should be financed by the next phase of the project. Mention was also made to the courses that UNIDO used to run in Italy in conjunction with the INTERBIMALL Fair in Milan every other year and it was felt that this type of activity was beneficial to industrialists in the PTA countries.

**Automation:** Although it was felt that there was a need for automation, the participants realized that even low cost automation could not start before the concept of serial production was accepted and introduced at the factory level.

**"Informal sector":** The discussion circled around the problems of how to assist the informal sector which was, in most PTA countries, the major producer of furniture and joinery, but no idea crystallized as to how this assistance could be provided.

In concluding, the participants requested that UNIDO communicate these conclusions and suggestions of the round-table to the Chief Technical Adviser of the project in Zambia and also to FAO Headquarters in Rome for their consideration and possible inclusion in the next phase of the project.

#### 11. Acknowledgements:

The author wishes to thank the consultants, Prof. Mhango and the staff of the Polytechnic, the management of the Wico Furniture factory and International Timbers Limited, and the staff of UNDP in Lilongwe for the assistance given.



## ANNEX I

## LIST OF COUNTRIES INVITED AND THEIR RESPONSE

COUNTRIES INVITED	NOMINATIONS RECEIVED	CANDIDATES ACCEPTED	CANDIDATES WHO ACTUALLY ATTENDED
ANGOLA			
BURUNDI	3	3	2
DJIBOUTI			
ETHIOPIA	6	4	2
KENYA	9	5	4
LESOTHO	9 <sup>2</sup>	1	
MALAWI	4	4 <sup>2</sup>	4 <sup>-</sup>
MAURITIUS	6 <sup>1</sup>	2	2
MOZAMBIQUE			
NAMIBIA			
SOMALIA			
SUDAN			
SWAZILAND			
TANZANIA	7	4 <sup>3</sup>	4 <sup>3</sup>
UGANDA	5 <sup>4</sup>	3	3
ZAIRE			
ZAMBIA	9 <sup>1</sup>	5	4
ZIMBABWE	3 <sup>4</sup>	2	2
TOTAL	61 <sup>5</sup>	33	27

<sup>2</sup> Two nominations received by cable only.

<sup>3</sup> Four observers attending at no cost to the project.

<sup>4</sup> Including one observer attending at no cost to the project.

<sup>5</sup> One nomination received by cable only.

<sup>6</sup> Including seven nominations received by cable only.

N.B. Some of the nominations were received in time had the course been held in September, while others were received in time for the course as held in February.

## ANNEX II

## TECHNICAL WORKSHOP ON PRODUCTION OF FURNITURE AND JOINERY

Blantyre, Malawi, 10 to 21 February 1992

## LIST OF PARTICIPANTS, OBSERVERS AND LECTURERS

COUNTRY AND NAME	FUNCTION AND COMPANY NAME	MAILING ADDRESS (+TELEX/FACSIMILE)
<b>BURUNDI</b>		
BALTHAZAR BAFAMFUMBASE	Adviser of the Ministry of Commerce & Industry	P. O. Box 492 Bujumbura Tel.: 225127 Tlx.: BDI 5117
ANICET NDIKURIYO	Director Centre de Promotion et de Formation Professionnelle (Training Centre)	P. O. Box 2465 Bujumbura Tel.: 222098
<b>ETHIOPIA</b>		
DEREJE BELAY	General Manager Metal & Woodwork Shop	P. O. Box 7342 Addis Ababa Tel.: Off.: 126180 Res.: 166708
MENGESHA YOHANNES	Purchasing Officer Fassil Mekonnen Woodwork	P. O. Box 4654 Addis Ababa Tel.: 200020/202287-
<b>KENYA</b>		
HITESH PRAVIN DAVE	Supervisor P. J. Dave	P. O. Box 18436 Nairobi Tel.: 554780/554019 545017
GEORGE K. KABIRU	Senior Branch Manager Engineering Dept. Timsales Ltd.	P. O. Box 18080 Nairobi Tel.: 559511, 559584 559585 Tlx.: 24059 Fax.: 543657
THANDE KAMAU	Managing Director Mortice & Tenon Ltd.	P. O. Box 19575 Nairobi Tel.: 553377/6 Fax.: 556472

EMANUEL J. NJAU	Production Manager Economic Housing Group Ltd.	P. O. Box 18128 Nairobi Tel.: 553822/5537/8 Fax.: 724680
<b>MALAWI</b>		
FAILEX M. SINALO <sup>1</sup>	Managing Director Famba Furniture	P. O. Box 5102 Limbe Tel.: 676328/677385 Fax.: 676328/640910
ELLIOT P. W. MULANJE <sup>1</sup>	Furniture Production Manager Wood Industries Corporation	P. O. Box 30359 Chichiri Blantyre 3 Tel.: 670144/670753 Tlx.: 44707 WOODCOR Fax.: 670636
PETER L. F. KADAKWINDA <sup>1</sup>	Assistant Workshop Supervisor Famba Furniture	P. O. Box 5102 Limbe Tel.: 676328/677385 Fax.: 676328/640910
HOWARD H. MAMBO <sup>1</sup>	Production Controller Press Furniture and Joinery	P. O. Box 30221 Chichiri Blantyre 3 Tel.: 671766
<b>MAURITIUS</b>		
JOHNNY BISSESSUR	Director General Furniture Ltd.	No. 2 de Chazal Ave. Quatre-Bornes Tel.: 4649577 Fax.: 4241219
CHI KAM CHUN M.	Senior Extension Officer Small Industries Development Organization (SIDO) Ministry of Industry and Industrial Technology	Coromandel Tel.: 2335711-14
<b>TANZANIA</b>		
RAMADHANI A. GUMBO	Production Manager Imara Wood Products Co. Limited	P. O. Box 1841 Moshi Tel.: 43045

<sup>1</sup> Observers.

EVARIST N. MAEMBE	Chairman Tanzania Forestry Industries Association (TAFIA)	P. O. Box 35007 Dar-es-Salaam Tel.: 34573
DANIEL N. MMARY	Lecturer/Production Manager Forest Industries Training Institute	P. O. Box 1925 Moshi Tel.: (055) 55016
MUSTAFA GULAMALI	Production Manager Afro Laminates Industries Limited	P. O. Box 2227 Dar-es-Salaam Tel.: 37937 Fax.: 47786
<b>UGANDA</b>		
EKWENYE OKOI BALAM	Instructor Carpentry & Joinery Vocational Training Institute	P. O. Box 1078 Jinja Tel.: 20888
IVAN S. NSIMBI	Building Engineer Jinja Construction and Joinery Ltd.	P. O. Box 364 Jinja Tel.: 21838 Tlx.: 64266
GEORGE W. ORATUNGE	Production Manager Kiira Sawmills and Plywood Factory (WICO)	P. O. Box 215 Jinja Tel.: 21083
<b>ZAMBIA</b>		
LEONARD CHOLOBA	Joinery Manager ZAFFICO Ltd.	P. O. Box 21871 Kitwe Tel.: 733087/733215
PHILIP HANDONDO	Joinery Factory Foreman ZAFFICO Ltd.	P. O. Box 21871 Kitwe Tel.: 733087/733215
CHRISTOPHER SHIKAPUTO	Production Manager Wood Processing Industries	P. O. Box 71415 Ndola Tel.: 650725 Tlx.: ZA34780 BOSLTD Fax.: (260)2-650109
GOODSON K. TUMBA	Technical and Production Manager Furniture Corporation of Zambia	P. O. Box 70552 Ndola Tel.: 650589-92

<b>ZIMBABWE</b>		
EMMANUEL MUCHATUTA	Production Manager Blooms Manufacturers Pvt. Ltd.	P. O. Box ST430 Southerton Harare Tel.: 62612-8 Fax.: 67709
REMIGIO C. MUDIMU	Production Manager Harlequin Furniture Manufacturers	P. O. Box 3809 Austin Road Harare Tel.: 63495 Fax.: 63333
<b>LECTURERS</b>		
ANTOINE V. BASSILI	Senior Industrial Development Officer UNIDO	F. O. Box 400 A-1400 Vienna Austria Tel.: (0222)211313853 Tlx.: 135612 UNO A Fax.: (0222)232156
CHARLES L. CHINDONGO	Lecturer in Civil Engineering	The Polytechnic P. Bag 303 Chichiri Blantyre 3 Malawi Tel.: (265)670411 Tlx.: 44613 Fax.: (265)670578
FRANCIS M. KAMAU	Chief Technical Adviser Plantation Based Forestry Industry Project	P. O. Box 30563 Lusaka Zambia
GEORGE N. MBEKEANI	Managing Director Woodworkshop	P. O. Box 2095 Blantyre Malawi
WONGANI MKANDAWIRE	Sawmill Manager Wood Industries Corporation	P. O. Box 30359 Chichiri Blantyre 3 Malawi Tel.: (265)670144
HASTINGS B. MOLOKO	Lecturer in Technical Education	The Polytechnic P. Bag 303 Chichiri Blantyre 3 Malawi Tel.: (265)670411 Tlx.: 44613 Fax.: (265)670578

STEPHEN J. TAYLOR	Furniture Production Consultant	3 The Greenway High Wycombe (Bucks) HP13 6PX United Kingdom Tel.: (0494) 441030
GEOFFREY A. WOODS	Consultant in Saw Doctoring and Machine Maintenance	173 Northumberland Ave. Thornton-Cleveleys (Lancashire) SY5 2JS United Kingdom

## ANNEX III

PROGRAMME OF THE TECHNICAL WORKSHOP  
ON PRODUCTION OF WOODEN FURNITURE AND JOINERY

Blantyre, Malawi, 10 to 21 February 1992

Monday, 10 February 1992

- a.m.<sup>1</sup> - Registration  
 - Opening  
 - Presentation of participants  
 - Principles of industrial production (A. V. Bassili)
- p.m.<sup>2</sup> - Visit to the WICO furniture factory  
 - Information on assignments (A. V. Bassili)

Tuesday, 11 February 1992

- a.m. - Wood as a raw material for furniture (G. Mbekeani)  
 - Selection of woodworking cutting tools (G.A.Woods)
- p.m. - Wood drying (C. Chindongo)  
 - Wood based panels used in furniture (G. Mbekeani)

Wednesday, 12 February 1992

- a.m. - Wood Drying (W. Mkandawire)  
 - Product construction (G. Mbekeani)
- p.m. - Product construction (G. Mbekeani)  
 - Selection of woodworking machines (A.V.Bassili)

Thursday, 13 February 1992

- a.m. - Visit to International Timbers  
 - Review of visit
- p.m. - Tool maintenance (Theory) (G.A.Woods)  
 - Plant layout (S. J. Taylor)

Friday, 14 February 1992

- a.m. - Costing (S. J. Taylor)  
 - Safety (G.A.Woods)
- p.m. - Demonstration on Machine Woodwkring, Machine Setting and Safety (at Soche Technical College) (G. A. Woods)  
 - Tool maintenance and safety (G. A. Woods)

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<sup>1</sup> 8:30 to 12:30

<sup>2</sup> 14:00 to 17:30

Saturday, 15 February 1992

Free

Sunday, 16 February 1992

Free

Monday, 17 February 1992

- a.m. - Surface finishing (H. Moloko)  
- Product development (S. J. Taylor)
- p.m. - Adhesives (H. Moloko)  
- Tool maintenance and safety (G. A. Woods)

Tuesday, 18 February 1992

- a.m. - Design and use of jigs (S. J. Taylor)  
- Product development (Process Engineering) (S. J. Taylor)
- p.m. - Demonstration on Surface Finishing (at WICO)  
- Inventory control (A. V. Bassili)

Wednesday, 19 February 1992

- a.m. - Production planning and control (A. V. Bassili)  
- PTA project RAF/87/117 (F. M. Kamau)
- p.m. - Plant organization (S. J. Taylor)  
- Upholstery Technology (G. Mbekeani and S. J. Taylor)

Thursday, 20 February 1992

- a.m. - Quality control and inspection (S. Taylor)  
- Maintenance (G. A. Woods)  
- Packaging of furniture (A.V.Bassili)
- p.m. - Presentation of assignments

Friday, 21 February 1992

- a.m. - Presentation of assignments
- p.m. - Round table discussion  
- Closing



## ANNEX IV

## ASSIGNMENT WORK

Assignment No. 1

A. Determine the raw material requirements (net and gross) to manufacture 1000 chairs as per sample provided. The following machines are available:

- Cross cut saw
- Straight line edger
- Planer jointer
- Narrow bandsaw
- Thicknesser
- Spindle moulder
- Router
- Four-side planer moulder
- Carcass clamp for chairs (pneumatic)
- Square tenoner (one end)
- Chain mortiser
- Dowel making machine
- Three-head dowel borer (distance 32 mm)
- Round tenoner
- Round morticer

N.B.: Select additional sanding machines worth \$ 5000, spray gun and booth with water wall and rotating table.

B. Where is the bottleneck?

C. How long does it take to deliver the 1000 chairs?

D. Suggest the size of batch.

Assignment No. 2:

A. Design the jigs to produce the 1000 chairs for use on the machines enumerated in Assignment No. 1.

B. Tooling requirements (full specifications) for the tools needed to produce these chairs.

Assignment No. 3:

A. Select machines and design the plant layout for a plant that is to produce 1000 solid wood doors/month (including tool maintenance) (model in Ryall's Hotel ground floor).

B. Recommend the internal transport system.

C. Design the compressed air circuit.

Assignment No. 4:

- A. Propose the organization of a company that is to operate the factory equipped as per assignment No. 1 and:
- B. Develop a basic costing for the products made.
- C. Suggest staffing (numbers and qualifications).
- D. Propose a planned maintenance programme for this factory.

## ANNEX V

## MEMBERS OF THE GROUPS FOR THE ASSIGNMENT WORK AND THEIR NATIONALITY

**Assignment No. 1, Group A**

Kemigio C. Mudimu (Group Leader)	Zimbabwe
Christopher Chikaputo	Zambia
Leonard Choloba	Zambia
Ramadhani A. Gumbo	Tanzania
Thande Kamau	Kenya
Ivan S. Nsimbi	Uganda
George W. Oratunge	Uganda
Goodson Tumba	Zambia

**Assignment No. 1, Group B**

George Kabiru (Group Leader)	Kenya
Ekwenye Okoi Balam	Uganda
Balthazar Baramfumbase	Burundi
Johnny Bissessur	Mauritius
Hitesh Pavin Dave	Kenya
Phillip Handando	Zambia
Daniel Mmary	Tanzania
Emmanuel Muchatuta	Zimbabwe

**Assignment No. 2**

Goodson Tumba (Group Leader)	Zambia
Dereje Belay	Ethiopia
Ramadhani A. Gumbo	Tanzania
Daniel Mmary	Tanzania
Anicet Ndikuriyo	Burundi
Emmanuel J. Njau	Kenya
Mengesha Yohannes	Ethiopia

**Assignment No. 3**

Chi Kam Chun (Group Leader)	Mauritius
Dereje Belay	Ethiopia
Johnny Bissessur	Mauritius
Leonard Choloba	Zambia
George Kabiru	Kenya
Emanuel N. Njau	Kenya
Mengesha Yohannes	Ethiopia

**Assignment No. 4:**

Thande Kamau (Group Leader)	Kenya
Ekwenye Okoi Balam	Uganda
Balthazar Baramfumbase	Burundi
Chi Kam Chum	Mauritius
Hitesh Pravin Dave	Kenya
Phillip Handondo	Zambia
Emmanuel Muchatuta	Zimbabwe
Remigio C. Mudimu	Zimbabwe
Anicet Ndikuriyo	Burundi
Ivan Nsimbi	Uganda
George W. Oratunge	Uganda
Christopher Shikaputo	Zambia

## ANNEX VI

## COMPILATION OF THE PARTICIPANTS' EVALUATION OF THE WORKSHOP

DU/RAF/87/117

**TECHNICAL WORKSHOP ON PRODUCTION OF WOODEN  
FURNITURE AND JOINERY**

Blantyre, Malawi, 10 - 22 February 1992

**EVALUATION**

NAME OF PARTICIPANT:

HOME COUNTRY:

## I. PRE-COURSE INFORMATION:

1. How was the introductory information you received in your home country about: (please mark in the suitable column)

	<u>Sufficient</u>	<u>Not sufficient</u>	<u>Missing</u>
Aim of the training	24	2	
Content of the programme	18	6	1
Level of the programme	19	4	2

What, if any, other information do you feel should have been included:

- DETAIL OF PROGRAMME (2)
- OTHER COUNTRIES PARTICIPATING
- SOME MARKETING, FINANCIAL AND PERSONNEL MANAGEMENT
- PROGRAMME SHOULD BE SENT WITH TICKETS
- INFORMATION ON LECTURES AND ORGANIZING BODY
- INFORMATION ON TRAVEL INSUFFICIENT
- SHOULD HAVE ENSURED THAT PARTICIPANTS HAVE A TECHNICAL BACKGROUND.

2. How many weeks before the beginning of the training programme did you receive the following information:

Information about the programme	(1) 12 weeks, (4) 10 weeks, (11) 3 weeks, (2) 2 weeks, (6) 1 week, (4) 6 weeks.
Being accepted to the programme	(1) 5 weeks, (1) 3 weeks, (10) 2 weeks, (3) 1 week, (1) 5 days, (1) 3 days, (3) 2 days

Body that communicated the information:

MINISTRY (4), UCD (1), UNDP (9), TWICO (1), ZAFICO (2), FOREST DEPARTMENT (2), TICKET AGENT

## Comments:

SHOULD HAVE BEEN INFORMED TWO TO THREE WEEKS BEFORE START (2)  
TIME TOO SHORT

## II. PROGRAMME CONTENT AND ORGANIZATION:

3. What is your opinion of the total duration of the course:

Too long	--
Just right	18
Too short	8

If not "just right", what, in your opinion would be the most suitable duration for the course?

(4) 3 weeks  
(3) 4 weeks

Please comment:

- A LOT TO LEARN FROM EVERY LECTURE
- SOME LECTURES RUSHED
- MORE VIDEOS, FILMS AND VISITS
- INCLUDE PRACTICAL TRAINING
- COURSE SHOULD ROTATE IN ALL PTA COUNTRIES
- TIME NOT ENOUGH TO COVER ALL SUBJECTS
- VERY EDUCATIVE

4. State your opinion about the daily schedule:

Too heavy	7
Just right	18
Too light	--

Comments:

- SOME LECTURES TOO CRAMMED
- VERY TIGHT
- TOO TIRED TO REVIEW WORK AT NIGHT
- TOO HEAVY DUE TO ASSIGNMENT WORK
- SOME LECTURES RUSHED
- ADEQUATE
- ASSIGNMENTS NEEDED MORE TIME
- REVIEW WHAT WAS TAUGHT DAILY BY ONE HOUR GROUP DISCUSSION
- EXTREMELY WELL ORGANIZED

5. Would you suggest any changes in the general nature of the training programme?

- NONE (8)
- MORE VISITS, FILMS AND VIDEOS
- MORE TIME TO GO THROUGH HAND-OUTS
- ONE INSTRUCTOR DID NOT HAVE HAND-OUTS
- MORE GROUP WORK
- ADDITIONAL PRACTICAL KNOWLEDGE
- COURSE SHOULD BE IN A POLYTECHNIC NOT A HOTEL
- EXPOSE US TO MORE MODERN MACHINES
- DO SOMETHING FOR THE ARTISANS
- IF POSSIBLE, COURSE SHOULD BE SPLIT: ONE FOR MANAGERS AND ONE FOR TECHNICIANS.
- ONE DAY FREE TO ALLOW REVISION
- MORE ASSIGNMENTS IF COURSE IS TO LAST FOUR WEEKS

6. Do you feel that the training corresponded to your professional needs?

To a very large extent	10
To a large extent	6
To a sufficient extent	10
To a small extent	--
To a very small extent	--

## Please comment:

- PROMISE TO PUT IN PRACTICE WHAT I LEARNT
- LEARNT NEW IDEAS
- WILL DIFFUSE THROUGH WORKSHOPS AND IN-PLANT CONSULTANCIES ALL RELEVANT SERIAL PRODUCTION AND PLANNING
- DEFINITELY VERY EDUCATIVE
- IF IMPLEMENTED 100%, WE WILL DO WONDERS.

7. Please give your opinion about the factory visits:

- VERY IMPRESSED
- EYE OPENER
- HELPED US SEE OUR PROBLEMS AND UNDERSTAND THEM
- FACTORY VISITS EYE OPENER
- VISITS INSUFFICIENT
- SHOULD HAVE SEEN MORE
- A LOT TO LEARN
- VISITS WELL ORGANIZED
- SATISFACTORY
- EDUCATIVE
- VERY HELPFUL
- VERY EDUCATIVE
- MOST IMPORTANT
- OK
- GO TO BETTER FACTORIES
- VERY GOOD EXPERIENCE
- GOOD INSIGHT, CAN NOW UNDERSTAND MY WEAKNESSES
- PEOPLE WORK WITH ENTHUSIASM AND USE HIGH TECHNOLOGY
- MARKETING IN WICO COULD BE IMPROVED
- BEST WAY TO GET INFORMATION
- QUITE A GOOD EXAMPLE

8. What do you think of the general level of the training?

Much too high	1
Too high	4
Adequate	19
Too low	--
Much too low	--

## Comments:

- ENJOYED WAY LECTURES PRESENTED
- MORE DETAILS DESIRED
- COURSE ADDRESSED ITSELF TO PRACTICAL PROBLEM
- GOOD SELECTION OF PARTICIPANTS
- SATISFACTORY
- RELAXED ATMOSPHERE OF LECTURES

- I SHALL NOW TRY TO GAIN AN IDEA OF THE GENERAL ORGANIZATION IN A MANUFACTURING UNDERTAKING
- WELL ORGANIZED AND PLANNED
- SUFFICIENT OR MAYBE MORE THAN SUFFICIENT

9. Which subjects of the programme did you find the three most valuable? (Please state reason, for example new subject, my speciality, relevant to my work, new information etc.).

TITLE	AUTHOR	NO. OF PARTICIPANTS WHO FOUND IT VALUABLE	REASON RELEVANT	NEW INFORMATION
PRINCIPLES OF IND. SYSTEM	BASSILI	3	1	2
WOOD AS A RAW MATERIAL	MBEKEANI	-		
WOOD BASED PANELS USED IN FURNITURE	MBEKEANI	-		
WOOD DRYING	CHIKOSOLA/ MKANDAWIRE	5	1	3
SELECTION OF CUTTING TOOLS	WOODS	3	2	1
SELECTION OF MACHINES	BASSILI	8	6	5
TOOL MAINTENANCE (THEORY)	WOODS	3	2	1
PLANT LAYOUT	TAYLOR	3	3	1
CONSTRUCTION OF FURNITURE	MBEKEANI	1		1
MACHINE MAINTENANCE	WOODS	3	2	1
SAFETY	WOODS	4	3	1
SURFACE FINISHING	MOLOKO	6	4	1
ADHESIVES	MOLOKO	-		
PRODUCT DEVELOPMENT	TAYLOR	5	3	2
PROCESS ENGINEERING	TAYLOR	-		
PRODUCTION PLANNING AND CONTROL	BASSILI	10	7	3
INVENTORY CONTROL	BASSILI	1	1	
WORK STUDY	TAYLOR	1	1	
PLANT ORGANIZATION	TAYLOR	5	3	2
COSTING	TAYLOR	4	2	2
QUALITY CONTROL	TAYLOR	6	5	1
PACKAGING	BASSILI	-		
JIGS	MBEKEANI	2		2
VISIT TO WICO		1	1	



TITLE	AUTHOR	NO. OF PARTICIPANTS WHO FOUND IT VALUABLE	REASON: RELEVANT	NEW INFORMATION
VISIT TO SOCHE		1	1	
"ALL"		1		

10. Which subjects of the programme did you find the three least valuable? State why (for example too elementary, inadequate instruction, irrelevant to my work etc.).

TITLE	AUTHOR	NUMBER OF PARTICIPANTS WHO RESPONDED	REASON: NOTHING NEW	INADEQUATE	TOO DETAILED (TECHNICAL)	NOT RELEVANT
PRINCIPLES OF IND. SYSTEMS	BASSILI	-				
WOOD AS A RAW MATERIAL	MBEKEANI	2	1	1		
WOOD BASED PANELS	WOODS	4		3		1
WOOD DRYING	CHIKOSOLA/ MKANDAWIRE	5	2	2		1
SELECTION OF CUTTING TOOLS	WOODS	-				
SELECTION OF MACHINES	BASSILI	-				
TOOL MAINTENANCE (THEORY)	WOODS	5	2	2	1	
PLANT LAYOUT	TAYLOR	1	1			
CONSTRUCTION OF FURNITURE	MBEKEANI	-				
MACHINE MAINTENANCE	WOODS	-				
SAFETY	WOODS	-				
SURFACE FINISHING	MOLOKO	2	1			1
ADHESIVES	MOLOKO	1	1			
PRODUCT DEVELOPMENT	TAYLOR	-				
PROCESS ENGINEERING	TAYLOR	-				
PRODUCTION PLANNING AND CONTROL	BASSILI	-				
INVENTORY CONTROL	BASSILI	-				

TITLE	AUTHOR	NUMBER OF PARTICIPANTS WHO RESPONDED	REASON: NOTHING NEW	INADEQUATE	TOO DETAILED (TECHNICAL)	NOT RELEVANT
WORK STUDY	TAYLOR	-				
PLANT ORGANIZATION	TAYLOR	1		1		
COSTING	TAYLOR	1		1		
QUALITY CONTROL	TAYLOR	1				1
JIGS	MBEKEANI	2		2		
PACKAGING	BASSILI	-				
UPHOLSTERY	MBEKEANI	10	1	3		6
NONE		3		ALL IMPORTANT		

11. Were there in your opinion any relevant subjects that were not adequately covered in the programme?

Yes 6

No 16

If yes, what did you miss?

- MARKETING
- DESIGN TECHNIQUES
- UPHOLSTERY (2)
- TOOL MAINTENANCE THEORY
- GROUP WORK NEEDS MORE TIME

12. Which changes would you have preferred in the methods of instruction?

	<u>no changes</u>	<u>more</u>	<u>less</u>
(a) lectures	20	1	2
(b) group work		8	2
(c) demonstrations	17	7	2

Comments:

- WELL PREPARED AND PRESENTED
- ASSIGNMENTS SHOULD BE GIVEN TO EACH PARTICIPANT
- GROUP WORK: CANNOT BE IN TWO PLACES AT SAME TIME
- LECTURES TOO LONG
- POOR ATTENDANCE IN GROUP WORK
- MORE GROUP WORK
- ADEQUATE METHODS
- REDUCE DEMONSTRATIONS AND INCREASE GROUP WORK
- ALL LECTURES VERY GOOD, BUT PRESENTATION BY SOME (LOCAL) LECTURERS WAS POOR

13. How did you find the general standard of the instructors with respect to:

	(i) command of English	(ii) method of instruction	(iii) use of visual aids and samples
Very good	20	19	20
Rather good	4	6	6
Fair	1	1	1
Poor	--	1	--
Very poor	--	-	--

Please comment:

- VERY GOOD
- COULDN'T BE BETTER
- VERY INTERESTING
- ALL INSTRUCTIONS HIGH STANDARD
- ACCEPTABLE STANDARDS
- MORE USE OF TEACHING AIDS EG. MEASURING INSTRUMENTS
- USE OF VIDEO FILMS
- LITTLE PRACTICE IN TOOL MAINTENANCE
- EXCEPT FOR MBEKEANI WHO WAS NOT PREPARED
- A WELL CONDUCTED WORKSHOP
- INSTRUCTORS DID A VERY GOOD JOB
- PROJECT WAS A SUCCESS

14. Did you have sufficient time for professional exchange of views with:

	(i) the lecturers	(ii) fellow-participants
Yes	22	20
No <sup>1</sup>	4	4

15. How much did you benefit from these exchanges of views with:

	(i) the lecturers	(ii) fellow-participants
A great deal	18	12
Much	8	7
Somewhat	-	6
Little	1	2
Not at all	-	-

Please comment:

- LEARNT MUCH FROM OTHER PARTICIPANTS
- GOOD ACCESS TO LECTURERS
- EXCHANGE OF NEW IDEAS
- DUE TO TIGHTNESS OF PROGRAMME
- LITTLE TIME TO EXCHANGE VIEWS WITH FELLOW PARTICIPANTS (MALAWIAN)
- LECTURES HELPFUL
- NO TIME FOR INFORMAL EXCHANGES
- LECTURERS IMPARTED LATEST INFORMATION
- TIME TOO SHORT TO COVER EVERYTHING

<sup>1</sup> Malawian observers.

### III. RELEVANCE AND APPLICABILITY:

16. Did you find the contents of the programme relevant to conditions in your company (institute)?

To a very great extent	13
To a great extent	7
To a sufficient extent	6
To a small extent	1

Please state why:

- WE ARE STILL AT A CRAFT LEVEL
- WE ARE CRAFT AND CAN NOW MOVE TO SERIAL PRODUCTION
- WE WERE PRODUCING WITH THE WRONG TECHNIQUES
- LECTURES AT LEVEL OF DEVELOPING COUNTRIES
- LACK OF TRAINED PERSONNEL
- WE SHALL PROPOSE TO START SERIAL PRODUCTION
- TOOL MAINTENANCE
- INVENTORY CONTROL
- WE LACKED THE PRINCIPLES OF BATCH PRODUCTION
- WE ARE IN PLYWOOD LAMINATION ONLY
- PROGRAMME BOTH EDUCATIONAL AND REFRESHING
- MY INSTITUTION IS STILL AT CRAFT LEVEL
- CONTENTS COVERED TOPICS I NEED TO RUN MY COMPANY
- BECAUSE WE ARE NOT WORKING AT A HIGH TECHNOLOGICAL LEVEL

17. Do you feel that by participating in this training programme you have benefitted professionally?

To a very great extent	12
To a great extent	8
To a sufficient extent	6
To a small extent	--
To a very small extent	--

Please state why:

- ENLARGED MY KNOWLEDGE.
- ACQUIRED NEW KNOWLEDGE AND EXPERIENCE
- MADE ME SEE PITFALLS I WOULD FALL IN
- HELPS US FOCUS IN FUTURE
- I WILL IMPLMENT WHAT I LEARNT
- MY KNOWLEDGE IS NOW WIDER
- NEW IDEAS
- EMPHASIS ON Q.C.
- TOOL MAINTENANCE
- SURFACE FINISHING
- EYE OPENER
- I HAD NOT BEEN EXPOSED TO THESE PROBLEMS BEFORE
- USEFUL TECHNIQUES AND IDEAS HAVE BEEN OBTAINED
- BECAUSE I KNEW WHAT I WANTED
- PROGRAMME SUFFICIENT FOR MY JOB
- BECAUSE OF MY BACKGROUND I COULD NOT TAKE FULL ADVANTAGE OF THE TECHNICAL SUBJECTS
- HELPS ME IDENTIFY PROBLEMS IN RUNNING MY COMPANY AND IMPROVE PRODUCTIVITY
- WE DO NOT HAVE TRAINING INSTITUTES (EXCEPT FITC, KENYA)

- I HAVE LEARNT EXTREMELY A LOT

18. Do you think you will have an opportunity to apply your newly acquired knowledge and experience in your present job?

To a very great extent	11
To a great extent	8
To a sufficient extent	7
To a small extent	--
To a very small extent	--

What difficulties, if any would you expect to meet?

- TRAINING EMPLOYEES
- NONE
- CONVINCE MANAGEMENT
- CHANGE FROM CRAFT TO BATCH
- MARKETS SMALL
- MACHINERY
- ACCEPTANCE OF NEW IDEAS
- RESISTANCE FROM GM
- DESIGN
- JIGS
- PACKAGING
- GM WILL BE SCARED OF MY KNOWLEDGE
- CONVINCING MANAGEMENT TO MOVE TO SERIAL PRODUCTION
- TEACHING FACILITIES
- CHANGES CAN BE DONE GRADUALLY, IT SHOULD NOT BE TOO DIFFICULT

19. Will you be in a position to transfer your acquired knowledge to others in your home country?

To a very great extent	6
To a great extent	7
To a sufficient extent	7
To a small extent	3
To a very small extent	1

20. How will this transfer be done?

BY ORGANIZING SIMILAR SEMINARS (URT) & (ZAM)

- |  |    |
|--|----|
| (a) In a day-to-day work to colleagues and subordinates        | 16 |
| (b) In specific training activities inside present employment  | 15 |
| (c) In specific training activities outside present employment | 3  |

What difficulties, if any, would you expect to meet?

- BUT I DO NOT KNOW WHETHER THEY WILL BE CONVINCED
- NONE
- SOME WILL SUPPORT OTHERS NOT
- RESISTANCE TO CHANGE
- TRAINABILITY OF STAFF
- FINANCIAL PROBLEMS
- LACK OF EXPERTS AND FINANCING
- THEY MAY RESIST TO CHANGES
- TEACHING MATERIALS AND FACILITIES

- CHANGES WILL SLOW PRODUCTION TEMPORARILY.

#### IV. ACCOMMODATION AND SOCIAL ASPECTS OF THE PROGRAMME:

21. Please state your opinion about the quality of the accommodation provided and meals available:

- ACCOMMODATION GOOD
- FOOD NOT APPRECIATED
- SATISFACTORY
- MEALS EXPENSIVE
- MEALS GOOD
- OK
- FAIR
- ADEQUATE
- MEALS NOT GOOD
- VERY GOOD
- MET THE REQUIRED STANDARDS
- EXCELLENT ACCOMMODATION, POOR BREAKFAST
- LET PEOPLE EAT AND SLEEP WHERE THEY WANT
- ACCOMMODATION HIGHLY APPRECIATED
- ROOM SERVICE MUST BE IMPROVED
- ACCOMMODATION VERY GOOD
- MEALS WERE POOR

What leisure time activities would you have appreciated?

- ORGANIZED TOUR
- IN-DOOR GAMES
- NONE
- NOT INTERESTED
- MORE SHOPPING TIME
- MORE USE OF GYM
- VISIT THE COUNTRYSIDE
- WINDOW SHOPPING
- PLAYING SQUASH
- AN HOUR TO USE TO POOL
- BETTER BREAKFAST
- IN-DOOR GAMES
- VIDEOS
- VISITS TO CULTURAL AND SHORT TRIP AROUND THE COUNTRY
- VISIT TO THE LAKE

22. Please give any comments you choose on aspects not adequately covered by this questionnaire:

- I HAVE LEARNT A LOT
- WANT ANOTHER SUCH WORKSHOP
- ALL WAS COVERED
- COURSE FOR SAW DOCTORS AND MACHINISTS NEEDED
- ASK QUESTIONS ABOUT TIME ALLOCATION AND TIME MANAGEMENT
- PEOPLE SHOULD PRESENT COUNTRY SITUATION FORMALLY
- PROVIDE TRANSPORT TO AND FROM AIRPORT.

## ASSESSMENT OF PROGRAMME

<u>Title</u>	<u>Lecturer</u>	<u>ASSESSMENT</u>			
		<u>Relevant</u>	<u>Interesting</u>	<u>Not relevant</u>	<u>Hard to understand</u>
<b><u>LECTURES:</u></b>					
Principles of industrial system/objectives	A.V.Bassili	13	12		
Wood as a raw material for furniture	G.Mbekeani	13	8	1	2
Woodbased panels used in furniture	G.Mbekeani	11	8	2	3
Wood drying	C.Chindongo/ W.Mkandawire	14	9		
Product construction	G.Mbekeani	11	9		5
Selection and conditions of use of cutting tools	G.A.Woods	13	13		
Selection of wood processing machines	A.V.Bassili	14	15		
Tool maintenance (theory)	G.A.Woods	16	11		2
Plant layout	S.J.Taylor	15	14		
Planned machine maintenance and safety	G.A.Woods	16	10		2
Surface finishing, materials and equipment	H.Moloko	16	15		
Product development and process engineering	S.J.Taylor	14	17		1
Design, production and use of jigs	G.Mbekeani	8	13		5
Production planning and control	A.V.Bassili	15	13		1
Plant organization, management and product costing	S.J.Taylor	16	15		
Quality control and inspection	S.J.Taylor	15	16		
Packaging of furniture	A.V.Bassili	15	9		
<b><u>FACTORY VISITS:</u></b>					
WICO Furniture Plant		13	12		
International Timbers		10	16		
<b><u>DEMONSTRATIONS</u></b>					
At Soche: Machine Woodworking and Safety		10	12		
At WICO: Surface finishing		11	9		

*N.B. Due to an omission, the lectures on adhesives, inventory control, upholstery and costing were not listed, hence were not rated by the participants.*