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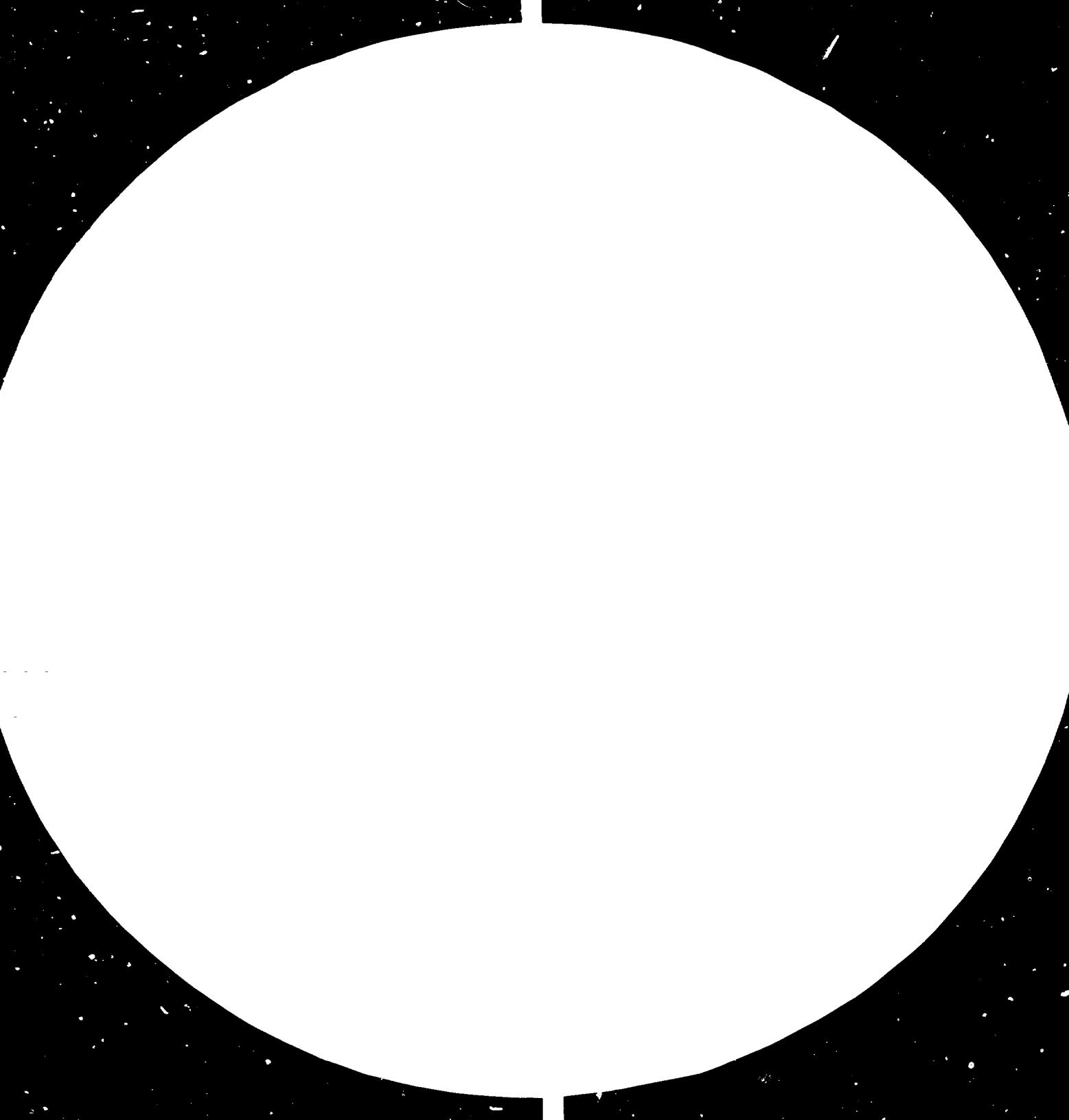
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Terminal Report: UNIDO/TIB Seminar on Furniture and Joinery
Industries, held in Singapore from 4 to 15 May 1981*

by

Desmond P. Cody,
Team Leader

Industrial Engineer and UNIDO Consultant

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V.81-28251

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1. Introduction

In 1980, Singapore exported a total of 1.8 million m³ of timber and timber products valued at S\$ 1,116 million. The value comprised 48 per cent sawn timber, 38 per cent plywood (plain and decorative) and veneer and 14 per cent mouldings, knock-down furniture and furniture components.

While total exports as compared with 1979 registered a decline of 14 per cent in volume and 3 per cent in value, the mouldings and knock-down furniture sector, in value terms showed an increase of 15 per cent.

As at 1 January 1981, there are more than 200 furniture manufacturers in Singapore of which 37 are export-oriented. Another 35 are mouldings, joinery and other timber product manufacturers. Most of the manufacturers are medium-sized and small-sized family establishments. They have the basic skills and techniques of furniture and joinery manufacturing. There is, however, an urgent need for them to modernize, merge and upgrade their production for export markets.

The reasons for this are many. With the launching of the Second Industrial Revolution and the increasing restriction and higher cost of raw materials, the timber industry is being encouraged to move into more secondary processing of timber. Furniture and joinery are some of these product items.

At the same time, in line with the economic policy towards higher wages, the industry will also have to modernize and mechanize in order to increase productivity and to cut down the reliance on manual skills.

A survey was conducted by Antoine V. Bassili, Senior Industrial Development Officer, Agro Industries Branch, Division of Industrial Operations, and Desmond P. Cody, Industrial Engineer and UNIDO Consultant, in 1980 to examine the problems facing the development of

the furniture and joinery industries towards higher productivity through automation and mechanization.

Following the survey, the Consultants designed the programmes for this seminar relating to the special needs of the furniture and joinery industries.

2. Objectives

The main objectives of the seminar were:

- A. To provide the participants with an insight into the latest design and manufacturing trends and the efficient and modern techniques of furniture and joinery production and marketing.
- B. To offer the participants an opportunity to exchange their experiences as well as ideas with the Consultants and among themselves on the furniture and joinery industries.
- C. To assist the participants individually, where necessary, with an ad hoc consultancy service on marketing, design and technical problems concerning their operations.

3. Programme

The programme of the seminar is given in Annex I. It consisted of 29 hours (60 per cent) of lectures, 5 hours (10 per cent) of demonstrations in Diethelm Scanstyle Furniture Factory, 3 hours (17 per cent) of plant visits, 2 hours (4 per cent) on background information opening ceremonies and administrative matters, 4 hours (9 per cent) of panel discussions and 90 min hours of consultancy which included discussions and visits by individual consultants to the factories of requesting participants.

The lectures, in the main, were relevant to the needs of the participants and up to the required standard. Each was fully documented and illustrated with appropriate charts, diagrams, sketches and drawings. Individual lecturers made liberal use of visual

aids to illustrate their topics and these included an overhead projector, epidiastope and film projector.

During the course of the seminar three films were shown, entitled:

- Wood Study - An Introduction
- Method Study - Basic Principles
- Industrial Training Procedures

4. Participants

The seminar was intended for sole proprietors, partners, production managers, foreman and supervisors of furniture and joinery factories and for all those who wishes to acquire up-to-date knowledge of modern furniture and joinery production and its marketing techniques with particular reference to exports.

There were forty-five participants, some of whom were of a high technical and managerial level. Most, however, were not and should have benefitted considerably from the proceedings. They were, at any rate, keen to get as much information as possible out of the lectures, discussions, factory visits and consultancy service. They had no difficulty in understanding the lecturers nor in expressing themselves. Average attendance was 85 per cent. The list of participants is given in Annex II.

5. Skills Development Fund

The Skills Development Fund Council approved a grant up to a maximum of 70 per cent of the costs to the participants on the following basis:

- The grant is computed on a per trainee basis to cover the training of 40 participants who are Singapore citizens or permanent residents.
- Only trainees with more than 75 per cent attendance at the seminar were eligible for grants.

- To apply for the grants, all the participants were required to submit one set of application forms to the Administrator, Skills Development Fund, through the Timber Industry Board. These forms were made available by the Board.

6. Documentation

In addition to the documentation prepared by the lecturers in respect to particular aspects of each topic, the following UNIDO publications were supplied:

Title

- Wood Processing for Developing Countries
- Low-Cost Automation for the Furniture and Joinery Industries
- Wood as a Packaging Material for Developing Countries
- Information Sources on the Paint and Varnish Industry
- Information Sources on the Furniture and Joinery Industry

7. Seminar Library

Relevant books, catalogues, detailed drawings and sketches were brought mainly by the consultants and made available to the participants.

Photocopies of articles of special interest were also made available on request.

8. Consultancy and Seminar Assignments

The non-residential nature of the seminar and the limited time at the disposal of the participants outside that for lectures and demonstrations made the carrying-out of group assignments impractical. Instead, each participant was invited to assess his own factory's current level of management and manufacturing performance in the light of the seminar topics and to prepare in consultation with the relevant consultant proposals for its improvement. In each instance, it was to be specific and relate to a particular aspect of marketing, design, production technology and management. Particular emphasis was laid on factory organization, an area in which in the opinion of the consultants there appeared to be much need for improvement.

The aspects dealt with included the following:

- (1) The layout of mainly medium-sized factories producing solid wood furniture, panel furniture, upholstery and rattan;
- (2) Design and work planning of individual work stations for such activities as carcass drawer and frame assembly, fitting up, machine shaping of contoured components;
- (3) Jig design for a wide variety of machining and assembly operations;
- (4) Internal transport and storage systems appropriate to various types of components and materials (solid wood, panel, rattan, upholstery);
- (5) Selection of materials and processing equipment for specific design and production requirements;
- (6) Adaptation of woodworking machines for particular purposes;
- (7) Product design in respect to dining room chairs, tables, a variety of storage units and rattan seating. In most instances, the problems related to dimensional, ergonomic and functional consideration. Two chairs were re-designed to conform with marketing and production requirements;
- (8) Product development and preparation for series and batch production;
- (9) Production technology related to structural requirements (knocked-down and fixed assembly), use of specific materials, i.e. particle board, solid wood and combinations, fittings and accessories, surface coating systems and finishing techniques, layout of finishing departments, finishing equipment, layout of upholstery departments, upholstery techniques and equipment;
- (10) Marketing of furniture with particular reference to channels of distribution, nature of collaboration with importers, market requirements and national standard specification, pricing and promotional literature.

Details of factory consultancy visits are given in Annex III.

Matters dealt with during the panel discussions included industrial training, standards specifications for the Singapore Institute for Standards and Industrial Research (SISIR), the statutory body responsible for such matters; co-operative design, production and marketing for small-scale manufacturers, joint ventures and licensing agreements. One day of this week was devoted to a special showing of the very comprehensive collection of slides illustrating jig and fixture designs. This was held at the TIB offices by popular request from participants and in consultation with the Timber Industry Board.

9. Administrative Matters

The Singapore Timber Industry Board, who were the local sponsors and organizers of the seminar carried out their duties efficiently. All lecture notes and other seminar materials were available on time and a full time secretary was provided to type any additional material required.

10. Press Coverage

The Singapore press gave ample coverage to the seminar. Copies of press clippings are included in Annex IV.

11. Evaluation

UNIDO's forms for the evaluation of the seminar (entitled "Evaluation of In-Plant Group Training Programmes") were completed by the participants before the end of the seminar. The replies were collated and details of this are given in Annex V. It is evident that the seminar content responded substantially to the needs of the participants and should be instrumental in the future organization and development of their businesses.

The plant visits were particularly appreciated, the more so because of the willingness of the management of each to discuss in considerable detail every aspect of their marketing and production activities and to answer fully any questions put to them.

The practical demonstrations concerned with surface finishing also proved to be very popular and the collaboration and assistance of the factory staff in preparing materials and equipment for the demonstrations contributed in no small measure to their effectiveness.

12. Assessment of the Programme

All lectures were of the expected standard and depth. However, the presentations of Mr. P. Paavola deserve special mention as they clearly reflected his considerable experience as a lecturer as well as his in-depth knowledge of his subjects.

The remaining lecturers' real worth was apparent from their evident day-to-day involvement with the industry at factory level and this enabled them to illustrate various aspects of their lectures with case studies taken directly from their experience.

All administrative arrangements were excellent.

13. Future International Assistance

Should future international assistance be contemplated for the Singapore Furniture and Wood Industries, the Consultant recommends that the following areas should receive serious consideration:

- (i) Establishment of a pilot scheme for about six selected enterprises to engage in a short-term development programme concerned specifically with exports and concentrating on co-operative design, production and marketing.
- (ii) Investigation of affiliation by the industry to the Furniture Industry Research Association (F.I.R.A.) of Great Britain in order to expedite the provision of much needed technical information and other services.
- (iii) Development of technician training by VITB for the industry and if necessary, examination of how it is currently, carried out abroad especially in the U.K., Ireland and Denmark.
- (iv) Development of Standard Specification for Singapore in line with international standards for furniture and joinery.

PROGRAMME OF THE SEMINAR

Monday, 4th May 1981

- | | |
|---------------------|--|
| 11.00 am - 11.30 am | Registration of Participants |
| 11.30 am - 11.40 am | Welcoming Address by Mr. D P Cody,
Seminar Coordinator, UNIDO |
| 11.40 am - 11.50 am | Opening Address by Mr. Kourus Satrap,
Regional Representative of the UNDP
for Malaysia, Brunei and Singapore |
| 1.00 pm - 1.30 pm | Scope of Seminar and Programme
Details by Mr. D P Cody |
| 1.30 pm - 3.00 pm | Management in Small and Medium-Sized
Wood Processing Plants by Mr. D P Cody |
| 3.15 pm - 5.15 pm | Management Controls and Management
Control Documentation by Mr. D P Cody |
| 5.15 pm - 7.15 pm | Management Systems and Procedures by
Mr. D P Cody |

Tuesday, 5th May 1981

- | | |
|-------------------|---|
| 1.00 pm - 4.30 pm | Factory Visit to Diethelm Scanstyle
Pte Ltd |
| 5.00 pm - 7.00 pm | Training for Production and Supervisory
Management Staff by Mr. Danny Lam,
Senior Consultant, NPB |

Wednesday, 5th May 1981

- | | |
|-------------------|---|
| 1.00 pm - 3.00 pm | Marketing of Furniture and Other
Manufactured Woodnn Products by
Mr. J L Albaladejo |
| 3.15 pm - 5.15 pm | Home and Export Marketing Techniques
by Mr. J L Albaladejo |
| 5.15 pm - 7.15 pm | What is Design by Mr. A Edwards |

Thursday, 7th May 1981

1.00 pm - 3.00 pm

The Role of the Furniture Designer
by Mr. A Edwards

3.15 pm - 5.15 pm

Furniture Design for Production by
Mr. A Edwards

5.15 pm - 7.15 pm

Furniture Design for the 80's
by Mr. A Edwards

Friday, 8th May 1981

1.00 pm - 2.00 pm

Factory Planning and the Organisation
of Production by Mr. D P Cody

2.00 pm - 3.00 pm

Introduction to Case Studies by
Mr. D P Cody

3.15 pm - 5.15 pm

Standard Specifications for the
Singapore Furniture and Joinery
Industries by Mr. Foo Chek Jwee
Senior Officer, SISIA

5.15 pm - 7.15 pm

Panel Discussion on Design, Marketing
and Management

Saturday, 9th May 1981

1.00 pm - 5.30 pm

Demonstration of Modern Techniques
in Sanding and Wood Finishing by
Mr. W Vernon at Diethelm Scanstyle
Pte Ltd

Monday, 11th May 1981

3.00 pm - 4.30 pm

Factory Visit to Hongkong Teakwood
Works Pte Ltd

5.00 pm - 7.00 pm

Design and Use of Jigs

Tuesday, 12th May 1981

1.00 pm - 3.00 pm

The Layout of Furniture and Other
Woodworking Factories by Mr. D P Cody

3.15 pm - 5.15 pm

Contd: The Layout of Furniture and Other
Woodworking Factories, and Production
Planning and Control by Mr. D P Cody

5.15 pm - 7.15 pm

Production Technology, including Jig Design

Wednesday, 13th May 1981

- | | |
|-------------------|---|
| 1.00 pm - 3.00 pm | Technical Product Design by Mr. Pekka J Paavola |
| 3.15 pm - 5.15 pm | Non-wood Based Materials and Accessories by Mr. Pekka J Paavola |
| 5.15 pm - 7.15 pm | Sanding and Lacquering Techniques by Mr. W Vernon |

Thursday, 14th May 1981

- | | |
|-------------------|---|
| 1.00 pm - 3.00 pm | Material Handling, Internal Transport, Waste and Dust Removal and Compressed Air Systems by Mr. Pekka J Paavola |
| 3.15 pm - 5.15 pm | Industrial Engineering & Works Study by Mr. D P Cody |
| 5.15 pm - 7.15 pm | Quality Control, Waste Reduction, Machine Pre-setting and Preventive Maintenance by Mr. Pekka J Paavola |

Friday, 15th May 1981

- | | |
|---------------------|---|
| 10.00 am - 11.30 am | Modern Upholstery Production & Introduction of Furniture Standards in Singapore by Mr. D P Cody |
| 11.30 am - 1.30 pm | Panel Discussion on Technical Aspects |
| 1.50 pm - 2.00 pm | Closing Address by Mr. Robert K P Tan, Executive Secretary of the Board |
| 2.00 pm - 2.10 pm | Presentation of Certificates of Attendance by Executive Secretary of the Board |

AD HOC CONSULTANCY

In addition to the above, individual consultants were available on the morning of each day of the Seminar and during the week immediately following it to provide advice and assistance to participants in respect of any topic dealt with in the course and if necessary to visit their respective plants by mutual arrangement.

LIST OF PARTICIPANTS

<u>NAME</u>	<u>FUNCTION</u>	<u>ADDRESS</u>
1. Mr. Abdul Mutalib bin Mohd Ibr.	Assistant Foreman KOYA WOOD INDUSTRIES CO. PTE. LTD.	2, Lorong Tukang Lima Singapore 2261 Tel: 2650042
2. Mr. Chen I-Pai	Director STARLIGHT TIMBER PRODUCTS CO.	4, Jalan Papan, Jurong Singapore 2261 Tel: 2650555
3. Mr. Cheng Siew Cheng	Assistant Production Manager STARLIGHT TIMBER PRODUCTS CO.	4, Jalan Papan, Jurong Singapore 2261 Tel: 2650555
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5. Mr. John Ching	Manager SHANGHAI LIAN SHOOH FATT FURNITURE CO.	448-450, Geylang Road Singapore 1438 Tel: 3440473
6. Mr. Choo Yong Fee	Production Manager CHENG MENG FURNITURE CO. PTE. LTD.	327-329, Clemenceau Ave. Singapore 0922 Tel: 7377477
7. Mr. Goh Meng Khiang	Assistant Production Manager KODA WOODCRAFT PTE.LTD.	710-K, Ponggol Road 16½ Km Singapore 1954 Tel: 2829982
8. Mr. Steven Heng	Works Officer TANGLIN CORPORATION	39, Sungei Kadut Street 1 Singapore 2572 Tel: 2590382
9. Mr. Ken Cheong	Technical/Marketing Consultant PAN-STAR WOOD INDUSTRIES PTE. LTD.	Plot A6807, Sungei Kadut Street 5 Sungei Kadut Industrial Estate, Singapore 2572 Tel: 4467896/4460190

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10. Mr. Paul Keng	General Manager/ Director SINGAPORE HANDICRAFTS PTE. LTD.	4, Oxley Road Singapore 0923 Tel: 7376922
11. Mr. Koh Ding Hai	Personnel Officer KOYA WOOD INDUSTRIES CO. PTE.LTD.	2, Lorong Tukang Lima Singapore 2261 Tel: 2650042
12. Mr. Koh Jyh Gang	Manager KODA WOODCRAFT PTE. LTD.	710-K Ponggol Road 16 $\frac{1}{2}$ Km Singapore 1954 Tel: 2829882
13. Mr. Koh Tee Ooi	Managing Director SPLENDID WOODWORK INDUSTRIES CO. PTE.LTD.	10-C, Lorong Selderi Singapore 1648 Tel: 5456983/4
14. Mr. Koh Wee Boh	Assistant Production Manager STARLIGHT TIMBER PRODUCTS CO.	4, Jalan Papan, Jurong Singapore 2261 Tel: 2650555
15. Mr. Kum Kam Chuen	Supervisor KOYA WOOD INDUSTRIES CO. PTE. LTD.	2, Lorong Tukang Lima Singapore 2261 Tel: 2650042
16. Mr. Freddie Lai Sze Fei	Sales Supervisor BEETAXCO FURNISHING SUPERMARKET PTE. LTD.	325-35, Golden Mile Tower Beach Road. Singapore 0719 Tel: 2925961-3
17. Ms Florence Lee Lin Mei	Exports Officer ROXY ELECTRIC INDUSTRIES (S) PTE.LTD.	4, Jalan Besut Singapore 2261 Tel: 2652888
18. Mr. Lee Hoong Siong	Supervisor KOYA WOOD INDUSTRIES CO. PTE. LTD.	2, Lorong Tukang Lima Singapore 2261 Tel: 2650042
19. Mr. Low Tin Choy	Foreman KOYA WOOD INDUSTRIES CO. PTE. LTD.	2, Lorong Tukang Lima Singapore 2261 Tel: 2650042
20. Mr. Steven Loy Sai Pin	Designer MERLIN FURNISHING CENTRE	G-320, Merlin Plaza Beach Road Singapore 0719 Tel: 2930909

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23. Mr. Anthony Phong	Director EDEN PRIVATE LIMITED	64, Sungei Kadut, Street 1 Singapore 2572 Tel: 2692000
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26. Mr. Jerry Tan	Managing Director JACO SINGAPORE PTE. LTD.	228, Stamford House 39, Stamford Road Singapore 0617 Tel: 3373932/3376266
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30. Mr. Yang Cheng Tee	Foreman DIETHELM SCANSTYLE PTE. LTD.	19, Jurong Port Road Singapore 2261 Tel: 2656222
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37. Ms Edelene Lee	Manager LEE'S CANE FURNITURE	409, River Valley Road Singapore 1024 Tel: 7377354
38. Mr. Chang Fock Keow	Curriculum Development Officer VOCATIONAL & INDUSTRIAL TRAINING BOARD	Ayer Rajah Road Singapore 1511 Tel: 7757800
39. Mr. Sunny Ng	Head/Woodworking Dept/ BVI VOCATIONAL & INDUSTRIAL TRAINING BOARD	Ayer Rajah Road Singapore 1511 Tel: 7757800
40. Mrs. Dora Thangavelu	Managing Director ADRIAN'S CANE FURNITURE CO. PTE. LTD.	40, Goldbell Towers 47, Scotts Road Singapore 0922 Tel: 2355378/7344766
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44. Mr. Tang Kum Tong	Supervisor JATA FURNITURE IND. PTE. LTD.	130-8, Jalan Chekor Singapore 1446 Tel: 4408581
45. Mr. Sandy Yap	Factory Manager LEE WAH CANE FURNITURE	246, Balestier Road Singapore 1232 Tel: 2562501

DETAILS OF FACTORY CONSULTANCY VISITS

	<u>FIRMS</u>	<u>PRODUCTS</u>	<u>NATURE</u>
1.	Eden Private Ltd	Rattan	Product Design Equipment Selection Factory Layout Industrial Training
2.	Sam Yang Wood Industries	Louvre Doors	Marketing Product Diversification
3.	Metrawood Pte Ltd	Dining Room & Living Room	Product Design Factory Layout Factory Organisation
4.	Koda Woodcraft Pte Ltd	Solid Wood Furniture	Layout of new factory
5.	V.I.T.B.	Industrial Training	Training Requirements for Wood Processing Industries.
6.	Timber Industry Board		Evaluation of proposal for establishment of Timber Terminal and Furniture Centre
7.	Heap Lee Heng Pte Ltd	Solid Wood and Panel Furniture	Product Design Factory Layout
8.	Roxy Electric Industries Ltd	Solid Wood Furniture	Marketing
9.	Rattan Industries Pte Ltd	Rattan	Wood Finishing System and Equipment Layout of Finishing Dept.
10.	Cheng Meng Furniture Co Ltd	Contract Furniture	Wood Finishing System Layout of Finishing Dept. Supervisory Training
11.	Koya Wood Ind Pte Ltd	Solid Wood Furniture	Layout and Supervision of Wood Finishing Dept. Higher Productivity Finishing Materials
12.	Hup Cheong Pte Ltd	Solid Wood Panel, Bidding	Factory organisation, Finishing Systems
13.	Danish Furniture	Solid Wood Furniture	Production Technology
14.	Cane House Pte Ltd	Rattan	Production and Marketing
15.	Bombay Trading Co Pte Ltd	Rattan	Factory Organisation Selection of Production Equipment Product Design Marketing
16.	Adrians	Cane Furniture/ Rattan	Design, Marketing, Production Technology

UNIDO CONSULTANT'S VIEWS

- 5 DEC 1980

Tips for furniture makers

By RICHARD SEAH

FURNITURE manufacturers in Singapore are generally skilful, well equipped and technically well developed. But their designs fall way below international standards.

They also need to improve in management and marketing if they wish to increase productivity and capture a greater share of the lucrative export market.

These are some of the views of Mr Desmond Cody, a freelance woodworking industry consultant from Ireland. Mr Cody has just spent three weeks assessing the furniture and joinery (doors, windows and other house fittings) industry here.

His work in Singapore

was commissioned by the United Nations Industrial Development Organisation (Unido) which will be organising a furniture and joinery seminar in Singapore next May. The seminar is initiated by the Singapore Timber Industry Board and will be jointly organised by the board and Unido.

Mr Cody said furniture manufacturers in Singapore have certain advantages over their European counterparts. The labour cost here varies between one quarter and one third of that in Europe.

Singapore is also close to sources of raw materials and there is a high demand for tropical wood furniture in Europe, Mr Cody said.

Other materials required for furniture making can be freely imported here, and this gives Singapore an advantage over the neighbouring countries.

Mr Cody visited 16 furniture and joinery manufacturers here — "only a small number, but I was assured they are representatives of the industry" — and found the quality of finished products very high.

"They know how to make furniture, but they do not know what kind to make," he said. "There is a lot of copying. Not a single manufacturer employs a designer."

Ideally, there should be a school to train furniture designers, he said. But he

recognises the high cost involved and the size of the industry here may not justify such a school.

He feels that local architects and interior designers are sufficiently talented and furniture makers should employ their services.

"A group of manufacturers can also import a designer and share the cost. He would then design a set of non-competing designs for each of them," Mr Cody suggested.

He thinks there is too much competition among the small furniture manufacturers. There should be more collaboration so that they can take advantage of the economies of scale. It would be a good idea if some of the manufacturers get together to form a larger company, he said. But he observed that the Chinese, who dominate the industry, like to be independent.

"They could compete locally but get together in their export drive. Then there is nothing to lose," Mr Cody said. Such collaboration will enable them to obtain discounts on bulk purchases and be more forceful in marketing. They can also buy certain sophisticated woodworking machines which individual companies cannot normally afford.

The level of investment

here is not high enough although it is reasonable, given the present state of the industry. With the high level of competition, each of the many small firms are making a wide range of furniture and this makes it difficult for manufacturers to mechanise.

An added problem is that of limited space because certain woodworking machines need to be housed in special buildings. Mr Cody believes that furniture makers here can save a lot of space through better organisation and management.

"It is heartening to note that six of the factories I visited are well advanced in their plans to expand or move out of their present site. But they must ensure it will not be a repetition of their present sites."

He explained that intelligent utilisation of space can be quite accurately calculated, taking into consideration the products required, the equipment to be used and other factors. Factory layout and the programme of work can all help increase the productivity of the industry.

"Few manufacturers practise work study. With better management, the productivity of the furniture industry can be significantly increased," Mr Cody said.

Timber board gets Unido help

THE Timber Industry Board has enlisted the help of the United Nations Industrial Development Organisation (Unido) to upgrade the furniture and joinery industries in Singapore.

A spokesman for the board said the two sectors of the industry are the fastest growing and thus the most "apt" for upgrading in line with the Government's policy of increasing productivity.

The board, in conjunction with Unido, will organise a technical seminar for owners, managers, supervisors and others related to the furniture and joinery industries. The seminar is most likely to be held next May.

The spokesman said some members of the board had attended an annual timber industry seminar at Lathi, Finland

and they felt it was a good idea that a similar one be held in Singapore.

The Timber Board then approached Unido through the Government, and Unido has agreed to sponsor the seminar. It will bear the cost of engaging experts to speak at the coming seminar and to work with local industries.

For a start, Unido has sent a furniture and woodworking consultant, Mr Desmond Cody, and a senior industrial development officer, Mr Antoine Bassili, to assess the furniture and joinery industries here.

Mr Cody, a free lance consultant from Ireland, has worked with Unido since 1972. He has some 30 years' experience in the furniture and wood working industry.

The furniture industry in Singapore has been growing at 50 per cent annually.

How to raise furniture exports

A UNITED NATIONS consultant, Mr Desmond Cody, has suggested an international system of quality control for Singapore-made furniture to improve its export performance.

Under this system, furniture standards in Singapore could be based on those of the Furniture Industry Research Association (Fira) of Britain.

Furniture standards agencies of Australia, New Zealand and many other Commonwealth nations are affiliated to Fira.

Mr Cody, a wood and furniture specialist from the United Nations Industrial Development Organisation (Unido), said:

"The main benefit of this system is that it will give assurance to foreign buyers that manufacturers of Singapore furniture conform to international standards."

The Timber Industry Board (TIB) could spearhead the drive towards international recognition with the co-operation of the private furniture industry and the Singapore Institute of Standards and Industrial Research (Sistr).

Sistr, he suggested, could set up a specialised department on furniture and wood products affiliated to Fira.

Guarantee

TIB could control this department "in collaboration" with Sistr.

Mr Cody explained: "Under the arrangement with Fira, Singapore-made furniture will still bear the Sistr stamp.

"But publicity brochures can contain information that furniture standards in Singapore are guaranteed by both Sistr and Fira."

Affiliation with Fira would encourage Singapore furniture makers to manufacture products of good design and quality.

TIB officials could not be contacted for comment on this matter.

Mr Cody is here to conduct a 12-day seminar on furniture and joinery industries at Merlin Hotel. The seminar is jointly organised by Unido and TIB.

Common ground for furniture makers

A UNITED Nations consultant has suggested areas where small companies in the furniture industry can cooperate to overcome common problems.

Small family enterprises, which form the bulk of enterprises in the industry, could employ a team of designers to help in the design of furniture.

They can also set up a central unit to take charge of the buying of raw materials and the marketing of products.

Such cooperation is important in view of keener foreign competition following the lowering of import duties on furniture, said Mr D P Cody, a consultant with the United Nations Industrial Development Organisation. Mr Cody is one of two Unido consultants who undertook a survey of 20 companies in the industry last November.

The survey was commissioned by the Timber Industry Board to assess obstacles facing the industry.

Echoing Mr Cody's views is an official of the Timber Board. The official added that in response to the lower import duties, small companies may have to revise their production plans.

Some can undertake subcontracting work from bigger companies, and others can merge to exploit economies of scale.

These suggestions will be proposed to the 40 participants of the two-week Unido-TIB Furniture and Joinery Industries Seminar which began yesterday.

ANNEX V

UNIDO/TIB Furniture and Joinery Industries Seminar Evaluation Report -
Group Training Programme

Introduction

The UNIDO/TIB Furniture and Joinery Industries Seminar jointly organized by the United Nations Industrial Development Organization and the Timber Industry Board was held in Singapore from 4 to 21 May 1981. The Seminar was attended by 45 participants from the furniture and joinery industries in Singapore.

During the second week of the Seminar, the participants were each given an Evaluation Form for completion at the end of the seminar. When the seminar ended, the Secretariat received 22 completed forms or 49 per cent from the participants. The forms were completed and returned by Managing Directors, Managers, Works Officer, Foremen and in one case, an Assistant Foreman.

It may be surmised that those who have not handed in their forms were generally satisfied with the contents and conduct of the seminar and that they have no strong observations to be made concerning the seminar.

Pre-Course Information

With the exception of 3 participants, all the other 19 participants considered that the pre-course information relating to the aim of the training, content of the programme and level of the programme received by them were sufficient.

Some 17 UNIDO publications and papers covering previous seminars conducted by UNIDO were given to the participants on the commencement of the seminar and one participant was of the view that these documents should, perhaps, be given to the participants well in advance before the seminar began so that they could study the publications and prepare for the seminar.

Receipt of Information

Receipt of the information concerning the seminar programme was indicated by the participants as follows:

1 week	6
2 weeks	3
3 weeks	5
4 weeks	3
5 weeks	3
6 weeks	1
12 weeks	1
Total	<u>22 participants</u>

The period of notice they were accepted to the seminar was stated by them as follows:

1 week	14
1 1/2 weeks	5
2 weeks	1
3 weeks	1
4 weeks	<u>1</u>
Total	22 participants

Programme Content and Organization

The opinions of the participants with regard to the total duration of the seminar were shown as follows:

Too long	3
Just right	12
Too short	<u>7</u>
Total	22 participants

Those who thought the seminar was too long suggested a 10-day seminar so that they would not be away from their work for so long a period.

For those who considered the seminar to be too short, they proposed a 4-week period as being just right - for two reasons. Firstly, the daily lectures could then be reduced to 4 hours and secondly, some of the lectures could be dealt with in greater detail. The longer duration would also give the participants more time to think and reflect on the various subjects presented during the seminar.

Daily Schedule

The participants indicated their opinions on the daily schedule as follows:

Too heavy	13
Just right	<u>12</u>
Total	22 participants

Some of them thought that by attending the seminar over 6 hours daily, they might not be able to concentrate fully after the first 4 hours of instruction and coupled with their work, there was not enough time to go through their notes.

Changes in Programme

Suggestions to changes in the programme were proposed as follows:

- All the papers should be given to the participants on the first day of the Seminar to enable them to ready themselves better with questions, etc.
- The seminar should be held in the evenings only and more visits should be organized to see the factories.
- For better concentration and attendance, a live-in seminar was proposed.
- The lectures should place emphasis on applications and practical examples and there should also be more lectures on joinery and other than on furniture.
- Group discussions and group work on case studies on how other companies solve their problems in production, design and marketing.

Training Corresponding to Needs

With regard to whether the training corresponded to their professional needs, the participants stated as follows:

To a very large extent	3
To a large extent	10
To a sufficient extent	5
To a small extent	<u>4</u>
Total	22 participants

Additional topics required were proposed as follows:

- Financial Management and Planning
- Plastics for modern furniture construction, pneumatic tools and modern adhesives
- Joinery works

From the Seminar, all the participants gathered important information and knowledge on furniture production for the export markets. They were made aware that there were many other factors relating to furniture production of which manufacturing alone could be of secondary importance.

Factory Visits

The participants considered the two factory visits (excluding the one for practical finishing demonstration) organized for them during the course of the seminar to be very informative and they learned a great deal on an effective factory lay-out and production through observation and the questions that they asked during the visits.

However, most of them were of the view that the visits were too short - particularly the visit to Hongkong Teakwood Works Pte. Ltd. and that not enough time was spent in explaining the processes in detail during these visits.

Part of the reason for this, they understood, could be due to the large group and it was proposed that during the visit, one representative from the company be assigned to take charge of a small group each to lead them and to explain the various stages of production:

Also, it was suggested, that the consultants could explain to the participants either during or after the factory visits on the salient features pertaining to an ideal factory layout, flow of the assembly line and leading to optimum production of furniture.

In general, all the participants were appreciative of the opportunities afforded them to visit the two factories and these visits provided them with a visual impression of a modern factory layout mass producing furniture for the export markets. They felt that more of such visits should have been organized for them.

General Level of Training

On the general level of training, the participants stated the following:

Adequate	21
Too high	<u>1</u>
Total	22 participants

The participants agreed that all the consultants were specialists in their particular fields but one or two participants expressed the opinion that in the programme some emphasis should also be placed on case studies, practical applications and not just general concepts and theories.

Subjects Most Valuable

All the participants found the subjects, in varying degree, to be relevant to their work and, in some cases, provided them with new information and, therefore, training for them.

Subjects Least Valuable

The subjects of least value were stated by some of the participants as follows:

- Standard specifications for the Singapore furniture and joinery industry.
- What is design and furniture design for the 1980's.

On specifications and standards, it was stated by one participant that furniture manufacturers should institute their own quality control within the plant to meet the requirements of their buyers and in accordance with the standards set out by the importing countries concerned.

On furniture design, one or two participants requested for more detailed coverage of the topic.

Subjects Not Adequately Covered

On the question whether the subjects were adequately covered, the participants states as follows:

Yes	15
No	7
Total	<hr/> 22 participants

The topics mentioned and additional subjects needed were as follows:

- Factory Administration
- Costing of Products Manufactured
- Kiln Drying
- Training for Production and Management Staff
- Financial Management and Control

Changes on Methods of Instruction

On changes in the methods of instruction, 6 participants requested for no changes in the lectures, group work and demonstration and while the remaining 16 proposed no changes in the lectures, 15 of them asked for more group work and/or demonstrations and panel discussions

especially after each factory visit.

Standards of Lectures

Nine of the participants thought the command of English of the lecturers was very good and 13 were rather good. On the method of instruction, they commented as follows:

Very good	7
Rather good	11
Fair	<u>4</u>
Total	22 participants

In most cases, it was considered that audio visual aids had been effectively used and that the lecturers spoke very simple English so that it was easily understood.

Exchange of Views

With regard to whether they had sufficient time for professional exchange of views with the programme staff, the participants stated as follows:

Yes	14
No	<u>8</u>
Total	22 participants

The participants indicated the benefits of these changes as follows:

Not a great deal	4
Much	9
Somewhat	7
Little	<u>2</u>
Total	22 participants

During these exchanges of views with the programme staff, two of the participants were grateful of the generosity of the consultants in explaining specific problems to them and even in lending their textbooks to the participants for training purposes.

For the exchange of views with fellow participants, they indicated their opinions as follows:

Yes	17
No	<u>5</u>
Total	22 participants

The benefits they obtained from these exchanges were stated as follows:

Not a great deal	1
Much	1
Somewhat	11
Little	<u>9</u>
Total	22 participants

The lack of opportunity for discussions and, consequently, benefits were attributed, in the main, to the very short teabreak of 15 minutes each day for which longer exchange of views was not possible.

Benefitting Professionally

For benefitting professionally, the participants states as follows:

To a very great extent	4
To a great extent	5
To a sufficient extent	11
To a small extent	<u>2</u>
Total	22 participants

All the participants considered that the seminar had widened their knowledge on furniture production and its related aspects of design, finishing and marketing and provided them with a better and overall outlook of the furniture industry in manufacturing.

Application of Knowledge

The participants were asked whether they would have an opportunity to apply their newly acquired knowledge and experience in their

present job and they answered as follows:

To a very great extent	2
To a great extent	6
To a sufficient extent	9
To a small extent	4
To a very small extent	1

Total 22 participants

The difficulties that the participants envisaged they would encounter ranged from the marketing of the products to finance, resistance from management and old-timer foremen as well as a general lack of confidence of new things being introduced and implemented.

Transfer of Acquired Knowledge

For the transfer of the acquired knowledge to others in their factory, the participants stated their position as follows:

To a very great extent	2
To a great extent	5
To a sufficient extent	9
To a small extent	5
To a very small extent	1

Total 22 participants

On implementing the transfer, the participants said that this could be done by group discussion from the supervisors down to the charge hand level. A committee could also be set up to implement certain improvements.

The problems they would face in suggesting the changes would be as follows:

- The foremen do not speak English
- Lack of finance and factory space
- Because of work-in-progress, the shifting of the machinery would take some time
- Resistance by management to change and to new things generally



