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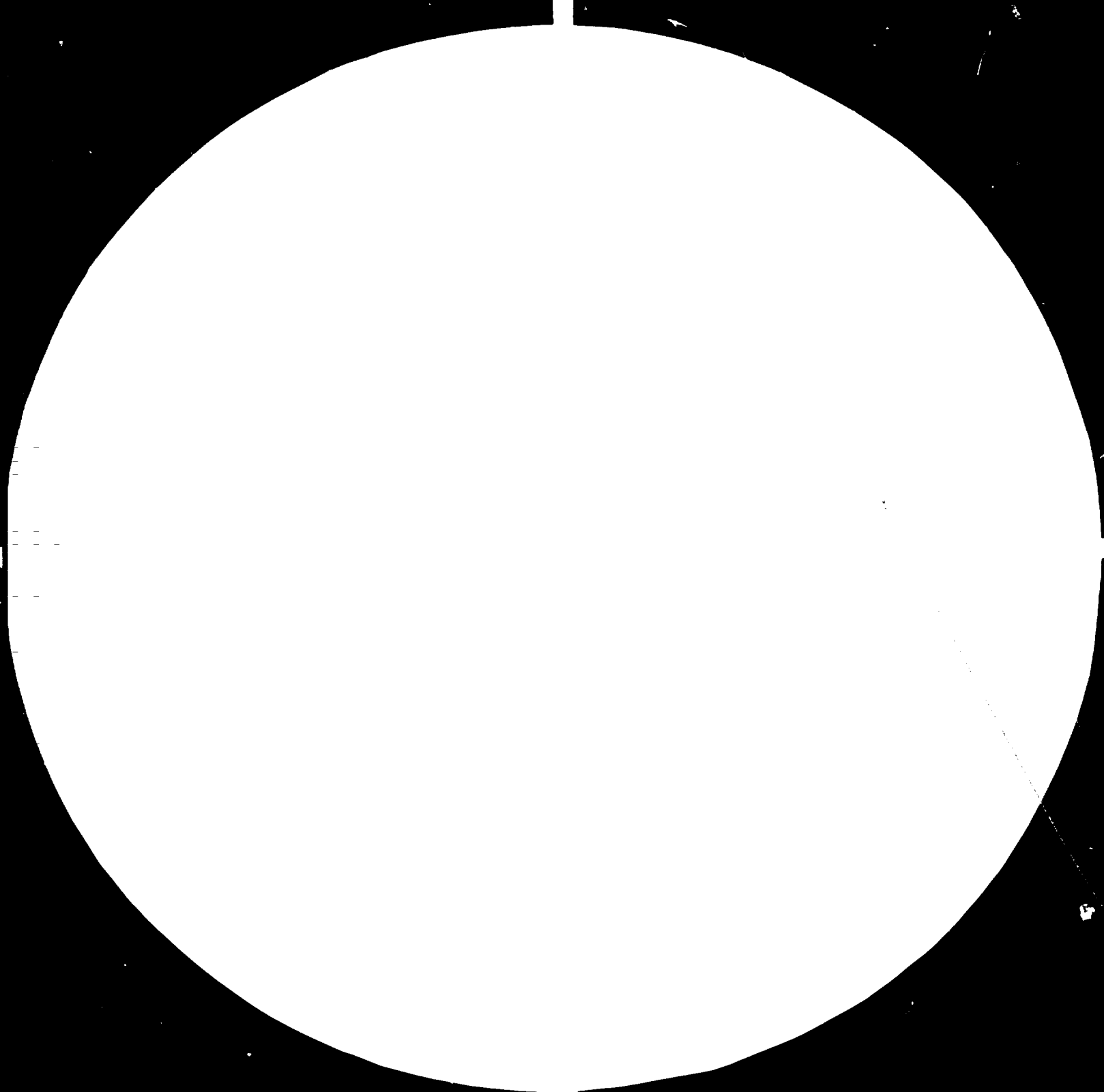
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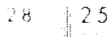


Figure 1. Resolution test targets used in the experiment.

Figure 2. Example of a resolution test target used in the experiment.

Figure 3. Example of a resolution test target used in the experiment.

Figure 4. Example of a resolution test target used in the experiment.

Figure 5. Example of a resolution test target used in the experiment.

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ENGLISH

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REPORT ON THE SEMINAR ON FURNITURE AND JOINERY INDUSTRIES\*.

held in Lahti, Finland, 9 to 28 August 1982

by

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Agro-Industries Branch  
Division of Industrial Operations

2294

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1. Purpose of the mission:

A staff member of the Agro-Industries Branch of the Division of Industrial Operations, Antoine V. Bassili, went to Finland to attend and help conduct the eleventh UNIDO Seminar on Furniture and Joinery Industries which was held in Lahti from 9 to 28 August 1982.

2. Attendance:

UNIDO had selected 30 participants to attend the Seminar. A total of 28 candidates attended the Seminar at UNIDO's expense, one of the three candidates from Colombia and the one from Peru did not attend, and since they did not inform UNIDO of their withdrawal in time, they could not be replaced by the standbys. One more person, Mr. Louis Al Tetteh from Ghana, attended the Seminar at his own expense. The list of participants is given in Annex I. All the participants arrived on the day preceding the opening day as foreseen, except the two participants from Jamaica who arrived exactly one week late. This was due to the late receipt of their notification of acceptance due to a strike of the telegraphic services in Jamaica. One of the two participants from Brazil left two days earlier than foreseen because of a prior commitment to attend a course in Japan starting on 2 September in Tokyo and the impossibility to obtain for him a visa from the Japanese Embassy in Helsinki.

3. Participants:

In spite of the delay in obtaining financial approval for the Seminar, and the consequent delay in issuing the invitations (which were cabled), the response was excellent. A total of 75 countries were invited to nominate candidates. Of these 44 responded, and nominated 92 candidates for the 30 places available (see Annex II). Notifications to accepted candidates were cabled three weeks before the start of the Seminar. Twenty countries were represented, four (Lesotho, Tonga, Tunisia and Zimbabwe) attended for the first time.

The group was homogeneous. All the participants were of a highly acceptable technical level. (This opinion was shared by the Finnish Director of the Seminar, Mr. Pekka Paavola.) One was somewhat asocial, but this did not affect the Seminar in any way.

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

This is the eleventh such Seminar that UNIDO has organized in collaboration with the Government of Finland, and the organizers have by now a clear idea of the level of participants to be expected in any country.

In the eleven Seminars held so far 287 participants and observers have attended but a total of 414 would have qualified out of the 760 nominated. Details are given in Annex III. This year, participants from 20 countries attended the Seminar. In the eleven Seminars held so far, participants from 59 different countries have attended.

As the Seminar (and UNIDO) is 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 Seminar.

#### 4. Programme of the Seminar:

The programme of the Seminar is given in Annex IV. It consisted of 67 hours (55.4%) of lectures, 9 hours (7.4%) of demonstrations in the laboratories of the Lahti Institute of Technology and the

adjoining Vocational School, 23 hours (19.0%) of plant visits, 4 hours (3.3%) of background information, opening ceremonies and administrative matters, 7 hours (5.8%) of panel discussions and 11 hours (9.1%) of presentation of seminar assignments.

The lectures were all of the appropriate standard. Whenever appropriate they were complemented with practical demonstrations in the laboratories of the Lahti Institute of Technology. The lecture on design of jigs for use in the furniture industry, and the corresponding demonstration (based on UNIDO document ID/265), the one on glues, that on Value Analysis, the one on Low-cost Automation and Selection of Woodworking Machines were deemed to be very popular and useful by most participants. From the replies received, no lectures could be identified as having been found least valuable. There was the usual sprinkling, attributable to varied interests of the participants. On the day before the last, a possibility was given to participants to visit factories of particular importance to them. They could choose two or three from among the following:

- Production of rigid plastic shells for upholstery<sup>1/</sup> (Kosofinn Oy) ( 2)
- Production of plywood (W. Schaumann Oy) ( 5)
- Production of metal components for furniture (Mantere) ( 4)
- Visit to a small tool maintenance center (Salpaterä) ( 7)
- Manufacture of prefabricated wooden houses, doors, sawmill, drying kiln (Rauma Repola) (10)

The majority of the participants (13) however chose to attend a three-hour demonstration of surface finishing for small plants, given

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<sup>1/</sup> Numbers in brackets refer to number of participants who participated in the visits.



by Mr. Kaarlo Ilonen at the Vocational Training School.

Arrangements were made for those participants who indicated their interest in visiting two large importers of woodworking machines (Messrs. Tekmao and Penope Oy) and some 12 visited the former and 8 the latter on evenings of the last week, after the course - and working hours. Participants appreciated this opportunity.

The author gave a one hour lecture one evening on the work of UNIDO (with special reference to the woodprocessing industries) and a two-hour lecture on selection of woodworking machines for developing countries. Both lectures were well received. On Tuesday, 17 August he conducted a two-hour round table discussion with nine participants specially interested in the use of wood in housing in developing countries. This led to a very fruitful exchange of ideas. A film on quality control of furniture and one on choosing a textile material for upholstery was obtained and shown to the participants. Both were highly appreciated.

5. Documentation:

The participants were given the revised and edited text of a selection of the lectures presented at the first two Seminars (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 (for details see below).

Each participant had to prepare a country paper, which will be reproduced after the Seminar and will serve as background material. Other background material consisted of UNIDO's guides to sources of information (ID/150, ID/188 and ID/214), a study on the production of wooden houses (ID/61), machines on low-cost automation (ID/194), jigs for the furniture industry (ID/265) and upholstery technology (ID/275), the reports of the technical meeting on selection of woodworking machines (ID/133), the Workshop on Woodworking (ID/180), and that of Adhesives used by the Woodworking Industry (ID/223) as well

as texts of the lectures given not included in ID/108/Rev.1 (namely ID/WG.302/1 and 3, ID/WG.323/1 and 2 and ID/WG.378/1). Also given to the participants were the UNIDO publications "Technical Criteria for the Selection of Woodworking Machines" (ID/247), "Production Technology for the Use of Wood in Housing Under Conditions Prevailing in Developing Countries" (ID/10) and "Wood as a Packaging Material in Developing Countries" (ID/72).

The following two books were distributed to the participants:

- (1) Methods Study and the Furniture Industry,  
by R. H. Glossop - Pergamon Press; 1970.
- (2) Furniture Facts, 26th Edition, (1980), by  
Hoover Universal Furniture Components Group, USA.

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:

Some relevant books, catalogues of equipment, etc. in English at the Lahti Institute of Technology's Library, and those purchased for the Seminar from the Ministry of Foreign Affairs' funds as well as relevant UNIDO documents formed the "Seminar Library" which operated during the entire seminar. Participants made full use of it, mainly by browsing through the books and catalogues during the breaks, but some participants borrowed books regularly.

Photocopies of articles of special interest to the various participants were made available upon request.

7. Seminar Assignments:

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

|   |      |
|---|------|
| 1) Product development and technical product design                                 | ( 8) |
| 2) Value analysis   | ( 7) |
| 3) Production planning  | (12) |
| 4) Quality control operations   | ( 4) |
| 5) Design of jigs   | ( 4) |
| 6) Plant layout   | (11) |
| 7) Selection of machines  | ( 5) |
| 8) Low-cost automation  | ( 5) |
| 9) Tool and machine maintenance   | ( 5) |
| 10) Marketing   | (12) |
| 11) Monitoring the performance of<br>a dehumidifier type kiln                       | ( 6) |
| 12) Calculations for the design of a<br>dust extraction system for a small workshop | ( 6) |

The numbers in brackets indicate the number of participants in each group and also reflects their relative interest in the various topics. One or two discussion leaders were nominated for each group to co-ordinate the work and present the conclusions except in the case of production planning for which eight participants were selected. Each group was allocated about one to one and a half hours to do so.

#### Assessment of Seminar Assignment

##### Topic 1: Product development -

Not presented due to lack of time. The author nevertheless took the material prepared which was of acceptable standard.

##### Topic 2: Value analysis -

Presented by Mr. A. Cabrales Burgos and J. I. Gutierrez-Vallejo (both Colombia). While it was obvious from the presentation that the group understood the correct use of value analysis as a tool, they did not go to the root of the problem and come up with anywhere nearly all the options. The presentation could at best be termed "barely acceptable". Practically no audio-visual aids. Could have been much

better if more time was spent in preparing the work.

Topic 3: Production planning -

Presented by: Mr. J. Gordon (Zimbabwe) - general  
Mr. K. G. Striem (Panama) - cabinet  
Mr. G. Villanueva (Philippines) - chair  
Mr. C. Michel (Mauritius) - table

Very good in-depth presentation by all. The group did a lot of work to get the whole job completed, and did not merely explain how to approach it. Villanueva did excellent drawings. Michel was weakest of the three (covered jigs, etc. with filter machine loading). Summing up by Gordon good, but did not have flow through plant of each batch.

Topic 4: Quality Control -

Good presentation. Well thought out and covered all points relating to quality of raw material inputs, excellent presentation on state of the art of international standards for finished furniture, but did not cover in great depth the quality control operations during processing.

Topic 5: Design of jigs -

Presented by Mr. A. D. Pundek (Brazil) and K. G. Fearon (Jamaica). Very good audio-visual aids. Designed 26 jigs for the operations, the vast majority (+90%) of which were correct. Well thought out and well presented.

Topic 6: Plant layout -

Presented by Mr. K. Yin (Burma). A lot of work went into the presentation, but it could have been of a higher level. In fairness the plant in Burma is hampered by a poor general layout with no possibilities for expansion. Basic concepts were however lacking.

Topic 7: Selection of machinery for developing countries -

Presented by Mr. N. Tun (Burma) for general criteria and Mr. M. Fertani (Tunisia) for equipment for a plant to produce TV cabinets.

Mr. Tun covered many of the problems that Burma has to face in purchasing machines but presented also some very good examples of appropriate technology.

Mr. Fertani covered equipment selection for a plant to produce 60,000 TV cabinets (in two sizes). Well thought out process flow and criteria for identification of equipment to be imported new, imported second-hand and to be made locally.

Topic 8: Low-cost automation -

Presented by Mr. R. Pickering (Zimbabwe). Good presentation throughout. Good (even excellent) coverage of "what to automate and when to automate". "How to automate" was based on UNIDO manual, but intelligently done.

Topic 9: Tool and machine maintenance -

Presented by Mr. R. C. Bamunuarachchi (Sri Lanka). Good presentation, some audio-visual aids, well done. Covered well planning of maintenance and checking of reconditioned machines. Good presentation of tool maintenance (when to maintain, how to keep tools, etc.).

Topic 10: Marketing -

Presented by Mr. H. C. Faroppa-Negri (Uruguay) for local markets and Mr. F. S. Villaseñor (Philippines) for export marketing.

Mr. Faroppa's presentation was very thorough but quite academic - no examples of actual conditions and situations.

Mr. Villaseñor's presentation on export marketing was more practical.

Finally, the author complemented some of the points which neither had raised.

Topic 11: Monitoring the performance of a  
dehumidifier type kiln -

Presented by Mr. I. F. Harrison (Zimbabwe). Excellent review of various types of kilns available, including those not yet in commercial application. Good presentation of operation of dehumidifier type kiln and sound conclusions.

Topic 12: Calculation of a dust extraction  
system for a small workshop -

Presented by Mr. H. W. Menckeberg (Suriname). Presented basics of pneumatics. Reasonable presentation bearing in mind that there was little material available.

Audio-visual aids were used extensively in the presentations, and the author brought back copies of most of the overhead projector films.

Work on the assignments started early and was keenly pursued - even during week-ends - by all concerned and the standard was quite high.

In preparing the assignments numerous discussions were held among the participants. In all cases audience participation and discussions were keen. It was obvious from the presentations that the participants had put long hours into preparing their assignment work.

Further details on the topics of the assignments are given in Annex I.

8. Administrative matters:

Local arrangements -

The Finnish organizers maintained high standards and had thought of practically everything in advance. Everything was efficiently carried out.

Financial matters -

For the second consecutive year, the entire cost of the Seminar were covered by the Government of Finland, through a special contribution in cash to UNIDO to pay for the travel of the 28 participants and training material, and, as in previous years, a contribution in kind to cover local costs.

The travel and per diem of the UNIDO staff member was borne by UNIDO from his Division's Regular Budget travel funds.

Furthermore, an observer, from Ghana attended the Seminar at no cost either to the Government of Finland or to UNIDO.

The Government of Finland's contribution totalled FM272,000 (US\$58,495 approximately). The detailed breakdown of both budgets (in cash and kind) is given in Annex VI.

Hospitality -

Because of the late approval of the budget by the Finnish authorities, UNIDO did not have material time to allocate funds for its reception. Notwithstanding, this, an informal reception was held on the last day, as foreseen, financed by contributions in cash from the following firms:

Kosofinn K. y.  
Peem Oy.  
Man-ko Oy.  
Lampen Puutiyo Oy.  
A. J. Consultants Oy.

and in kind from Messrs. Sinuhe Oy, M-Top O. Y. and Mallasuojma Oy. It was attended by the participants and a large number of lecturers, managers of plants visited and others associated with the Seminar.

Documentation -

UNIDO documents were shipped in advance and arrived in time for the Seminar. Two of the UNIDO documents were out of print and were photocopied in Lahti. Several books to complement these and serve as background material were ordered but some were out of print.

Travel arrangements -

A tentative reservation was made in time for all participants to arrive on the same flight and proceed to Lahti directly - as in previous years, and all except for two from Jamaica arrived in time to take the special bus to Lahti.

All participants were given an MCO for 10 kgs excess baggage from Helsinki to their home town to enable them to take with them the documentation.

9. Press coverage:

The Finnish press gave ample coverage to the Seminar on the opening day the local paper having an article and a photo, and the national press (Uusi Suomi) sent a reporter to interview the Director, the author and two participants for an in-depth article, but this article had not been published prior to the end of the Seminar.

Copies of these press clippings were sent to UNIDO's Information Services.

10. Evaluation:

UNIDO's forms for the evaluation of the Seminar (entitled "Evaluation of in-plant group training programmes") were handed



over to all the 29 participants on 23 August and collected, duly filled out by them on 27 August. The replies were compiled and the detailed compilation is given in Annex VII. It is quite clear from the replies that the course'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 attitude of the management of the factories (both during panel discussions and during the visits) were greatly appreciated by all the participants.

11. Assessment of the Programme:

All lectures were of the expected standard and depth. As in every year, those given by Mr. P. Paavola were the most popular; this being due to his experience as a teacher, his knowledge of conditions in developing countries, and the interest he shows in making the course a success.

Its success rests to a large extent on his efforts, by the time taken by persons from industry to participate as lecturers, members of panels, and to open their factories.

All administrative arrangements were excellent.

12. Other matters:

A meeting was arranged on 25 August 1982 at the Ministry for Foreign Affairs in Helsinki to discuss the Seminar. It was chaired by Mr. Tom Gronberg, Deputy Head, Department for International Development Co-operation and attended by Ms. Rauni Turkia, and Miss Anna-Liisa Kaukkinen of the Department and also attended by Mr. Pekka J. Paavola, Director of the Seminar and the author.

The author stated that UNIDO would like to continue these Seminars, which had proven to be very popular, and wanted to have the Finnish authorities' views on this matter.

This had become of immediate interest because UNIDO had published the text of the lectures of the Seminar in a printed book form in English, French and Spanish out of its own budget. It had been distributed to over 8000 persons. The book was now out of print, and, if the Seminar were to be repeated, it would be necessary to revise the book to incorporate new lectures and update the older ones. This has to be done as soon as possible to give time for revision, editing and printing. The author stated that over and above the distribution by UNIDO, portions of the book have also been translated into Arabic and Chinese by end-users. He stated that it had given to readers in developing countries a very positive image of the Finnish furniture industry.

Mr. Gronberg stated that the Finnish Government would finance the Seminar in its present format again in 1983, since it had indicated its intention to finance this Seminar for three years, ending in 1983. The Finnish authorities realized that this course is a valuable tool for transferring know-how to developing countries, but, after twelve such courses they also wished to investigate other training possibilities in this sector. If it appears that after considering other alternatives, the Seminar is the most suitable alternative, it shall be continued. To this effect, and in order that assistance be given to the lesser developed countries they would like to finance a similar course to cater directly for these countries every other year, and continue with the Seminar in its present format in Lahti in the other years.

It was agreed by all present that such a seminar (mainly for LDC's) should be held in a country where this sector is less developed than in Finland, and the Ministry would prefer if it were to be hosted in one of the countries to which it is providing technical assistance on a bilateral basis. Among these Tanzania, Mozambique, Zimbabwe, Kenya and Egypt were mentioned as possible hosts. The host country would thus benefit from additional aid to this sector. The Finnish authorities stated that they expected that Finnish expertise be used when available, and would request UNIDO to assume responsibility for administrative arrangements. As to the countries to be invited,

this Seminar should be for English-speaking participants, aimed mainly at African countries, but other countries "among the least developed" will also be acceptable. Like the Seminar in Lahti it should be for 30 participants.

The author stated that the idea was certainly worth pursuing, and that, provided adequate host-facilities were made available, it could be a very useful tool for the least developed countries' development. It would be necessary to screen candidates more carefully since there would be both "maximum" and "minimum" limits. He was sure UNIDO would be highly interested in organizing such a course. A minimum of one year lead-time is necessary to organize this course for the first time. Mr. Gronberg stated that he expected a detailed proposal from UNIDO on this idea.

The author requested that the financial approval of the 1983 Seminar be notified to UNIDO as early as possible in the new year to give governments time to nominate candidates. Since airfares have increased considerably in the last years (and are likely to do so in the future) he requested that UNIDO be allowed to spend some of the funds saved in previous years, and Ms. Turkia promised to see if this is possible. Ms. Turkia stated that the Finnish authorities will be willing to consider the cost of printing of documents related to these courses provided that this is the object of a separate request.

13. Acknowledgements:

The author hereby wishes to express his gratitude to Mr. Pekka Paavola, the Director, Mr. Olavi Kujanpää, the Administrative Officer, Ms. Auli Peterson, the Interpreter and Ms. Eira Mutala, Secretary of the Seminar, for all the assistance given to him during the Seminar and the great pains they went through to assure its success; to all the members of the Steering Committee of the Lahti Institute of Technology, Lecturers, managers of plants - who opened their doors

to participants, answered numerous questions and provided excellent hospitality - who are too numerous to be listed individually, must find in these lines his thanks for the considerable time and efforts they contributed to assure the Seminar's success.

ANNEX I

LIST OF PARTICIPANTS  
AND OBSERVERS

PARTICIPANTS

| <u>NAME</u>                  | <u>FUNCTION</u>  | <u>MAILING ADDRESS</u>                       |
|------------------------------|--|--|
| <u>BRAZIL</u>                |  |  |
| Mr. Mauro Torres DE CARVALHO | Industrial Designer<br>Experimental Furniture Factory Manager<br>Instituto De Pesquisa Tecnologias IPT | P.O. Box 7141<br>05508 SAO PAULO S.P.        |
| Mr. Andre Donato PUNDEK      | Engineering and Development<br>Product Manager<br>Plastipar Industria & Comercio Ltda.                 | P.O. Box 6179<br>80 000 CURITIBA             |
| <u>BURMA</u>                 |  |  |
| Mr. TUN Ngwe                 | Deputy General Manager (Engineer)<br>Timber Corporation  | Ahlong P.O.<br>RANGOON                       |
| Mr. YIN Kaung                | Manager<br>Furniture Factory<br>Timber Corporation   | Ahlong P.O.<br>RANGOON                       |
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## ANNEX II

RESPONSE BY MEMBER STATES TO INVITATIONS TO PARTICIPATE IN  
THE FURNITURE AND JOINERY SEMINARS

|  | 1971             | 1972 | 1973             | 1974 | 1975             | 1977 <sup>1/</sup> | 1978 | 1979             | 1980             | 1981             | 1982 | TOTAL             |
|--|------------------|------|------------------|------|------------------|--------------------|------|------------------|------------------|------------------|------|-------------------|
| Number of countries invited by UNIDO to nominate candidates            | 47               | 42   | 40               | 47   | 53               | 57                 | 54   | 58               | 60               | 63               | 75   | 59 <sup>2/</sup>  |
| Number of candidates nominated by the Governments                      | 51 <sup>3/</sup> | 56   | 66               | 61   | 59               | 102                | 65   | 82               | 80               | 46               | 92   | 760               |
| Number of candidates who would qualify to attend                       | 33               | 43   | 44               | 45   | 36               | 38                 | 30   | 39               | 38               | 24               | 44   | 414               |
| 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>8/</sup> | 29   | 287 <sup>9/</sup> |
| Number of countries from which participants who attended actually came | 18               | 19   | 19               | 14   | 17               | 22                 | 13   | 20               | 22               | 18               | 20   | 202               |

<sup>1/</sup> No seminar was held in 1976.

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

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

<sup>4/</sup> Including two participants attending at their own costs.

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

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

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

<sup>8/</sup> Including one participant attending at his own cost.

<sup>9/</sup> Including one participant attending at his own cost.

ANNEX III

PROGRAMME OF THE SEMINAR

3-28 August 1982

Monday, 9 August 1982

- 09:00 - 09:30      Opening Addresses, Hotel Seurahuone  
Mrs. Taina Teräväinen, Finland, Ministry of  
Foreign Affairs of Finland  
Mr. Juhani Vaulo, Vice Chairman, Board of  
the City of Lahti  
Mr. Antoine V. Bassili, Delegate of UNIDO,  
Vienna, Austria  
Mr. Pekka Paavola, Director of the Seminar,  
Lahti Institute of Technology
- 09:30 - 10:30      Introduction of participants
- 10:30 - 11:30      Information on Finnish Furniture and Joinery  
Industries, Mr. Christer Antell
- 12:00 - 13:15      Lunch at Hotel Seurahuone
- 13:30 - 15:30      Visit to Muurame Oy, Furniture Factory, Salpakangas
- 15:30 - 17:30      Medical Check-up
- 19:00 - 21:00      Ministry for Foreign Affairs Reception,  
Hotel Seurahuone

Tuesday, 10 August 1982

- 08:30 - 11:00      Properties and use of glues in furniture and  
joinery industries, Professor Jaakko Meriluoto
- 13:00 - 14:00      Properties and use of glues . . . (continued)
- 14:00 - 16:00      Wood based panels used by the furniture and  
joinery industry, Mr. Pekka Paavola,  
Lahti Institute of Technology and  
Professor Jaakko Meriluoto

16:00 - 17:00 Information on Seminar Assignments,  
Mr. Antoine V. Bassili, UNIDO

Wednesday, 11 August 1982

08:30 - 11:30 Solid Wood as raw material for furniture and  
Joinery industries, Mr. P. Paavola, LIT

13:00 - 16:00 Visit to Sotka Oy, furniture factory, Lahti

16:00 - 18:00 Kiln drying  
Introduction  
Demonstration  
Mr. Osmo Moilanen, LIT

Thursday, 12 August 1982

08:30 - 11:30 Technical Product design, Mr. P. Paavola, LIT

13:00 - 15:00 Visit to Lahden Puutyö Oy, furniture factory, Lahti

15:30 - 16:30 Technical product design . . . (continued)

18:00 - Sauna and high tea, Makkula Summer Hotel  
(Presentation by RAUTE, Manufacturers of  
woodworking machinery)

Friday, 13 August 1982

08:30 - 10:30 Selection of woodworking machinery,  
Mr. Antoine V. Bassili, UNIDO

10:30 - 12:00 Polyurethane in furniture industry,  
Mr. Raimo Väkevää, Espe Oy

13:00 - 17:00 Product Development, Mr. Ahti Keronen,  
Oy Polardesign Inc.

Saturday, 14 August 1982

11:30 - 13:00 Lunch by City of Lahti, Restaurant Fellmanni  
(Hosted by Mr. Jukka Elomää, Chief-  
Tourism Department)

Sunday, 15 August 1982

10:00 - 14:30      Tour of Hollola

Monday, 16 August 1982

08:30 - 11.30      Furniture Technology, Mr. P. Paavola, LIT

13:00 - 15:00      Visit to Sopenkorpi furniture factory, Lahti

15:00 - 18:00      Demonstration of production jigs in machining  
laboratory, Mr. P. Paavola, LIT and  
Mr. Kaarlo Ilonen, Vocational School  
and Mr. Eino Martinen, LIT

18:00 -              Sauna and high tea, Mukkula Summer Hotel  
(Presentation by TEKMA Oy, manufacturers  
of wood drying equipment)

Tuesday, 17 August 1982

08:30 - 11:30      Furniture technology, Mr. P. Paavola, LIT  
(Including demonstration of high  
frequency glueing).

11:30 - 13:00      Visit to Asko-Upo Oy, furniture showrooms,  
Lahti (Including lunch).

13:00 - 18:00      Value analysis (including case study),  
Mr. Arto Juva, AJ Consultants Oy

20:00 - 21:30      Informal discussions on the use of wood in  
housing in developing countries, by  
Mr. Antoine V. Bassili, UNIDO

Wednesday, 18 August 1982

08:30 - 11:30      Production economics, Mr. A. V. Bassili, UNIDO

13:00 - 15:30      Upholstered furniture technology,  
Mr. Arto Juva, AJ Consultants Oy

15:30 - 17:30      Tool maintenance, Mr. Peter Wagner

Thursday, 19 August 1982

08:30 - 11:30 Plant layout, Mr. P. Paavola, LIT  
13:00 - 15:30 Visit to Varjonen Puunjalostus Oy, furniture  
factory, Uusikylä  
15:30 - 17:00 Activities of UNIDO, Mr. Antoine V. Bassili, UNIDO  
17:00 - 18:00 Plant layout . . . (continued)

Friday, 20 August 1982

08:30 - 10:00 Methodology for establishing a new furniture  
factory, Mr. Arto Juva, AJ-Consultants Oy  
10:00 - 11:30 Low-cost automation, Mr. Osmo Moilanen, LIT  
13:00 - 15:15 Visit to Isku Oy, particle board factory, Lahti  
15:30 - 18:30 Low-cost automation (including demonstration . . . (continued)

Saturday, 21 August 1982

08:30 - Preparation of seminar assignments

Sunday, 22 August 1982

F R E E

Monday, 23 August 1982

08:30 - 10:30 Visit to Metsäliiton Teollisuus Oy,  
joinery factory, Vääksy  
13:00 - 16:30 Marketing of furniture and problems  
of export trade, panel discussions  
of experts  
18:00 - 20:00 Sauna and high tea, Mukkula Summer Hotel  
20:00 - 22:30 From Folkloric to Modern Finnish Design,  
slide show, Mr. Ilmari Tapiovaara

Tuesday, 24 August 1982

- 08:30 - 10:30      Quality control of inputs and finished products, Mr. P. Paavola, LIT
- 10:30 - 11:30      Furniture design - relations between design and industry, Mr. Antti Taskinen
- 13:00 - 16:30      Furniture design and dimensioning for serial production, Mr. Mauri Laatikainen
- 16:30 - 18:00      Films on Quality Control in furniture (Technologisk Institute, Denmark) and selection of textile materials for upholstery (FIRA, UK) and slide show on quality control equipment in furniture industry, Mr. P. Paavola, LIT.

Wednesday, 25 August 1982

- 08:30 - 11:00      Visit to Peem Oy, upholstered furniture factory, Lahti
- 13:00 - 17:00      Furniture production, panel discussion of experts

Thursday, 26 August 1982

- 08:00 - 13:00      Factory visits for small groups according to individual wishes
- 08:30 - 12:00      Demonstration of simple surface finishing methods by Mr. Kaarlo Ilonen, Vocational Training School
- 13:00 - 15:00      Packaging for export, Mr. Johan Sulin, Senior Packaging Adviser, VTC
- 15:00 - 18:00      Presentation of Seminar assignments

Friday, 27 August 1982

- 08:30 - 11:30      Presentation of Seminar Assignments
- 13:00 - 15:00      Presentation of Seminar Assignments . . . (continued)

15:00 - 15:45      Demonstration of edge banding and finger jointing

15:45 - 18:05      Presentation of Seminar Assignments

Saturday, 28 August 1982

10:00              Departure for Helsinki

14:00 - 16:00      Tour of Helsinki

ANNEX IV

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 native 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, etc..

3. Production Planning:

Plan the production of 500 chests of drawers, 1000 tables and 4000 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 Machinery:

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 mechanisation, 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;
- participation in fairs and other promotional activities.

11. Monitoring the Performance of a Dehumidifier Type Kiln:

The group will monitor the drying of a load of sawn timber in the Institute's dehumidifier type kiln. They shall report on the kiln's performance and compare it to other types of kilns.

12. Calculations for the Design of a Dust Extraction System for a Small Workshop

Design a dust extraction system for the plant whose layout is given, calculating pipe diameters, radii of bends and horsepower requirements, describing the types of fans and collectors to be installed.

ANNEX V  
SEMINAR BUDGET

A. Contribution of the Government of Finland

| I | Payments in kind:                                     | <u>F. M.</u>   | <u>U S \$</u>    |
|---|---|----------------|------------------|
|   | 11 Participants' travelling                           | 9,000          | 1,935.48         |
|   | 12 Lecturers' travelling                              | 8,000          | 1,720.43         |
|   | 13 Other travels (Paavola, e. g.)                     | 6,000          | 1,290.32         |
|   | 21 Housing/Mukkula                                    | 35,000         | 7,526.88         |
|   | 22 Meals  | 62,000         | 13,333.33        |
|   | 23 Hotel in Helsinki                                  | 3,000          | 645.16           |
|   | 31 Planning team                                      | 3,000          | 645.16           |
|   | 32 Seminar Director                                   | 12,000         | 2,580.64         |
|   | 33 Seminar Assistant                                  | 7,200          | 1,548.38         |
|   | 34 Secretary  | 15,368         | 3,304.94         |
|   | 35 Bookkeeping  | 1,585          | 340.85           |
|   | 36 Lecturers  | 27,000         | 5,806.45         |
|   | 37 Interpreter  | 5,500          | 1,182.79         |
|   | 38 Demonstrations                                     | 1,200          | 258.06           |
|   | 39 Setting (lab, jigs, etc.)                          | 7,000          | 1,505.37         |
|   | 310 Construction and planning<br>pneumatic appliances | 2,400          | 516.12           |
|   | 311 Social Security                                   | 5,737          | 1,233.76         |
|   | 41 Files  | 1,200          | 258.06           |
|   | 42 Reproducing, photocopies                           | 3,000          | 645.16           |
|   | 43 Literature   | 2,500          | 537.63           |
|   | 44 Other materials                                    | 5,000          | 1,075.26         |
|   | 51 Health   | 8,000          | 1,720.43         |
|   | 52 Insurance  | 2,000          | 430.10           |
|   | 53 Reception  | 7,000          | 1,505.37         |
|   | 54 Office   | 5,000          | 1,075.26         |
|   | 55 Miscellaneous                                      | 3,310          | 711.82           |
|   | 60 Out of pocket expenses 30 x 800                    | 24,000         | 5,161.29         |
|   |   | <u>272,000</u> | <u>58,494.50</u> |

| II | Payments to UNIDO                   | <u>F. M.</u>     | <u>US\$</u>      |
|----|-------------------------------------|------------------|------------------|
|    | 1. Participants' travel to Finland  | 372,000.00       | 80,000.00        |
|    | 2. Excess baggage of participants   | 37,200.00        | 8,000.00         |
|    | 3. Costs of material (30 x US\$60)  | 8,370.00         | 1,800.00         |
|    | 4. Transport of material to Finland | <u>2,557.50</u>  | <u>550.00</u>    |
|    |                                     | 420,127.50       | 90,350.00        |
|    | 13% overhead                        | <u>54,616.57</u> | <u>11,745.50</u> |
|    |                                     | 474,744.07       | 102,095.50       |

B. UNIDO Contribution:

Travel and per diem of a UNIDO staff member US\$2,797<sup>1/</sup>

NB: To this sum must be added:

|   |       |
|---|-------|
| Salary of a professional staff member<br>for three weeks in Finland | p. m. |
| Reproduction of documents   | p. m. |
| Supply of UNIDO publications  | p. m. |
| Administrative support  | p. m. |

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<sup>1/</sup>Out of UNIDO Regular Budget Funds.

ANNEX VI

EVALUATION - GROUP TRAINING PROGRAMMES

Programme: Seminar on Furniture  
and Joinery Industries

Host country: Finland  
Year 1982

I. PRE-COURSE INFORMATION:

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

|                          | <u>Sufficient</u> | <u>Not Sufficient</u> | <u>Missing</u> |
|--------------------------|-------------------|-----------------------|----------------|
| Aim of the training      | 20                | 6                     | 0              |
| Content of the programme | 18                | 6                     | 2              |
| Level of the programme   | 14                | 8                     | 3              |

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

- more details on the content of the programme (2)<sup>1/</sup>
- text of the lectures should be sent beforehand
- the programme was not included
- more details about the level of the programme
- information about the weather
- the quality of the material was first class, I graded it lower because of the time factor
- a copy of the invitation should be sent to the Timber Corporation (of Burma).

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<sup>1/</sup> Numbers in brackets refer to number of identical statements.

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

Information about the programme:

|                 |    |    |    |    |    |   |   |   |   |   |
|-----------------|----|----|----|----|----|---|---|---|---|---|
| Number of weeks | 16 | 15 | 13 | 12 | 10 | 9 | 8 | 6 | 4 | 3 |
| Participants    | 1  | 1  | 2  | 4  | 3  | 2 | 5 | 4 | 3 | 1 |

Being accepted to the programme:

|                        | <u>Weeks</u> |   |    |   | <u>Days</u> | <u>Days After Start</u> |
|------------------------|--------------|---|----|---|-------------|-------------------------|
|                        | 4            | 3 | 2  | 1 | 4           | 2                       |
| Number of participants | 1            | 7 | 10 | 5 | 1           | 2                       |

Comments:

- Notification of acceptance came too late (8)
- I received the telex message that I was accepted on 5 August
- I had to call up Vienna to find out whether I had been selected (Panama)
- Received telex too late to participate from start due to local strike (2)
- I had to check personally with UNDP to find out whether I could apply through the official channels
- Although I was informed that I was accepted two weeks before the start of the Seminar, I only got my tickets two days before leaving (Mauritius)

II. PROGRAMME CONTENT AND ORGANIZATION:

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

|            |    |
|------------|----|
| Too long   | 2  |
| Just right | 12 |
| Too short  | 14 |

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

|                 |           |           |          |            |          |          |
|-----------------|-----------|-----------|----------|------------|----------|----------|
| Number of weeks | <u>24</u> | <u>10</u> | <u>6</u> | <u>4-5</u> | <u>4</u> | <u>2</u> |
| Persons         | 1         | 2         | 1        | 2          | 5        | 2        |

Please comment:

- Too short, topics skimmed; we cannot apply this. Some subjects must go in greater depth.
- Three weeks is too short for the number of topics covered
- Lecturers had to run through the text. There was no time for revisions.
- Too hectic, some subjects could be added (2)
- Each participant should be able to concentrate on one specific topic of interest to him for one week.
- More time is needed for low cost automation and value analysis
- Six months, including in-plant training.
- One to three months, to allow for research by participants.
- Should be organized as follows: one week course, one week exercises and one week discussions.

4. State your opinion about the daily schedule:

|            |    |
|------------|----|
| Too heavy  | 13 |
| Just right | 17 |
| Too light  | 1  |

Comments:

- No time to discuss or review matters among the participants.
- Studying at night meant dozing during lectures.
- The working day should stop at 4:30 p. m.
- Five-six hours per day suitable.
- Topics are very different.
- Well arranged.
- Some days are too heavy, some too light, some of the presentation is dreadful.
- Extend the duration to lighten the daily load. Load presently not heavy on every day.



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

- None (7); none, except for timetable; have, except for duration
- have fewer people (10-12) and run a longer course, emphasizing on aesthetic design
- specialize: e. g., in 1983 train designers; in 1984 train maintenance people; in 1985 train surface coating specialists (2)
- run the course in different institutions, not just one
- more audience participation during lectures (2)
- more exercises
- more discussions (on tool maintenance)
- more case studies
- more practical
- more design technology
- stock control should be covered
- management relations with workers should be covered
- in-plant training is important
- better command of English
- a possibility should be given to discuss our own technical problems with the staff
- arrange for the meetings of members of working groups at the Institute
- assignments call for availability of the required information
- factory visits are interesting, but could possibly be reduced in number
- too many factory visits (hence the repetition), their number could be reduced and more time allocated to Low cost Automation and Value Analysis.

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

|                        |    |
|------------------------|----|
| To a very large extent | 6  |
| To a large extent      | 11 |
| To a sufficient extent | 10 |

|                        |   |
|------------------------|---|
| To a small extent      | 2 |
| To a very small extent | 0 |

Please comment:

- Very good (2).
- I have benefitted to a large extent.
- Excellent.
- A broad knowledge was acquired (specially in marketing and exporting).
- It provides many ideas in technical aspects.
- All corresponds to our needs, but not to the required depth.
- Newer and more up-to-date methods are used by management in the developed countries.
- Low cost automation was basic pneumatics (comment made by an M.Sc. in Electronic Engineering).
- My professional interests are larger.

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

- None.
- Well organized; well arranged; helpful.
- The degree of automation leaves us envious.
- Factories well selected.
- Well organized, but too little time.
- Factory visits were marvellous, but we would need to see smaller factories.
- Rather good, but time not enough.
- Invaluable experience of a practical nature.
- The study visits we made were relevant to the subject, only the time was limited.
- Visits offered a good exposure.
- Showed the gap between developing and developed countries.
- More visits to joinery plants.
- Fewer visits of longer duration.
- Too many visits to similar factories; tired of seeing the 8th and 9th factory.

- Missed discussions at the end of visits.
- ISKU was very impressive.
- Too many visits.

Please suggest other study visits that might have been valuable:

- Spend a full day with the production manager of any factory we visited.
- A forestry operation
- A design studies
- Design rooms in factories (2)
- A furniture design centre
- A vocational school
- Manufacturers of woodworking machinery and tools (NB: a possibility was offered to visit a tool manufacturer)
- Glue and paint manufacturers
- The Standards Bureau
- A furniture Research Institute
- More "Visits according to individual wishes" (2)
- A factory producing metal furniture (NB: a possibility was offered for such a visit).
- Include visits to one or two neighbouring countries
- Factories with hand finishing and less automation
- Factories nearer to conditions in developing countries
- Small-scale woodworking carpenters who still use hand tools - if at all available.

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

|               |    |
|---------------|----|
| Much too high | 0  |
| Too high      | 3  |
| Adequate      | 26 |
| Too low       | 0  |
| Much too low  | 0  |

Comments:

- Adequate, if you have a basic knowledge of the subject.
- General level adequate, but too low for specialized personnel.
- About one-third of the topics should go deeper.
- Training good, but would have appreciated laboratory experiments.
- More problems and practical examples.
- Too wide.
- Generalities should be shortened.
- Too high because we do not have the raw materials (Tonga).

9. Which subjects of the programme did you find most valuable (please state reason; for example (A) new subject, (B) my speciality, (C) relevant to my work, (D) new information, (E) etc.)?

| <u>Subject</u>   | <u>Reason</u>   |
|--|---|
| -- All are valuable                                      |   |
| -- Jigs used in furniture (including demonstration) (15) | (C)(6); (A)(4); (E): speeds production (2), can be applied right away (2) |
| -- Glues (7)   | (D)(4); (C)(3)  |
| -- Quality Control (6)                                   | (C)(3); (B)(1); (D)(1); (E) major problems                                |
| -- Low Cost Automation (6)                               | (D)(3); (E): can be applied right away (2); we need it                    |
| -- Value Analysis (6)                                    | (A)(2); (C)(2); (E): a constructive approach to products                  |
| -- Kiln drying (5)                                       | (C)(4); (D)(1)  |
| -- Product development (5)                               | (C)(2); (D)(2); (E): good presentation                                    |
| -- Selection of wood-working machines (4)                | (D)(2); (C)(1); (E) well presented  |
| -- Furniture technology (4)                              | (C)(2); (D)   |
| -- Plant layout (3)                                      | (C)(2); (E) my problem  |

- Furniture design (2) (E): vital
- Upholstered furniture  
technology (2) (A); (C)
- Production management (2)(B); (C)
- Marketing (2) (E): vital; we are opening  
new markets
- Foams (2) (A); (E): good presentation
- Technical product  
design (2) (C); (D)
- Laminated solid  
wood (E): problems we encounter
- Production planning (B)
- Project planning (B)
- Tool maintenance (C)
- Export packaging (C)
- Dust extraction
- Surface finishing
- Discussion panels
- Design information (?) (B)
- All were interesting, but specially wood based panels,  
solid wood as a raw material, kiln drying, technical  
product design and project planning.

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

| <u>Subject</u>                         | <u>Reason</u>   |
|--|---|
| -- None (4)                            |   |
| -- Tool and machine<br>maintenance (2) | (B); (C)  |
| -- Value Analysis (3)                  | (B); (C)  |
| -- Glues (2)                           | (D): lacked practical use; out<br>of date information |
| -- Export marketing (3)                | (C)(3)  |

- Use of particle board  
in furniture (2) (C); (D): not available
- Product design (3) (A)(2) on our market
- Upholstered furniture  
technology (C)
- Surface finishing (A)
- Low cost automation (A)+(D): too long and too slow
- Kiln drying (D): unsystematic presentation
- Demonstration on jigs (A)
- Activities of UNIDO (D): information available  
at UNDP offices.

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

|     |    |
|-----|----|
| Yes | 16 |
| No  | 9  |

If yes, what did you miss?

- Possibility of experimenting in Low Cost Automation Laboratory (4)
- Practical examples and calculations of Low Cost Automation system
- Practice in developing and constructing a jig
- Surface coating (equipment and materials)
- Surface finishing of wood species with big open grain
- Actual drawing and designing by the participants
- Works organization and production planning
- Management methods
- Costing
- How to compare production alternatives cost-wise
- Repair and maintenance of alloy steel saw blades
- Demonstration in tool maintenance
- Examples of small projects in developing countries (1)
- Mechanical characteristics of wood

- Sawmilling
- Joinery
- Dust extraction.

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

|                   | <u>n o</u><br><u>changes</u> | <u>more</u> | <u>less</u> |
|-------------------|------------------------------|-------------|-------------|
| a) lectures       | 18                           | 2           | 5           |
| b) group work     | 8                            | 15          | 4           |
| c) demonstrations | 11                           | 12          | 2           |

Comments:

- group work should be more organized so that we can get more out of it
- conditions in our countries are different, hence the difficulty of carrying out the group work
- fixed groups existed only in principle
- group work based more on the personal relationship of the members (2)
- group discussions with lecturers, especially those associated with the assignment work
- possibility to do the group work during the day
- emphasis should be placed on practicing the methods and technology presented
- the demonstrations were very instructive
- lectures should not be interpreted
- Messrs. Taskinen and Laatikainen "filled time".
- better lecture texts to enable us to study them later on.

13. How did you find the general standard of the instructor with respect of

|             | <u>i) command of</u><br><u>English</u> | <u>ii) method of</u><br><u>instruction</u> |
|-------------|--|--|
| Very good   | 5                                      | 3  |
| Rather good | 13                                     | 17   |
| Fair        | 10                                     | 3  |

|           |   |   |
|-----------|---|---|
| Poor      | 1 | 0 |
| Very poor | 0 | 0 |

Please comment:

- audio visuals very useful
- instructors not fluent in English tend to talk less
- some had difficulty with their English (2)
- lecturers did their best
- I prefer Mr. Paavola's lectures (2)
- I liked Mr. Bassili's lectures
- in some cases definitions, etc. were lacking.

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

|     | <u>i) the programme<br/>staff</u> | <u>ii) fellow-<br/>participants</u> |
|-----|-----------------------------------|-------------------------------------|
| Yes | 22                                | 26                                  |
| No  | 7                                 | 3                                   |

Had plenty of opportunities, specially during meals.

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

|              | <u>i) the programme<br/>staff</u> | <u>ii) fellow-<br/>participants</u> |
|--------------|-----------------------------------|-------------------------------------|
| A great deal | 11                                | 7                                   |
| Much         | 9                                 | 6                                   |
| Somewhat     | 4                                 | 6                                   |
| Little       | 1                                 | 8                                   |
| Not at all   | 0                                 | 1                                   |

Please comment:

- my problems were solved
- not enough time to discuss with the lecturers
- I would have liked more chances to talk to the lecturers
- we got different opinions from Finnish businessmen



- participants coming from the technical side were younger and less experienced, those with management responsibilities were oriented towards Standards and quality control
- a meeting club every Saturday night to do activities (?) together.

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 | 4  |
| To a great extent      | 14 |
| To a sufficient extent | 9  |
| To a small extent      | 2  |

Please state why:

- I am better prepared now for my job.
- New ideas will be tried on returning.
- The UNIDO representative knows very well the conditions in each and every of the participants' countries.
- The programme helped us open our eyes.
- Quality control to ensure interchangeable parts and rationalization new to me.
- We must improve productivity and quality.
- Knock-down construction useful.
- Kiln drying, knock-down panel furniture and equipment was relevant to my work.
- Lecturers too general and conditions in Finland too different from ours.
- The factories are too automated.
- We do not have the large production lines and our methods are different.
- On occasion we saw a far higher level than is required in developing countries.
- Our furniture section is very small and not automated (India).

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

|                        |    |
|------------------------|----|
| To a very great extent | 10 |
| To a great extent      | 10 |
| To a sufficient extent | 9  |
| To a small extent      | 0  |
| To a very small extent | 0  |

Please state why:

- I saw benefits from automation.
- Covered all my problems (marketing, value analysis, selection of machinery).
- From what I learned I will become a more efficient and understanding manager.
- I gained new technical experience for my job.
- It confirmed that what we are trying to achieve is the correct method.
- I did not have much experience, I am still learning.
- Programme too heavy.

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 | 2  |
| To a great extent      | 13 |
| To a sufficient extent | 11 |
| To a small extent      | 3  |
| To a very small extent | 0  |

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

- None (2)
- Financial problems (4)
- Attitude of workers
- Training of workers on new machines

- We do not have enough machinery
- Lack of modern machinery
- Lack of external markets
- Relevence (to our conditions (?))
- Lack of materials to demonstrate
- We do not have the necessary upholstery materials
- Cultural differences and needs must be adjusted
- We can't apply the knowledge gained for serial production
- Convincing the Chamber of Industries to organize a week-end Seminar on Furniture production
- Perhaps our knowledge is not deep enough.

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

|                        |    |
|------------------------|----|
| To a very great extent | 7  |
| To a great extent      | 8  |
| To a sufficient extent | 12 |
| To a small extent      | 2  |
| To a very small extent | 0  |

20. How will this transfer be done?

|   |    |
|---|----|
| a) In day-to-day work to colleagues and subordinates          | 20 |
| b) In specific training activities inside present employment  | 15 |
| c) In specific training activities outside present employment | 9  |

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

- None (5)
- Changing attitudes (3)
- Communications (2)
- Lack of slides (audio visual aids)
- Lack of facilities

- Lack of money to buy equipment
- Financial constraints
- Obtaining material on new developments would be a problem
- Colleagues would find it too new.

IV. SOCIAL ASPECTS OF THE PROGRAMME:

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

- Very good (2)
- Good
- O. K.
- Very well organized
- A fantastic and wonderful experience
- Very interesting and beautiful
- Leisure time activities well organized and highly appreciated (2)
- Excellent (UNIDO and Institute personnel helpful in all ways to make the stay memorable)
- Saunas really wonderful
- Great, can't be better
- Good and pleasant, all staff very polite
- Professionally arranged
- Good enough
- Adequate (2)
- Sufficient for the time available
- Fair
- Reasonable
- More week-end activities desirable
- Week end programme was improvised (statement by a participant who arrived one week late and missed the organized programme)
- Lack of information on cultural activities
- More indoor games desirable
- Saunas and beer are good, but presentation of products prevents relaxing.

What additional activities would you have appreciated?

- None (4)
- Quite sufficient
- Nothing more
- Table tennis (NB: which exists in the basement), lawn tennis (NB: which exists at the near-by Mukkula Camping ground) and volleyball
- Organize games
- Cultural presentation by each participant
- More tours in the country
- More out-of-town activities with specialized lectures
- Time to socialize with Finnish people
- Tour of Helsinki or other city (NB: this was included in the programme of the last day, i. e., after the questionnaire was collected, duly compiled).
- Visit to museum(s), if any, in the area
- Getting to know Finnish people by talking to students at the University
- Discussions between participants after each visit
- More leisure time during the day. We could only see the night life of the city
- If there is any other type of social gatherings substitute two sauna evenings

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

- No comments (2)
- Training sessions should stop at 4:00 p. m.
- I learned more than I ever thought possible in such a short time
- I enjoyed it very much and thank UNIDO and the people of Finland
- UNIDO should organize similar Seminars in developing countries
- Members of the assignment groups should choose their leaders
- The methods of choosing group leaders should be changed

- Housing - though OK - is spartan when compared to dinners at the Seurahnone
- More Seminars please
- The lecture room is too hot
- More varied menu (at the Mukkula manor restaurant): we had fish or veal for 3 weeks!
- During the factory visits, tell the participants what to look out for
- Assignments too hard
- Participants should be warned that reports will be sent to their governments if they are not serious
- Concerning the discipline, participants who come late - after shopping - should be punished; more information in English on Lahti should be made available fore the sight-seeing; and, more clotheshangers and a partition between the two beds should be in the hotel room.

