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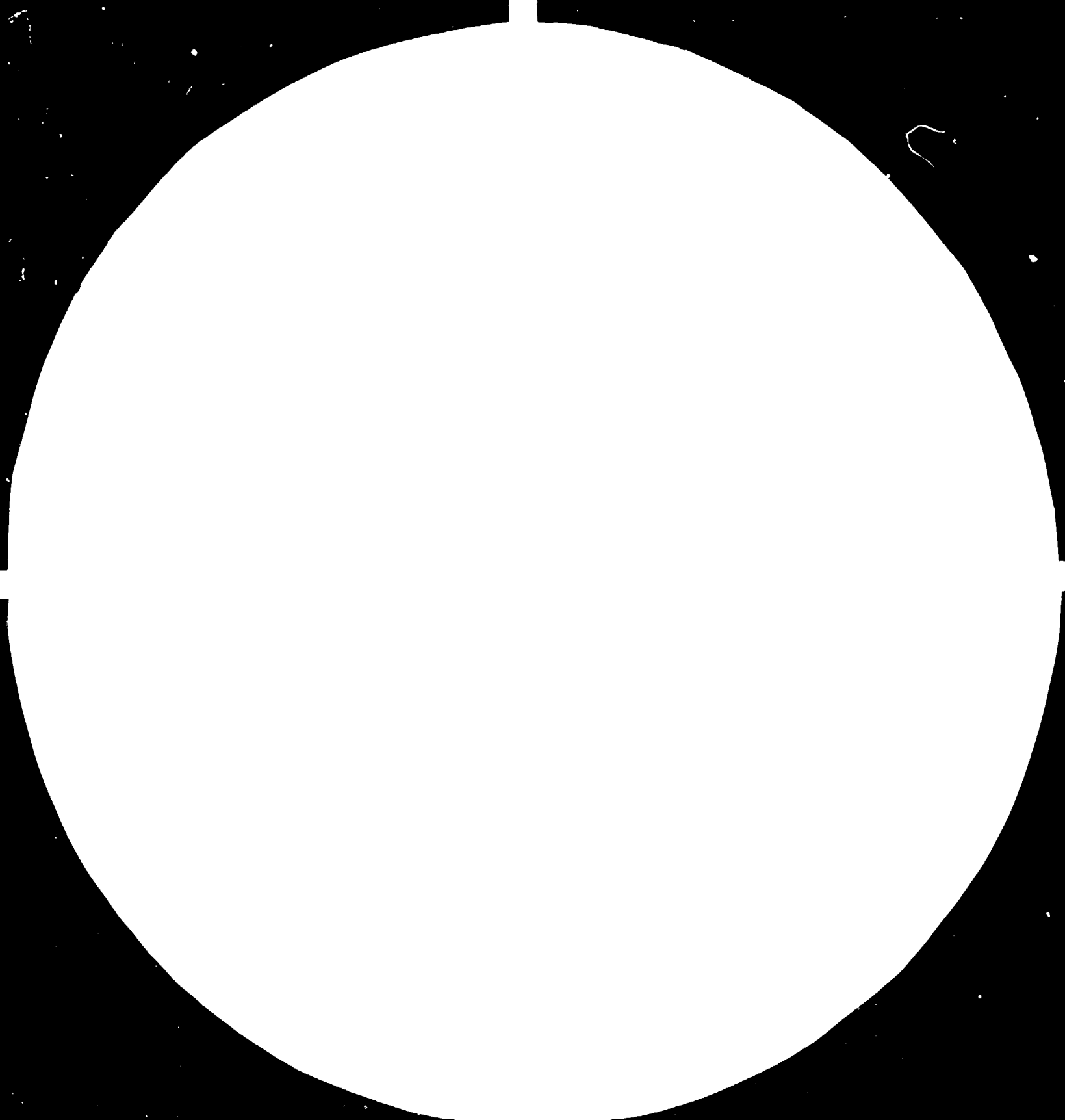
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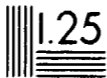
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Distr.  
RESTRICTED  
UNIDO/IO/R.144  
10 January 1985  
ENGLISH

UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

Seminar on Furniture and Joinery Industries

US/INT/83/256

Reduit, Mauritius, 6-24 August 1984

14378

REPORT\* (Seminar on furniture and  
joinery industries)

prepared by the  
Agro-industries Branch  
Division of Industrial Operations

A. V. Bassili

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V. 85-20549

C O N T E N T S

	<u>Page</u>
1. Purpose of the mission	1
2. Attendance	i
3. Participants	1
4. Programme of the seminar	2
5. Documentation	3
6. Seminar library	4
7. Seminar assignments	4
8. Administrative matters	8
9. Press coverage	9
10. Evaluation	9
11. Assessment of the programme	10
12. Other matters	12
13. Acknowledgements	16
ANNEXES	
I List of participants, lecturers and consultants	18
II List of countries invited and their responses	24
III Summary of responses from Member States to invitations to thirteen seminars	26
IV Programme of the Seminar on Furniture and Joinery Industries	27
V Topics for seminar assignments	31
VI Budget of the seminar	38
VII Compilation of replies to the evaluation form for group training programmes	40

### 1. PURPOSE OF THE MISSION

Two staff members of the Agro-industries Branch of the Division of Industrial Operations, Antoine V. Bassili, Senior Industrial Development Officer and Marie-Odile Cherkesly, Project Secretary, went to Mauritius to attend and help conduct the UNIDO Seminar on Furniture and Joinery Industries which was held in Réduit, Mauritius, from 6 to 24 August 1984.

### 2. ATTENDANCE

UNIDO had selected 25 participants from 14 countries to attend the Seminar at UNIDO's expense. A further 24 observers were selected by the Mauritian Authorities and attended at no cost to UNIDO. They are listed in Annex I. Some of the participants arrived several days preceding the opening day because of airplane connexions. The 3 participants from Ghana had to wait in Nairobi for seats on an Air Mauritius plane and arrived on 9 August. The participant from Jordan was a standby and was notified after 6 August; he arrived on 10 August, while one of the Filipino participants had sent a letter with a doctor's certificate to explain his late arrival on 13 August.

### 3. PARTICIPANTS

A total of 55 countries were invited in March to nominate candidates. Of these, 28 responded positively, and nominated 74 candidates for the 25 places available (see Annex II). Notifications to accepted candidates were cabled three weeks before the start of the seminar. Fourteen countries were represented, and three (Malawi, Maldives and Solomon Islands) attended this type of seminar for the first time.

The group was homogeneous. All the participants were of a more than acceptable technical level.

All participants were keen on getting as much information as possible out of the lecturers, visits and demonstrations. By comparison with other years the questions were of a higher level. None had any difficulty in expressing himself in English.

Although this was the thirteenth such seminar that UNIDO has organized in collaboration with the Government of Finland, it was the first to be held in a developing country (Mauritius). By now the organizers have a clear idea of the level of participants to be expected in any country invited so far.

In the 12 seminars held in Finland so far, 314 participants and observers have attended but a total of 464 would have qualified out of the 818 nominated. The corresponding figures for this year's seminar are 35 and 74 respectively. Details are given in Annex III. This year participants from 14 countries attended the seminar. (In the 12 seminars held so far, participants from 68 different countries have attended.)

As the seminar (and UNIDO) are becoming better known by the furniture industries of the developing countries, some governments have increasingly nominated industrialists, and persons capable of making a direct impact upon their return, and have refrained from nominating teachers or researchers (or bureaucrats) while others have continued to nominate civil servants. Because of the excellent response, the participants selected this year were restricted to the former category who would stand to benefit far more from attending the semina.

#### 4. PROGRAMME OF THE SEMINAR

The programme of the seminar is given in Annex IV. It consisted of 61 hours (54.95 %) of lectures, 9 hours (8.1 %) of demonstrations in the laboratories of the Industrial Trades Training Centre (ITTC) in Beau Bassin, 15 hours (13.51 %) of plant visits, 11 hours (9.9 %) of background information, opening ceremonies and administrative matters, 4 hours (3.64 %) of panel discussions and 11 hours (9.9 %) of presentation of seminar assignments.

The lectures were all of the appropriate standard. Whenever appropriate they were complemented with practical demonstrations in the workshop of the ITTC.

The author gave a two-hour optional lecture (on a Saturday morning) on the Use of timber in construction and the problems affecting it. It was attended by some 35 of the 49 participants. He also gave a two-hour lecture on Selection of woodworking machines for developing countries. Both lectures were very well received. He also lectured on Low-cost Automation for 2 3/4 hours, showing slides of examples of applications both in developed and developing countries; the participants considered this to be an eye-opener. Finally, he gave a short lecture, followed by a slide show, on Packaging of Furniture.

#### 5. DOCUMENTATION

Six lectures were prepared (by Mauritian lecturers) especially for the seminar and issued as UNIDO documents (ID/WG.426/1 to 6), and one more such lecture given during the seminar will be issued shortly.

The participants were given the revised and edited text of a selection of the lectures presented at the seminars in Finland (UNIDO document ID/108/Rev.1) totalling 380 printed pages. These were complemented by the text of lectures not yet in this UNIDO publication, which were handed out to them (ID/WG.302/1, ID/WG.256/26, ID/265 and ID/298).

Each participant had to prepare a country paper, which will be retained by UNIDO to serve as background material. Other background material consisted of UNIDO's guides to sources of information (ID/150, ID/188 and ID/214), studies on the Production of prefabricated wooden houses (ID/61) and on Low-cost automation for the furniture and joinery industry (ID/154/Rev.1), Manuals on Jigs for the furniture industry (ID/265), Upholstery technology (ID/275), the Production of rattan furniture (ID/299), and on Production management for small- and medium-scale furniture manufacturing firms in developing countries (ID/300), the report of a technical meeting on the Selection of woodworking machinery (ID/133), the Report of a workshop on Wood processing for developing countries (ID/180), and the Report of a workshop on Adhesives in the wood processing industries (ID/223).



The participants were also given UNIDO's publication on Technical criteria for the selection of woodworking machines (ID/247), and the lecture on Criteria for the acceptance and ascertainment of the technical standard of machine tools for woodworking operating by removal of chips or particles (ID/WG.151/25).

The following three books were distributed to the participants:

- (a) Methods Study and the Furniture Industry  
by Mr. R. H. Glossop - Pergamon Press, 1970.
- (b) Furniture Facts, 26th edition (1980) by Hoover  
Universal Furniture Components Group, U.S.A.
- (c) Techniques of Routing by Jim Phillips, The Garden  
City Press, Letchworth, Herts., U.K., 1982.

Some of the other books ordered did not arrive in time or were out of print. This did not seriously affect the quality of the seminar since all these text books are only "background material"

#### 6. SEMINAR LIBRARY

Because of the cost of airfreighting the material, there was no Library for the participants. However, a complete set of Industrial Development Abstracts was available for reference purposes. It was left with the Ministry of Industry.

#### 7. SEMINAR ASSIGNMENTS

At the beginning of the seminar, the participants were requested to indicate their interest in the following main fields:

<u>Topic</u>	<u>No. of participants in group</u>
1. Product development and technical product design	12
2. Value analysis	6
3. Production planning and control	23
4. Quality control operations	6

5. Design of jigs	8
6. Plant layout	13
7. Selection of machines	11
8. Low-cost automation	-
9. Tool and machine maintenance	15
10. Marketing	
(a) Local	5
(b) Export	5

The number of participants in each group reflects their relative interest in the various topics. A discussion leader was nominated for each group to co-ordinate the work and present the conclusions, except in the case of Production management for which participants were selected. Each group was allocated from 60 to 90 minutes for its presentation.

Topic No. 1: Product development (design of furniture for a hotel room)

Presented by Mr. M. Azmi Ibrahim (Malaysia). A lot of work was put into the preparation of this topic. Having seen MARA's production, it was a revelation to see what an excellent designer Mr. Azmi is.

Topic No. 2: Value analysis

The general aspects of this topic were presented by Mr. Anis Jabshah (Jordan) and the actual case study of the chair was presented by Mr. Y. Kraturek (Thailand). They did an excellent in-depth cost comparison of the various alternatives, although they did not come up with all the considerations.

Topic No. 3: Production planning and control

This team, comprising 23 members, was divided into the following sub-groups: (1) Raw materials and kiln scheduling, and production planning and control of the kiln; (2) Chest of drawers; (3) Chair; and (4) Table.

Mr. C. Msosa (Malawi) presented the overall duties involved in Production management. The presentation of the actual planning was well below expectation since their forecast for delivery date was double the time it should have been.

Mr. E. Baluyut (Philippines) presented the production of chairs. He devoted time to going into details which were of no relation to the subject.

Mr. N. Siozon (Philippines) presented the production of the chest of drawers. He had a good methodological approach, but he and his team forgot to include the time needed for setting up the machines.

Mr. F. Fakudze (Swaziland) presented the production of the table. This team did not grasp the requirements of serial production.

Mr. E. Adu Arthur (Ghana) presented the raw material requirements and the kiln drying operation. The members of this team made a reasonably good job. In calculating the kilning times they did not consider the time requirements for drying different species and different thicknesses. They also assumed that the piles were to be made up in the kiln.

#### Topic No. 4: Quality control operations

The presentation of this assignment was good, on the whole, but not enough references to the actual measures to be taken with respect to the chest of drawers were included. There were more concepts than actual practical advice. This topic was presented by Mr. J. Abankwah (Ghana) who handled process, by Mr. A. Jabsheh (Jordan) who dealt with machine setting, by Mr. E. Adu Arthur (Ghana) who handled final inspection, and Mr. J. Diau (Solomon Islands) who handled after sales feedback.

#### Topic No. 5: Design of jigs

Three members of the team presented this assignment work, namely Messrs. N. Boribon (Mauritius), G. Mbekeani (Malawi) and S. Sthapit (Nepal). This was a good, well thought-out presentation, and the subject had been well prepared.

#### Topic No. 6: Plant layout

This assignment work was presented by Mr. P. Dlamini (Swaziland). His presentation was quite good, bearing in mind that the data this group received was poor.

Topic No. 7: Selection of machines

This topic was presented by Messrs. Li Gang (China) and R. Asthana (India). Mr. Li had some language difficulties, but was nonetheless good in his part of the presentation. He has a thorough knowledge of cuttermarks, pitch etc. Mr. Asthana spoke of a range of machines for a plant producing 30,000 chairs per year and made a reasonably good presentation.

Topic No. 8: Low-cost automation

None of the participants showed interest in this topic.

Topic No. 9: Tool and machine maintenance

Five members of the team presented this assignment work, namely Messrs. G. Mbekeani (Malawi), N. Boribon (Mauritius), C. Pillay Samoo (Mauritius), S. Thapit (Nepal) and J. H. Sheriff (Tanzania). The presentation of this group was very good and Mr. Boribon showed forms for maintenance control and scheduling.

Topic No. 10: Marketing

This topic was divided into two parts, namely export marketing and local marketing. Mr. A. Lam (Mauritius) made an excellent presentation of the export aspects of marketing.

The team members presenting the local aspects of marketing were generally of a good level. Mr. Mengistu Alemu (Ethiopia) has the wrong approach since he "waits for the customer to come". Mr. J. Diau (Solomon Islands) has a better marketing approach, whereas Mr. A. Jabsheh (Jordan) has a good aggressive marketing strategy. Mr. E. Baluyut gave a good description of marketing in the Philippines. Mr. P. Dlamini (Swaziland) showed various approaches for marketing of knock-down furniture.

The author of this report commented upon those relevant points which had been omitted from the presentations.

Further details on the seminar's assignment topics are given in Annex V.

8. ADMINISTRATIVE MATTERS

A. Local arrangements

During the preparatory mission, which the author undertook with Mr. Pekka Paavola in October 1983, a local co-ordinating committee was created. It comprised: Mr. Jairaz Pochun (Co-ordinator), Messrs. Laval Koo Sin Lin and Ismael M. Sayed (responsible for the preparation of the lectures by the Mauritian lecturers) and Messrs. Mehmet Maharaullee and Karl Athalie (responsible for the demonstrations at the ITTC and the factory visits).

This group did an excellent job. The texts of all the lectures but one were submitted in time for reproduction in Vienna, and were of a good standard. The last lecture, also a good one, was reproduced in Mauritius. The demonstrations and factory visits were likewise very well organized.

Mr. Pochun took care of all the administrative matters - booking of the conference facilities, local transport and accommodations, lunches, excursions etc., so that when the author arrived everything was already arranged.

All the participants were met at Plaisance airport and taken to Curepipe. Mr. Pochun had an assistant (Mr. Jean-Claude Paul) and a secretary (Ms. Sultana Peerboccus) to assist him for the entire duration of the seminar.

Practically everything had been thought out in advance and, thus, was carried out efficiently. All the participants were lodged in double rooms at the Continental Hotel in Curepipe.

B. Financial matters

The quasi entire cost of the seminar was covered by a special contribution by the Government of Finland to the UNIDF.

The Government of Mauritius bore the local costs (local transport, rental of lecture room and office at the Mauritius Institute of Education in Réduit, demonstration facilities at the Industrial Trades Training Centre in Beau Bassin etc.)

The detailed budget is given in Annex VI.

C. Hospitality

The UNIDO reception was given on 24 August in the ballroom of the Continental Hotel in Curepipe. Tax-free drinks were obtained through UNDP. The standard of the catering was good.

D. Documentation

All the UNIDO documents (except two) were shipped in advance and arrived in time for the seminar. Two documents and numerous handouts were photocopied in Mauritius. Three books were purchased and distributed to all the participants.

E. Travel arrangements

Because the seminar was organized during the peak tourist season, it was difficult to find seats for the participants and the local organizers went to great trouble to re-confirm all the tickets and make reservations for those participants and foreign lecturers who did not have them.

9. PRESS COVERAGE

The Mauritian press gave ample coverage to the seminar on the opening day in the local papers. Articles also covered some of the group's factory visits. Copies of these press clippings were sent to UNIDO's Public Information Section.

The author and Mr. Pochun were interviewed by the Mauritius Broadcasting Corporation on the televised evening news in French on 22 August 1984.

10. EVALUATION

UNIDO's forms for evaluation of the seminar (entitled "Evaluation of in-plant group training programmes") were handed to all 49 participants on 21 August and collected, duly completed by them, on 23 August.

The replies were compiled and a detailed compilation is given in Annex VII. It is clear from the replies that the seminar's contents met the needs of the participants, and that the local arrangements were deemed by all to be more than merely satisfactory. It must also be pointed out here that the positive attitudes of the managements of the factories (both during panel discussions and during the visits) were greatly appreciated by all the participants.

## 11. ASSESSMENT OF THE PROGRAMME

### A. Author's assessment

The programme of the seminar was very well balanced, and appreciated by all concerned. All lectures were of the expected standard and depth. Those given by Messrs. P. Paavola and G. Woods were very popular; this being due to their experience as teachers and their knowledge of conditions in developing countries. Mr. Sayed's lecture was also highly appreciated: he went to a lot of trouble to demonstrate the various types of foam in a way whereby the participants actually saw and felt the differences between the various types. All other lectures were of the appropriate standard. The author showed some 400 slides to illustrate to participants examples of jigs, self-made machines, proper storage, packaging, transport, and etc. Thus they were able to visualize what was said in lectures and could not be shown for lack of facilities (for example, low-cost automation).

The demonstrations at the ITTC in Beau Bassin were well organized - especially Mr. Woods' examples of safety and tool setting practices. The staff are to be commended for the quality of the jigs they produced and the arrangements made for the demonstrations.

As to the factory visits, special mention should be made of the excellent preparation and organization of the visit to Panache. Other very interesting visits were to Multi-Collections (where production planning and control was demonstrated) and to Technomeubles (where participants saw a very wide range of equipment in operation). Comajora

was an eye-opener to all on value that can be added by skilled workers. The visit to Grewals complemented the saw-doctoring and safety lectures admirably.

Certain apprehensions existed initially concerning the possibility of active collaboration in the group work by the Mauritian participants, since this was done in the evenings at the Continental Hotel in Curepipe. These were quickly dissipated; the enthusiasm of the Mauritian participants was such that they participated actively and stayed late to complete their tasks.

The larger number of participants (49 as against 30 in Finland) caused no problems.

The seminar's success rested to a large extent on the efforts of the Steering Committee, on the time taken by persons from industry in Mauritius to participate, whether as lecturers or members of panels, or in opening their factories.

All administrative arrangements were excellent.

B. Steering Committee's assessment

The members of the Steering Committee and the UNIDO representative met in the morning of 25 August 1984. Present at the meeting were Messrs. Jairaz Pochun, Ismael Sayed, Laval Koo Sin Lin, Mehmet Maharaullee, Karl Athalie, Antoine Bassili and Ms. M.-Odile Cherkesly.

The preparatory arrangements for the meeting were discussed and the following conclusions were reached:

UNIDO should have sent instructions to the Mauritian lecturers as to the format and standards of UNIDO documents.

Notice should be given to the Steering Committee to UNIDO that the parcels containing the documents and training material have been received, specifying the number of parcels received.

Better photocopying facilities should be available at the conference site.



The secretarial material should be available from the very start of the seminar. (Though the secretary was in Mauritius on 1 August, she was only able to start typing on 8 August due to non-availability of a typewriter.)

Arrangements at the Mauritius Institute of Education were convenient, but the Steering Committee had overlooked the need to book the conference room for one Saturday morning. The participants had to move to a classroom where no possibility of using the slide or the overhead projector existed. All the audio-visual material needed was available at the MIE (i.e., slide, overhead and film projectors). The catering facilities provided by the MIE were of an acceptable standard.

If the seminar is to be held again in Mauritius in August, two block reservations should be made on the airlines, namely Bombay/Mauritius and Nairobi/Mauritius. It was very difficult - nearly impossible - to find seats for the participants and some of them arrived after the start of the seminar due to overbooking by the airlines.

The facilities offered by the Continental Hotel in Curepipe were good and it could be used again for another similar meeting.

Detailed information on Mauritius and Curepipe should be distributed to the participants. (Namely, information stating where restaurants are located, shoe repair shops, the post office etc.. together with a road map of Curepipe.)

The leisure time activities organized were appreciated by all.

The factory visits were found to be useful and generally well prepared, and more specifically:

Visit to Panache: Mr. Pilot had done a fantastic job in preparing the visit. The demonstration of the various stages of manufacture was an excellent idea.

Visit to Meubles Laval Ltée: It was most unfortunate that the factory was "on leave" on 15 August due to a religious holiday. If such a holiday is scheduled, perhaps an arrangement could be made with one of the lecturers to be on standby so that the factory visit could be postponed to another day.

Visit to Technomeubles: It was most unfortunate that Mr. Paavola arrived late for this factory visit, because Mr. Patel was more than willing to show the participants how all the machines operated. This visit should have been better planned.

Visit to Multi-Collections: Very good.

Visit to Neetoo: The participants were not interested in metal furniture production and, since this factory is rather disorganized in its layout, it was not a very useful visit.

Visit to Grewals: The visit to and demonstrations at Grewals were very good.

A visit to Mr. Sayed's foam factory could be included in the programme on a Saturday, if it were to be repeated.

Visit to Comajora: The visit to this factory, which produces model ships, could be optional.

The lectures were of a good standard. The Steering Committee suggested that the lecture on foam should have a time allocation of a half day. The time allocation for the others was generally accepted. Ideally, the time allocation for each lecture should be longer, but it was agreed that these courses were eye-openers and that these were meant to inform the participants on various possibilities in the industry. The participants could then decide in which specific field to specialize and work toward that end. The product mix was good.

A lecture on marketing was proposed if the seminar were to be repeated, but the idea was rejected since marketing aspects changed from country to country. The panel on marketing was excellent since a lot of information came out of it, but the discussion should be more organized (i.e., by "chapters").

Mr. Maharaullee's lecture was too deep and of a much too sophisticated level for the participants. It was also most unfortunate that he did not use any audio-visual aids. This caused the participants to lose interest.

Mr. Roüillard's lecture was good. Participants who said it was irrelevant missed the point of this subject.

Messrs. Owadally and Hitié's lectures were good.

Mr. Paavola, whom all the members of the Steering Committee already knew as a lecturer in Finland, was commended for his lecturing.

Mr. Woods was found unanimously to be an excellent lecturer and a highly qualified expert. It seems that Mauritius should get assistance in saw-doctoring.

Mr. Juva's lecture on value analysis, given at short notice with no preparation, was appreciated by all.

The demonstrations were found to be of a good standard. Due to the number of participants (49) it was suggested that two machines be used simultaneously and that the demonstrations be co-ordinated as to the time required on each machine. The jigs produced at the ITTC were good. A set of tools should be obtained (perhaps on loan) for the ITTC. The specifications for the machines used for demonstrations should be made available beforehand to enable the tools to be obtained.

The level of the participants was also discussed. Some were highly qualified.

The possibilities of repeating such a seminar in Mauritius were discussed. The author expressed UNIDO's interest in seeing it repeated and mentioned that Mauritius offered the possibility to hold a seminar in French, noting that so far UNIDO hadnot conducted any such activities especially aimed at the French-speaking countries. The members of the Steering Committee felt that a course in English was restrictive to Mauritian participants. It was also quite difficult for them to be away from their jobs and/or workshops for so long a period. The hosting of a seminar in French in Mauritius would pose no problems, since all the lecturers were bilingual.

#### C. Conclusions and recommendations

The seminar was a success, and the Finnish Authorities are to be commended for having taken the initiative to finance a seminar outside Finland.

The author recommends that it be repeated at regular intervals, and that UNIDO find other donors to finance a similar seminar for French-speaking participants, since so far it had not catered specifically for this group of countries.

12. OTHER MATTERS

A. Request from the Comoros Islands for assistance in the use of coconut stem wood in construction

The author discussed the convening of a project in the Comoros Islands with Mr. G. Stevens, SIDFA stationed in Madagascar, and gave him a copy of the proposed project document that he had brought with him from Vienna. He explained the project and gave Mr. Stevens indications as to the background information needed to be provided by the authorities to enable us to submit the project proposal to the Project Review Committee. He also gave him the set of 45 slides showing the construction of two prototype houses in the Philippines under a similar project in the Philippines (Project Number SI/PHI/84/801). Mr. Stevens was requested to show the set (or arrange that it be shown) to the authorities in the Comoros Islands and that it be pouched back to Vienna.

B. Discussions with Mr. Mauri Laatikainen on the need for a Manual on Dimensioning for the Furniture Industry

The above topic was discussed with Mr. Laatikainen (UNIDO consultant - lecturer on Furniture Design at the seminar). Mr. Laatikainen shared the author's belief that there is an urgent need for such a manual in developing countries - this was obvious at the seminar. It would complement the existing UNIDO manuals on Jigs for the furniture industry, Upholstery technology, Production of rattan furniture, Value analysis etc.

The contents of such a manual were discussed in depth with Mr. Laatikainen who indicated his willingness to write such a manual. It remains for the author to secure funds from UNIDO for such a manual.

C. Discussions with Mr. Geoffrey Woods on a set of manuals on saw-doctoring

During the seminar the author discussed the need for such a set of manuals with Mr. Geoffrey Woods, UNIDO's consultant in saw-doctoring (and a former UNIDO expert in this field of specialization for many years). Based on their experience, it was agreed that such a set of manuals was badly needed by the developing countries. This was confirmed by asking the participants. Should these be published by UNIDO, they should be set in such a way that another language would be printed side by side with the English.

Mr. Woods indicated his willingness to prepare such a set of manuals, but not in the immediate future because of pressure of work. It remains for the author to locate funds for such a publication.

D. Discussions with Mr. Robert Antoine, Director, Regional Sugar Cane Training Centre for Africa

During his stay in Mauritius, Mr. G. Stevens, SIDFA covering Mauritius whose duty station is Madagascar, requested the author to meet Mr. Antoine concerning information of a confidential nature. The author met Mr. Antoine on 17 August, and a confidential note was prepared for Mr. Vassiliev, Director, Division of Industrial Operations.

13. ACKNOWLEDGEMENTS

The author hereby wishes to express his gratitude to the Finnish Authorities for having taken the initiative to hold the seminar outside Finland. He also wishes to thank the Government of Mauritius for their acceptance to host the seminar, and for their support.

The success of the seminar was assured through the efforts that its co-ordinator, Mr. Jairaz Pochun, made. He was ably assisted by Mr. Jean-Claude Paul, who looked after all administrative matters so efficiently, and Ms. Sultana Peerboccus.

Thanks must also go to the Steering Committee - Messrs. Laval Koo Sin Lin and Ismael M. Sayed (responsible for the lectures), Mehmet Mahauraullee and Karl Athalie (responsible for the demonstrations and factory visits) for their efforts in ensuring its success. The local lecturers, managers of plants - who opened their doors to the participants, answered numerous questions and provided excellent hospitality - and who are too numerous to be listed individually, must find in these lines his thanks for the considerable time and efforts they contributed.

Finally, thanks are also due to Ms. K. Wambold, the UNDP Resident Representative, a.i., and her staff for their logistic support.

ANNEX I

LIST OF PARTICIPANTS, LECTURERS  
AND CONSULTANTS

<u>NAME AND COUNTRY</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
<u>CHINA</u>		
LI Gang	Assisting Chief Engineer Beijing Furniture Company	No. 12 Bei Chizi Beijing
<u>ETHIOPIA</u>		
MENGISTU Alemu	General Manager Futura Furniture Factory	P. O. Box 1498 Addis Ababa
EYASSU MELKIE Tegegne	General Manager Wanza Wood Works	P. O. Box 3419 Addis Ababa
<u>GHANA</u>		
ABANKWAH John Martin	Principal Scientific Officer Ghana Standards Board	P. O. Box M 245 Accra
ADU ARTHUR Enoch	General Manager Pee Wood Processing Ltd.	P. O. Box 12585 Accra North
ODAME Richard Emmanuel	Production Manager Scanstyle Furniture Ghamaco Ltd.	P. O. Box 330 Accra
<u>INDIA</u>		
ASTHANA R. G. P.	Deputy Director Mechanical + Wood Working Small Industries Service Institute	Industrial Estate Patna - 13 800013 Bihar
SASANKASEKHAR N. R.	Works Manager Kerala State Wood Industries Ltd.	P. O. Box No. 9 Nilambur, 679329 (Kerala)
<u>JORDAN</u>		
JABSHEH Anis	Industrial Engineer (Management Consultant) Jordan Wood Industries Company/JWICO	P. O. Box 5272 Amman

<u>NAME AND COUNTRY</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
<u>MALAWI</u>		
KAKHOBWE John	Secretary/Designer Bwaila Carpenters Association	P. O. Box 609 Lilongwe
MBEKEANI George Ntakanjimango	Designer/Production Controller Press Furniture and Joinery	Box 30221 Blantyre 3
MSOSA Conny Kamuliranga	Assistant Works Manager Press Furniture and Joinery	P. O. Box 30221 Blantyre 3
SALIMA Samuel Charles	Draughtsman Press Furniture and Joinery	P. O. Box 30221 Blantyre 3
<u>MALAYSIA</u>		
MOHD. AZMI Ibrahim	Manager Malaysian Handicraft Development Corporation (Sarawak Branch)	P. O. Box 2720 Kuching Sarawak
<u>MALDIVES</u>		
MOHAMED Areef	Managing Director R K L Wood and Metal Works	Huvandhumagoli Machangolhi Male 20
<u>MAURITIUS</u>		
ABDOOL CARRIM, Mouhammed Salim	Assistant Manager Technomeuble Ltd.	Block 10, D. B. M. Bldg. Industrial Estate Coromandel (B-Bassin)
AREKION Sylvio	Manager Woodworking and Lightmetal Furniture Co-operative Society	Victoria Square Quatre Bornes
BORIBON Noel Christian	Production Manager Grewals (Mtius) Ltd.	P. O. Box 697 Bell Village
BUSAWON Ambilall	Technical Officer Ministry of Agriculture and Natural Resources (Building Construction Section) Engineering Division	Camp Fouquereaux Castel Phoenix
GUJADHUR Trilochun	Managing Director Mauricarvers Ltd.	Stage V, Block E Plaine Lauzun Industrial Zone



<u>NAME AND COUNTRY</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
HURBUNGS Rooplall	Overseer Development Works Corporation	Isidore Rose Quatre Cocos
JAULIM Cader	Production Planning S. R. Jaulim + Sons	P. O. Box 56 Curepipe
JOYMONGUL Vinod	Health + Safety Manager Decora Ltd.	Galea Road Phoenix
KHODABUX Abdul Kader	Supervisor Technomeubles	Block 10, D. P. M. Industrial Estate Coromandel Beau Bassin
LAM André	Project Director Lambros + Co. Ltd.	4, Dr. Emile Duvinier Beau Bassin
LEBON Georges Philippe Hervé	Production Supervisor Grewals (Mtius) Ltd.	Cemetery Road Les Pailles P. O. Box 697 Bell Village
LEGRAND Rico	Foreman The Woodworking and Light- metal Furniture Co-operative Society	60, Impasse Legrand Vacoas
MAUREEMOOTOO Krishna Menon (Manor)	Freelance	Ally Lane Mesnil Phoenix
MOHUNGROO Bijay Krishna Dutta	Leading Hand, in charge of tools and materials at Training Centre and Workshop - Development Works Corporation	Royal Road Rose Belle (Nr. High School)
NUNDLALL Jagarnath	Foreman Panache	Helvetia St. Pierre
OOMAR Mohamud Rafik	Technical Instructor Industrial Trade Training Centre	6, Anquetil Street Rose Hill
PERRINE Luc S. Hedley	Supervisor Own Workshop	63, Sainte Croix Road Sainte Croix Port Louis
PILLAY Samoo Chandragassen	Factory Owner	Chandragassen Pillay Samoo 20, Thomy d'Arifat St. Curepipe

<u>NAME AND COUNTRY</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
RAMANA YEDLOP Dev Mouslayah	Production Manager PANACHE	Tamil Church St. L'Agrement St. Pierre
RAMMA Santaram	Technical Instructor Industrial Trade Training Centre	La Tour Lane Vacoas
RAWATEEA Teywa	Assistant Inspector Officer in Charge of Production Work Development Works Corporation	Camp Benoit Petite Rivière
RUGHOOPUTH Bolowan	Training Officer Development Works Corporation	Manick Shop Palma Road Quatre Bornes
RUNGLOLLSING Ramroop	Foreman Development Works Corporation	Gokhoola Piton
VEERAPEN Amurdalingum	Cabinet Making/ Production Manager Veerapen Meubles	42, Souillac St. Port Louis
<u>NEPAL</u>		
STHAPIT Sanu Kaji	Production Chief H. M. G. Department of Cottage Industry	Tripureshwor Kathmandu
<u>PHILIPPINES</u>		
BALUYUT Eduardo	Vice President/General Manager S. Baluyut Mfg. Co. Inc.	3801 Cor liling Roces Strees Pina Avenue Sta. Mesa Metro Manila
SIOZON Noel "Nonong"	General Manager Tri-Star Furniture	170 Imelda Avenue Tacloban City
TAN Gilbert	General Manager Mobilia Interior Planners Co., Philippines	166, P. Cruz St. Mandaluyong Metro Manila
<u>SOLOMON ISLANDS</u>		
DIAU John	General Manager Tome and Sons Joinery	G. P. O. Box 666 Honiara
<u>SRI LANKA</u>		
ARIYARATNE Ratnayake Mudiyanselage Tenison	Assistant Plant Manager Ceylon Plywoods Corporation	Salawa Kosgama

<u>NAME AND COUNTRY</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
<u>SWAZILAND</u>		
DLAMINI Phathizwe (Pop)	Production Manager Swazi Pine Industries Ltd.	P. O. Box 107 Kwaluseni
FAKUDZE Felix J.	Foreman P. Manager Peak Industries Ltd.	P. O. Box 264 Pigg's Peak
<u>TANZANIA</u>		
SHERIFF Jamil Habib	Production Manager Meru Wood Products Ltd.	P. O. Box 175 Arusha
<u>THAILAND</u>		
KRATURERK Yawvarit	Designer Industrial Service Institute	30 Soi Prompak Sukumvit 49 Rd. Bangkok

LIST OF LECTURERS AND CONSULTANTS

<u>NAME</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
HITIE José	General Manager Grewals (Mtius) Ltd.	P. O. Box 697 Bell Village Mauritius
JUVA Arto	Managing Director AJ-Consultants Oy Consultants to the Clothing and Furniture Industry	P. O. Box 23 17301 Vääksy Finland
KOO SIN LIN Laval	Managing Director Meubles Laval Ltee	Pont Bruniquel Roche Bois Mauritius
LAATIKAINEN Mauri	Interior Architect SOK Finnish Cooperative Wholesale Society	Vilhonkatu 7 00100 Helsinki Finland
MAHARAULLEE, Mehmet	Managing Director Multi-Collection	Royal Road Eau Coulée Mauritius
OWADALLY, A. W.	Conservator of Forests Forestry Service Ministry of Agriculture	Botanical Gardens Street Curepipe Mauritius
PAAVOLA Pekka	Principal Lahti Institute of Technology	Stahlberginkatu 10 15110 Lahti 11 Finland

<u>NAME</u>	<u>TITLE AND NAME OF COMPANY</u>	<u>ADDRESS</u>
PILOT, J. P. Jean	Managing Director Réunion Ltd. + Partner Manufacturers of PANACHE	Industrial Zone Saint Pierre Mauritius
POCHUN, Jairaz	Industrial Management Officer Ministry of Industry	4th Floor New Government Centre Port Louis Mauritius
ROUILLARD J.	Assistant Manager Mauvillac + Co. Ltd.	Pailles Road Pailles Mauritius
SAYED Ismael M.	Managing Director Plyfoam Ltd.	Plaine Lauzun Port Louis Mauritius
WOODS Geoffrey A.	Director Island Sharpening Services Ltd.	Second Avenue Onchan Isle of

ANNEX II

LIST OF COUNTRIES INVITED AND THEIR RESPONSES

Countries invited	Response		Number of candidates nominated	Number of candidates who attended
	Yes	No		
Bahrain	x		2	-
Bangladesh		x	-	-
Bhutan	x		1	-
Botswana		x	-	-
Burma		x	-	-
China	x		3	1
Democratic Korea	x		4	-
Democratic Yemen	x		1	-
Egypt		x	-	-
Ethiopia	x		3	2
Fiji		x	-	-
Gambia	x		3	-
Ghana	x		4	3
India	x		3	2
Indonesia	x		1	-
Iraq		x	-	-
Jordan	x		1	1
Kenya		x	-	-
Kuwait		x	-	-
Lesotho		x	-	-
Liberia		x	-	-
Malawi	x		5	4
Malaysia	x		4	1
Maldives	x		3	1
Malta	x		5	-
Mozambique	x		2	-
Nepal	x		1	1
Nigeria		x	-	-
Oman		x	-	-

Countries invited	Response		Number of candidates nominated	Number of candidates who attended	
	Yes	No			
Pakistan		x	-	-	
Papua New Guinea	x		1	-	
Philippines	x		4	x 3	
Qatar		x	-	-	
Republic of Korea	x		3	-	
Saudi Arabia		x	-	-	
Seychelles		x	-	-	
Sierra Leone		x	-	-	
Singapore		x	-	-	
Solomon Islands	x		2	1	
Somalia		x	-	-	
Sri Lanka	x		3	1	
Sudan		x	-	-	
Swaziland	x		2	2	
Syrian Arab Republic		x	-	-	
Thailand	x		2	1	
Turkey		x	-	-	
Uganda	x		2	-	
United Arab Emirates		x	-	-	
United Republic of Cameroon	x		2	-	
United Republic of Tanzania	x		1	1	
Viet Nam		x	-	-	
Yemen		x	-	-	
Zambia	x		2	-	
Zimbabwe		x	-	-	
Cyprus	x		7	-	
TOTALS:	55	29	26	77	25*

\* Plus 24 participants chosen by the Authorities of the host country, Mauritius, bringing the grand total to 49.

ANNEX III

SUMMARY OF RESPONSES FROM MEMBER STATES TO INVITATIONS TO THIRTEEN SEMINARS

	1971	1972	1973	1974	1975	1977 <sup>1/</sup>	1978	1979	1980	1981	1982	1983	1984	TOTAL
Number of countries invited by UNIDO to nominate candidates	47	42	40	47	53	57	54	58	60	63	75	62	55	62 <sup>2/</sup>
Number of candidates nominated by the Governments	51 <sup>3/</sup>	56	66	61	59	102	65	82	80	46	92	107	77	944
Number of candidates who would qualify to attend	33	43	44	45	36	38	30	39	38	24	44	54	35	503
Number of participants who actually attended	19	25	27 <sup>4/</sup>	25	26 <sup>5/</sup>	30	22	31 <sup>6/</sup>	30 <sup>7/</sup>	23 <sup>7/</sup>	29	28	25	330
Number of countries from which participants originated	18	19	19	14	17	22	13	20	22	18	20	22	16	62

<sup>1/</sup> In 1976 a seminar was not held.

<sup>2/</sup> Most countries were invited to nominate participants for all seminars.

<sup>3/</sup> Excluding 13 candidates from European countries not acceptable to Finland.

<sup>4/</sup> Including 2 participants attending at their own cost.

<sup>5/</sup> Including 3 participants attending at their own cost.

<sup>6/</sup> Including 2 participants attending under a fellowship project of DF/CMR/77/006.

<sup>7/</sup> Including one participant attending at own cost.

ANNEX IV

PROGRAMME OF THE SEMINAR ON  
FURNITURE AND JOINERY INDUSTRIES

Réduit, Mauritius

Monday, 6 August 1984

- |           |   |
|-----------|---|
| 0830-0930 | Registration  |
| 0930-1000 | Opening ceremony  |
| 1000-1200 | Introduction of participants  |
| 1200-1330 | Lunch   |
| 1330-1630 | "Raw materials' supply in Mauritius" by Messrs. A. W. Owadally and J. Hitié |
| 1830-2000 | Reception given by the Minister of Industry                                 |

Tuesday, 7 August 1984

- |           |  |
|-----------|--|
| 0830-1000 | "Wood preservation" by Messrs. O. W. Owadally and J. Hitié |
| 1000-1200 | "Wood drying" by Mr. P. Paavola                            |
| 1200-1230 | Information on seminar assignments                         |
| 1230-1330 | Lunch  |
| 1330-1630 | Visit to Messrs. Grewals (M'tius) Ltd.                     |

Wednesday, 8 August 1984

- |           |   |
|-----------|---|
| 0830-1200 | "Solid wood as a raw material in furniture" by Mr. P. Paavola |
| 1200-1330 | Lunch   |
| 1330-1500 | "Glues used in furniture" by Mr. P. Paavola                   |
| 1500-1630 | "Plywood and particleboard" by Mr. P. Paavola                 |

Thursday, 9 August 1984

- |           |   |
|-----------|---|
| 0830-1000 | "Foams used in upholstery" by Mr. I. M. Sayed |
| 1000-1200 | "Ergonomics" by Mr. M. Laatikainen            |



1200-1330 Lunch  
1330-1500 "Technical product design" by Mr. P. Paavola  
1500-1630 "Knock-down fittings" by Mr. P. Paavola

Friday, 10 August 1984

0830-1200 "Furniture design for small-scale production and low-cost furniture" by Mr. M. Laatikainen  
1200-1230 Nomination of team leaders for assignment work  
1230-1330 Lunch  
1330-1500 Visit to Panache  
1500-1600 Visit to sugar cane factory

Saturday, 11 August 1984

0830-1030 "Wood in construction" by Mr. A. V. Bassili (optional slide show)  
1045-1200 Films on the production and testing of foams for upholstery, presented by Mr. J. M. Sayed (optional)

Sunday, 12 August 1984

Touristic tour of the island

Monday, 13 August 1984

0830-1200 "Furniture technology" by Mr. P. Paavola  
1200-1330 Lunch  
1330-1630 Demonstration at ITTC in Beau Bassin

Tuesday, 14 August 1984

0830-1200 "Furniture production" by Mr. P. Paavola  
1200-1330 Lunch  
1330-1500 Slide show on "Furniture technology" by Mr. A. Paavola  
1500-1645 "Quality control in furniture" by Mr. P. Paavola

Wednesday, 15 August 1984

0830-1200 "Upholstery technology" by Mr. A. Juva  
1200-1330 Lunch  
1330-1530 Factory visit to Meubles Laval

Thursday, 16 August 1984

- 0830-1000 "Value analysis" by Mr. A. Juva  
1015-1230 Slide show on packaging of furniture and various other  
topics related to industrial production of upholstered  
furniture, etc., by Mr. A. V. Bassili  
1230-1330 Lunch  
1330-1530 Visit to Technomeubles .

Friday, 13 August 1984

- 0830-1200 Marketing panel by Messrs. Laval Koo Sin Lin, J. P. Pilot  
and D. Patel  
1200-1330 Lunch  
1330-1645 "Plant layout" by Mr. P. Paavola

Saturday, 18 August 1984

- 0830-1045 "Selection of woodworking machinery" by Mr. A. V. Bassili  
(ID/WG.256/26 = ID/247, chapter IV)  
1100-1215 "General criteria for the establishment of production  
facilities" by Mr. A. V. Bassili (ID/247, chapter III)

Sunday, 19 August 1984

Touristic tour of the island

Monday, 20 August 1984

- 0830-1245 "Tool and machine maintenance" by Mr. G. A. Woods  
1245-1330 Lunch  
1330-1645 Demonstration on tool maintenance and safety at the ITTC,  
Beau Bassin

Tuesday, 21 August 1984

- 0830-1030 Demonstration on tool maintenance at Grewals  
by Mr. G. A. Woods  
1100-1245 Lecture and slide show on low-cost automation by Mr. A. V.  
Bassili

1245-1330 Lunch  
1330-1645 "Surface finishing" by Mr. J. Roüillard

Wednesday, 22 August 1984

0830-1000 "Costing, general considerations" by Mr. J. Pochum  
1015-1230 "Costing in furniture" by Mr. M. Maharaullee  
1230-1330 Lunch  
1330-1500 "Costing in furniture" (continued)  
1500-1630 "Production planning in furniture" by Mr. M. Maharaullee

Thursday, 23 August 1984

0830-1000 Visit to Multi-Collections  
1000-1200 Visit to Comajora  
1200-1330 Lunch  
1330-1500 Visit to Neetoo  
1500-1800 Presentation of seminar assignments

Friday, 24 August 1984

0830-1200 Presentation of seminar assignments  
1200-1330 Lunch  
1330-1730 Presentation of seminar assignments

ANNEX V

TOPICS FOR SEMINAR ASSIGNMENTS

1. Product development

Design of a hotel room: The design should be for a hotel room for a tourist resort. It should be producible by the furniture industry in developing countries, and, if possible, incorporate indigenous culture - not another room of a chain of international hotels. It should use as little as possible fancy products not existing in developing countries. Production drawings of the furniture, cutting specifications of the inputs and, if possible, colour schemes should be prepared. Care should be taken not to waste material.

2. Value analysis

An existing chair should be re-designed using value analysis methods, taking into account cost, ergonomic and aesthetic values, production methods, and etc.

3. Production planning and control

Plan the production of 500 chests of drawers, 1,000 tables and 4,000 chairs (serial production) to be manufactured in the factory with the given plant layout. The bottlenecks in the production are to be determined and the flow of every component through the plant shown. Manufacturing sequence cards are to be completed. Scheduling of production is to be determined and total time needed to produce all the items determined.

4. Quality control operations

The quality control procedures to be introduced in the serial production of a chest of drawers should be determined and the instructions to the operations (including design of jigs, gauges, etc.) drawn up.

5. Design of jigs

The jigs necessary for the production in series of a chair using simple machines should be designed giving detailed drawings, material specifications, etc., enabling their production.

6. Plant layout

Plan the layout for extensions and/or improvements of a given existing plant of one of the participants.

Care should be taken in assessing the number and type of machines, the storage facilities between the machines, the safety and social requirements, etc.

7. Selection of machines

The following matters should be covered and discussed:

- the types of machinery most useful to producers in developing countries;
- the identification of the criteria to be used in selecting them;
- the prerequisites for mechanization, low-cost automation and the introduction of a new technology in a factory, and
- the merits of new versus second-hand machinery.

8. Low-cost automation

The following topics should be covered for processes used in the furniture industry:

- when to automate;
- what to automate;
- how to automate.

Furthermore, the requirements in compressed air of the machines installed in a given plant (using the layout provided) are to be calculated and the plan of the compressed air lines be determined, giving also the specifications of these lines and that of the necessary compressor(s).

9. Tool and machine maintenance

The methodology for introducing preventive maintenance in a plant is to be outlined, covering:

- the importance of maintenance;
- the problems of purchasing and storage of spare parts;
- the determination of maintenance schedules in machines.

Also cover checking the accuracy of re-conditioned machines.

With respect to tool maintenance, cover the determination of need to sharpen tools and saws, how it is to be done, what care should one introduce in the storage of tools and their handling.

The need and advantages of central maintenance contracts as against a "do-it-yourself" approach for each plant are to be discussed.

10. Marketing

Local marketing

The following problems are to be discussed:

- marketing channels;
- quality labels and guarantees;
- marketing policy and range of products;
- product life.

Export marketing

Cover the following topics:

- ways to enter a foreign market (enumerating alternative channels);
- need for market surveys, importance of packaging, etc.;
- exports through local associations and marketing channels;
- participants in fairs and other promotional activities.

GROUPS FOR ASSIGNMENT WORK

		<u>Country</u>
<u>Topic No. 1: Product development (design of furniture for a hotel room)</u>		
Team leader:	Samuel C. Calima	Malawi
Team members:	John Martin Abankwan	Ghana
	George N. Mbekeani	Malawi
	John Kakhobwe	Malawi
	M. Azmi Ibrahim	Malaysia
	Sheik Abdul Cader Jaulim	Mauritius
	Luc Hedley Perrine	Mauritius
	A. Veerapen	Mauritius
	Menon Maureemootoo	Mauritius
	André Lam	Mauritius
	P. D. P. Dlamini	Swaziland
	Y. Kraturerk	Thailand
<u>Topic No. 2: Value analysis</u>		
Team leader:	Ania Jabsheh	Jordan
Team members:	Li Gang	China
	Bolowan Rughooputh	Mauritius
	Rooplall Hurbungs	Mauritius
	Y. Kraturerk	Thailand
<u>Topic No. 3: Production planning and control</u>		
Team leader:	Conny K. Msosa	Malawi
Group leaders:	Enoch Adu Arthur (raw materials and kiln)	Ghana
	Noel N. Siozon (chest of drawers)	Philippines
	Gilberto de Jesus Tan (chair)	Philippines
	Felix J. Fakudze (table)	Swaziland
Team members:	Richard E. Odame	Ghana
	N. R. Sasankasekhar	India
	Samuel C. Salima	Malawi
	Sheik Abdul Cader Jaulim	Mauritius
	Luc Hedley Perrine	Mauritius
	Yedlop Ramana	Mauritius

Topic No. 3: Production planning and control (cont'd.)

Team members:	Jagarnath Nundlall	Mauritius
	A. Veerapen	Mauritius
	Georges Lebon	Mauritius
	Noel C. Boribon	Mauritius
	Rico Jean Legrand	Mauritius
	M. Rafik Oomar	Mauritius
	Bolowan Raghooputh	Mauritius
	Ramroop Runglollsing	Mauritius
	Mohungroo B. K. Dutta	Mauritius
	Tewya Rawateea	Mauritius
	Rooplall Hurbungs	Mauritius
	Eduardo Baluyut	Philippines

Topic No. 4: Quality control operations

Team leader:	John M. Abankwan	Ghana
Team members:	Richard E. Odame	Ghana
	Enoch Adu Arthur	Ghana
	John Diau	Solomon Islands
	Felix J. Fakudze	Swaziland
	Anis Jabsheh	Jordan

Topic No. 5: Design of jigs

Team leader:	Noel C. Boribon	Mauritius
Team members:	George M. Mbekeani	Malawi
	Sanu K. Sthapit	Nepal
	Abdul Kader Khodabux	Mauritius
	Chandragassen Pillay Samoo	Mauritius
	Mohungroo B. K. Dutta	Mauritius
	Tewya Rawateea	Mauritius
	Eduardo Baluyt	Philippines

Topic No. 6: Plant layout

Team leader:	P. D. P. Dlamini	Swaziland
Team members:	Mengistu Alemu	Ethiopia
	Richard E. Odame	Ghana
	John M. Abankwan	Ghana



Topic No. 6: Plant layout (cont'd.)

Team members:	Ram G. P. Asthana	India
	Conny K. Msosa	Malawi
	M. Azmi Ibrahim	Malaysia
	Gilberto de Jesus Tan	Philippines
	R. M. T. Ariyaratne	Sri Lanka
	Vinod Joymongul	Mauritius
	Menon Maureemootoo	Mauritius
	Ambillal Busawon	Mauritius
	Santaram Ramma	Mauritius

Topic No. 7: Selection of machines

Team leader:	Li Gang	China
Team members:	Eyassu M. Tegegne	Ethiopia
	N. R. Sasankasekhar	India
	Ram. G. P. Asthana	India
	Conny M. Msosa	Malawi
	Mohammed Areef	Maldives
	Vinod Joymongul	Mauritius
	Santaram Ramma	Mauritius
	R. M. T. Ariyaratne	Sri Lanka
	Felix J. Fakudze	Swaziland
	Jamil Habib Sherrif	Tanzania

Topic No. 8: Low-cost automation

No interest expressed.

Topic No. 9: Tool and machine maintenance

Team leader:	George M. Mbekeani	Malawi
Team members:	Sanu K. Sthapit	Nepal
	Samuel C. Salima	Malawi
	Mohammed Areef	Maldives
	Abdul Kader Khodabux	Mauritius
	Yedlop Ramana	Mauritius
	Jagarnath Nundlali	Mauritius
	Chandragassen Pillay Samoo	Mauritius

Topic No. 9: Tool and machine maintenance (cont'd.)

Team members:	Abillal Busawon	Mauritius
	Georges Lebaon	Mauritius
	Noel C. Boribon	Mauritius
	Rico Jean Legrand	Mauritius
	M. Rafik Oomar	Mauritius
	Santaram Ramma	Mauritius
	Jamil Habib Sherrif	Tanzania

Topic No. 10: Marketing

Local

Team members:	Mengistu Alemu	Ethiopia
	Eyassu Tegege	Ethiopia
	Mouhammed Salim Abdool Carrim	Mauritius
	John Diau	Solomon Islands

Export

Team members:	Enock Adu Arthur	Ghana
	André Lam	Mauritius
	Noel N. Siozon	Philippines
	Abillal Busawon	Mauritius

ANNEX VI

BUDGET OF THE SEMINAR

A. Administrative costs:

17-01 - Honorarium coordinator	US\$ 2.000,-	UNIDF
- Seminar assistant (one month)	in kind	Mauritius
- Rental of conference hall (3 weeks)	in kind	Mauritius
- Rental of audio-visual facilities (3 weeks)	in kind	Mauritius
- Rental of demonstration facilities (2x2 days)	in kind	Mauritius
- Local transport (3 weeks)	in kind	Mauritius
- Catering at tea breaks, etc.	in kind	Mauritius
- Reception on opening day	in kind	Mauritius
- Photocopying (approximately 5000 pages)	in kind	Mauritius
- Touristic trip on first week-en (30 persons)	in kind	Mauritius
- Mailing and telex charges	in kind	Mauritius
Sub-total A. (in cash)	US\$ 2.000,-	UNIDF

B. Other administrative costs:

- Issuance letters of invitation	in kind	UNIDO
- Correspondence with co-ordinator, etc.	in kind	UNIDO
- Recruitment of non-Mauritian consultants	in kind	UNIDO
- Reproduction of lectures	in kind	UNIDO
35-00 - Packing and mailing of documentation (+ 500 kgs)	US\$ 1.140,-	UNIDF
35-00 - Airfreight of conference material and seminar library from Vienna to Mauritius (+ 100 kgs)	US\$ 1.500,-	UNIDF
35-00 - Return of above material to Vienna	US\$ 1.500,-	UNIDF
- Correspondence with candidates and notification of selection	in kind	UNIDO
- Issuance of travel documents for non-Mauritian lecturers and participants	in kind	UNIDO
55-00 - UNIDO/Government of Finland reception	US\$ 3.000,-	UNIDF
Sub-total B. (in cash)	US\$ 7.140,-	UNIDF

C. Training costs:

1. Travel and per diem of:

11-01 - P. Paavola (3 weeks)	US\$ 4.800,-	UNIDF
11-02 - M. Laatikainen (2 weeks)	US\$ 4.500,-	UNIDF
11-03 - G. Woods (2 weeks)	US\$ 4.000,-	UNIDF
11-04 - A. Juva (1 week)	US\$ 4.200,-	UNIDF
- J. L. Albaladejo (1 week)	in kind	ITC
16-00 - A. V. Bassili (4 weeks)	US\$ 4.670,-	UNIDF
16-00 - M.-O. Cherkasly (4 weeks)	US\$ 4.670,-	UNIDF

2. Honoraria for non-Mauritian lecturers:  
(including fees for preparatory work)

11-01 - P. Paavola (5 weeks)	US\$ 3.500,-	UNIDF
11-02 - M. Laatikainen (2.5 weeks)	US\$ 1.750,-	UNIDF
11-03 - G. Woods (2 weeks)	US\$ 1.400,-	UNIDF
11-04 - A. Juva (1.5 weeks)	US\$ 1.050,-	UNIDF
- J. L. Albaladejo (1 week)	in kind	ITC
Total cost international staff (1+2)(in cash)	US\$ 34.540,-	UNIDF

3. Honoraria for Mauritian lecturers:  
(including fees for preparatory work)

17-01 - J. Pochun (costing) (1.5 hours)	US\$ 60,-	UNIDF
17-02 - I. M. Sayed (foams) (1.5 hours)	US\$ 60,-	UNIDF
17-03 - K. Athalie (demonstrations) (6 hours)	US\$ 240,-	UNIDF
17-04 - J. Roubillard (surface finishing)(3 hours)	US\$ 120,-	UNIDF
17-05 - M. Maharaullee (production control)(4.5 hours)	US\$ 180,-	UNIDF
17-06 - J. Hittie + A. Owudally (species used in Mauritius) (3 hours)	US\$ 120,-	UNIDF
17-07 - J. Hittie + A. Owudally (wood preservation)(1.5 hours)	US\$ 60,-	UNIDF
Total cost of Mauritian lecturers (in cash)	US\$ 840,-	UNIDF

4. Transport; manufacture; purchases:

35-00 Transport by airfreight of jigs and demonstration material from Lahti to Mauritius (+200 kgs) (cutting tools, jigs, quality control material, slides, visual aids, etc.)	US\$ 3.200,-	UNIDF
35-00 Return of jigs by airfreight from Mauritius to Lahti	US\$ 3.200,-	UNIDF
35-00 Packaging of 200 kgs airfreighted	US\$ 200,-	UNIDF
40-00 Local manufacture of jigs (in Mauritius)	US\$ 2.000,-	UNIDF
40-00 Books for participants	US\$ 3.000,-	UNIDF
35-00 Folders, stationary, etc.	US\$ 1.000,-	UNIDF
Sub-total C. (in cash)	US\$ 47.980,-	UNIDF

D. Transport, board and lodging of participants:  
(25 participants, travel to and from Mauritius)

35-00 - Airfare, 25 x US\$ 3.000	US\$ 75.000,-	UNIDF
35-00 - 10 kgs excess baggage on return trip (25x300)	US\$ 7.500,-	UNIDF
35-00 - per diem: 25 x 23 days x US\$ 60	US\$ 34.500,-	UNIDF
Sub-total D. (in cash)	US\$ 117.000,-	UNIDF

E. Contingency:

51-00 - miscellaneous	US\$ 2.880,-	UNIDF
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SUB-TOTALS (in cash)

A. Local administrative costs	US\$ 2.000,-
B. Other administrative costs	US\$ 7.140,-
C. Training costs	US\$ 47.980,-
D. Transport and stay of participants	US\$ 117.000,-
E. Contingency	US\$ 2.880,-
Total	US\$ 177.000,-
13% overhead costs	US\$ 23.010,-
GRAND TOTAL	US\$ 200.010,-
	=====

ANNEX VII

COMPILATION OF REPLIES TO THE EVALUATION FORM  
FOR GROUP TRAINING PROGRAMMES

Programme: Seminar on furniture and  
joinery industries

Host country: Mauritius  
Year: 1984

I. PRE-COURSE INFORMATION

1. How was the introductory information you received in your home country about (please mark an x in the appropriate column)?

	Sufficient	Not sufficient	Missing
Aim of the training	40	6	2
Content of the programme	40	6	2
Level of the programme	39	8	1

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

- Some management aspect of the industry
- Names and occupation of the lecturers
- Inform the participants that dinner during the week, and lunch and dinner during the weekends, not provided
- Construction, design of furniture
- More practical demonstrations
- Film projections showing (a) safety working on machines, (b) procedures for a specific piece of furniture (?)
- How to produce the jigs of antique furniture
- Some general labour laws

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

Information about the programme:  $\frac{17}{1} | \frac{16}{2} | \frac{14}{3} | \frac{12}{9} | \frac{10}{3} | \frac{8}{2} | \frac{6}{3} | \frac{5}{1} | \frac{4}{9} | \frac{3}{4} | \frac{2}{3} | \frac{1}{3}$  weeks

$\frac{10}{1} | \frac{0^*}{1}$  weeks

Being accepted in the programme:  $\frac{5}{1} | \frac{4}{5} | \frac{3}{13} | \frac{2}{10} | \frac{1}{9}$  weeks  $\frac{12}{1} | \frac{10}{2} | \frac{3}{1} | \frac{2}{3}$  days

Comments:

- Information about acceptance should reach earlier
- Participants should be notified 4-8 weeks prior to their departure
- \*Was informed on the day the programme started because I was a standby (0 days)
- Because of the fact that I was given such short notice, I had to close my workshop and could not find a foreman to supervise the work. This has caused some losses
- Time notice satisfactory

II. PROGRAMME CONTENT AND ORGANIZATION

3. What is your opinion of the duration of the course?

Too long	0
Just right	31
Too short	15

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

$\frac{8}{3} | \frac{6}{4} | \frac{5}{1} | \frac{4}{8}$

- Since the seminar is just an eye-opener to the mechanics of the furniture and joinery business, it serves as reference to future intensive studies which should last longer
- Some lectures would have required more demonstrations (4 weeks)

- Lack of communication with foreign participants after working hours
- Handouts and books were adequately supplied for future reference
- The seminar would have been better if we had had: 15 days - lectures, 3 days - exercises, 2 days - study visits, and 4 days - group work
- Most topics had to be rushed because of time limits
- The seats of the conference hall were not of a very good standard

4. State your opinion about the daily schedule:

Too heavy	13
Just right	35
Too light	0

Comments:

- Too heavy because of short time to run all topics within three weeks
- The lectures should be covered in classes of 45 minutes with 5 minute breaks between
- Some of the material could be covered in a shorter period. This would have left more time for practical demonstrations by consultants
- The daily schedule was perfect
- I do not have sufficient time to go through lectures at night
- Because of the high level of education of the participants it is difficult to assimilate all the theory lectures
- Just right, but the same lecturer should not be lecturing the whole day
- I think all lecturers have shown more dedication than expected
- Not enough time to relax
- Participants and staff did not get sufficient time for discussions
- I was satisfied with the daily schedule

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

- No changes
- The daily schedule should be from 0800 to 1600 hours only
- Group discussions should be held during class hours
- I personally felt that some topics, though interesting, need not have been covered to the depth that they were and yet I would have appreciated more coverage of other topics

- A lecture on joinery industries, like manufacture of doors and windows could have been included
- One of the lecturers was not "illustrative" enough
- After each topic, there should have been a group discussion
- Seminar site should be within hotel premises or within walking distance
- Lunch breaks should be extended to 2 hours
- Participants should actually and physically be doing the job
- The number of local participants should be limited to 3 - 5
- The group was rather too large
- Not really
- Transport facilities could help us meet in the evenings for the assignment work
- Video tapes showing the industries in developed countries. In the film a tutor should explain what is actually happening. A medium-sized industry would be most appropriate
- More emphasis should be put on the oldest machines available

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

To a very large extent	17
To a large extent	17
To a sufficient extent	12
To a small extent	1
To a very small extent	1

Please comment:

- Since my training and experience are in accounting and general management, I gained a valuable knowledge about the techniques of woodworking
- Most of the seminar was more of a refresher course than anything else
- Factory visits useful but should concentrate on factories having a systematic layout and modern machines
- Finishing of furniture was not very clear
- Provided sufficient insight as to health and safety requirements
- More topics on production management should have been available



- I am working in a para statal body and prepare estimates for civil building engineering works, so the majority of my work goes to the construction industry and only a very small part is devoted to furniture and joinery
- The only handicap is that my company does not have enough machines
- Ergonomics was a new subject to me

7. Please give your opinion (if any) about the study visits:

- Very educative
- Visits to other factories and demonstrations were very valuable indeed
- Useful, but visits should be confined to factories having a systematic layout and modern machines
- Grewals and Panache: Very well organized and prepared for the visits
- Technomeubles: Machines were not properly utilized. Working area cramped and no proper machine layout
- Multicollections: Use of production cards and system a big help
- We should have visited at least one factory producing modern furniture
- Most enriching
- Without study visits the course would not have been complete

Please suggest other study visits that might have been valuable:

- Slightly more advanced sites would have been ideal
- Visit to doors and window manufacturers
- Visit to a rattan furniture manufacturer
- Visit to a paint or lacquer manufacturer
- Packing of furniture
- Foam industry
- A short visit to the Forestry Department
- Visit to the site of felling of trees
- Visit to Mauricarvers
- A visit to a factory cutting glass

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

Much too high	1
Too high	1
Adequate	46
Too low	1
Much too low	0

Comments:

- Most of the problems were discussed
- Paavola on product technology: very informative with complete reference materials and samples
- Juva on upholstered technology: a great help
- Roüillard on surface finishing: irrelevant
- Adequate since it concentrated on the basic needs of factories in developing countries
- Sometimes too quick
- Vital information was not divulged by Mauritian lecturers because of presence of local participants from competing companies
- Very basic
- I feel that the level might have been a bit higher, but I did get the impression that for the majority of the participants the level was adequate if not slightly high
- To the general comprehension of everybody
- Very good

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

- |                                |  |
|--------------------------------|--|
| - Production planning control: | Relevant to my work (3)<br>New subject (2)<br>Most valuable (3)<br>My field (2)                                |
| - Selection of machines:       | Relevant to my work (2)<br>Valuable (3)<br>Very practical (1)<br>My field (1)<br>New information (1)           |
| - Knock-down fittings:         | New subject (3)<br>Appreciated (1)<br>Most valuable (1)<br>Relevant to my work                                 |
| - Low-cost automation          | Very interesting (2)<br>New subject (3)<br>I need this badly (1)<br>Most useful (3)<br>Relevant to my work (2) |

- Value analysis:
  - New subject (8)
  - Relevant to my work (3)
  - Most valuable (4)
  - New ideas (1)
- Ergonomics:
  - New subject (7)
  - Most valuable (3)
  - Relevant to my work (2)
- Tool and machine safety:
  - New subject (3)
  - My field (1)
  - Most valuable (1)
  - Relevant to my work (2)
- Plant layout:
  - New information (1)
- Production of jigs:
  - New information (3)
  - Most valuable (3)
  - Very practical (2)
- Quality control:
  - New information (1)
  - Relevant to my work (2)
- Tool and machine maintenance:
  - Answered all my problems (1)
  - Most interesting (1)
  - Most valuable (1)
  - New ideas (2)
  - Relevant to my work (2)
  - My speciality (1)
- Demonstrations at ITTC:
  - Appreciated (1)
- Furniture technology:
  - Very valuable (2)
  - Relevant to my work (3)
  - My field (2)
  - New information (1)
- Solid wood as a raw material:
  - New information (1)
- Glues:
  - Very interesting (1)
- Foams:
  - Very interesting (1)
- Wood used in housing:
  - Relevant to my work (1)
- Wood preservation:
  - New subject (1)
- Upholstery:
  - New information (1)
  - Relevant to my work (1)

- Marketing: Most valuable (1)  
Relevant to my work (1)
- Costing, general considerations: Relevant to my work (1)
- All subjects: Valuable (3)

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

- Cost accounting: Just a refresher (1)
- Raw materials: Least of my problems (1)  
No new information (1)
- Surface finishing: Inadequate instruction (6)
- Upholstery technology: Inadequate instruction (3)  
Too advanced (1)  
Irrelevant to my work (1)  
I do not produce such items (1)
- Production planning: Information withheld by lecturer (1)  
As a lecture not as a subject (1)  
Inadequate instruction (1)
- Foams: Irrelevant to my work (2)
- Selection of machines: Irrelevant to my work (1)
- Wood drying and preservation: Irrelevant to my work (1)  
No new information (1)
- Low-cost automation: Irrelevant to my work (2)
- Packaging of furniture: Irrelevant to my work (1)
- Marketing: Irrelevant to my work (1)
- No comment: (4)

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

Yes	23
No	25

If yes, what did you miss?

- Types of furniture finishing and methods (6)

- French and wax polish (4)
- Marketing activities and objectives (3)
- Production planning (2)
- Manpower allocation at different production centres (2)
- Management of a furniture factory (1)
- Upholstery (1)
- Furniture testing (1)
- Selection of machines (1)
- Standardization (2)
- Genes to be used in the industry (3)
- Low-cost automation: was not discussed thoroughly (2)
- Interior design and interior decoration of houses with different types of furniture (1)

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

	<u>No changes</u>	<u>More</u>	<u>Less</u>
(a) Lectures	40	4	3
(b) Group work	24	19	5
(c) Demonstrations	24	21	2

Comments:

- I would prefer the lecturers not to be Mauritians because the presence of local participants prevents them from divulging vital information
- The mixture of local and foreign participants has been ineffective
- Group work should concentrate on one subject only
- There should be more group work and demonstrations
- It should have been a residential seminar for all participants. Time for group work was not allocated
- Demonstration time on tool and machine maintenance too short

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

	<u>Command of English</u>	<u>Method of instruction</u>
Very good	18	30
Rather good	22	10
Fair	7	6
Poor	0	0
Very poor	0	0

Please coment:

- Some of them had difficulties in expressing themselves in English
- I had little or no trouble to understand what was being pur across
- Messrs. Paavola and Juva's method of instruction were of the highest quality. The rest was rather good
- It was a good idea to make use of overhead projector and slides in most lectures
- They were all good
- All instructors have a sound knowledge and they were well prepared for their lectures
- No complaint can be made

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

	<u>The programme staff</u>	<u>Fellow participants</u>
Yes	31	37
No	17	11

Please comment:

- No time with programme staff because their attitude is not proper
- List of participants should have been given on the first week
- They were available, the problem was mine

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

	<u>The programme staff</u>	<u>Fellow participants</u>
A great deal	17	6
Much	23	24
Somewhat	1	7
Little	6	7
Not at all	0	1

Please comment:

- The respond of treatment by the programme staff to the participants is like student and not as responsible people. Need to be improved, specially by Mr. Bassili
- I learned of problems faced by fellow participants and benefitted from them
- Programme staff were very accommodating in discussing our problems
- I benefitted only a little from the lecturers since I was not in a position to meet them in my free time
- I have benefitted technically much
- I discussed only specific problems with the programme staff because of time limitations
- Much of my time was spent on assignments

### 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	17
To a great extent	20
To a sufficient extent	11
To a small extent	0

- Material and lectures seem to be very practical
- Some topics were new to me and I had no idea of their applicability in the furniture industry
- Involved the most important details of daily work in a furniture workshop
- I have learnt many new technologies

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

To a very great extent	15
To a great extent	17
To a sufficient extent	15
To a small extent	0
To a very small extent	1

Please state why:

- All I know is from experience and I now know how much knowledge I still have to acquire
- This programme refreshed my technical know-how to a great extent
- Gained more experience in furniture technology
- One never stops learning
- Seminar has served me as a guide and now I have much more to study
- I have acquired new techniques
- I am now aware of the needs and difficulties one has to face before entering the export market

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

To a very great extent	15
To a great extent	24
To a sufficient extent	9
To a small extent	1
To a very small extent	0

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

- I will give all the books and handouts to the production people and ask them to come forward with different ways of implementing them
- Initial resistance from labourers due to ignorance
- Lack of equipment
- Reluctance to try new ideas
- Financial constraints
- Sometimes it is only the big boss who can have new and bright ideas. It will be difficult to make him accept that any new idea resulting from this seminar is his and not mine
- Lack of time
- No difficulty whatsoever

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



To a very great extent	14
To a great extent	21
To a sufficient extent	11
To a small extent	0
To a very small extent	1

20. How will this transfer be made?

(a) In day to day work with colleagues and subordinates	36
(b) In specific training activities inside present employment	23
(c) In specific training activities outside present employment	8

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

- Lack of interest of workers
- I see no difficulty
- Implementation of such a training
- It is easier to train new workers than to change the habits of workers
- No difficulties

IV. SOCIAL ASPECTS OF THE PROGRAMME

21. Please state your opinion about the leisure time activities organized by the programme staff:

- I have not seen any activity organized
- Quite all right
- Properly arranged and well organized
- Pleasant
- Very good
- Very interesting
- Fairly good

- Leisure time activities should be organized for both Mauritian and fellow participants
- Being a Mauritian, I was unable to participate due to the high cost

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

- None
- UNIDO should clearly state that the allowances given to participants will be given from the day of arrival and departure of the seminar so as to help make prior arrangements for expenses incurred on transit
- Just thank you
- It would be much appreciated if opportunities were given to Mauritians to visit countries where lumber is grown on a large scale
- No comment
- The questionnaire was adequate and covered the whole training programme

