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ASIA AND PACIFIC FOREST INDUSTRIES DEVELOPMENT GROUP

DU/RAS/86/048

Technical report on the workshop on downstream timber processing,  
Petaling Jaya, Malaysia, 3-18 December 1990\*

Prepared for the participating Governments in the Asia/Pacific Region  
by the United Nations Industrial Development Organization,  
associated agency of the Food and Agriculture Organization of the  
United Nations, which acted as executing agency for the  
United Nations Development Programme

Based on the work of H. P. Brion  
Consultant in downstream processing of timber (team leader)

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\* This document has not been edited.

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## PREFACE

This report, composed of two volumes, covers the preparatory and implementation aspects of the Workshop on Downstream Timber Processing (DTP). It was conducted by the United Nations Industrial Development Organization (UNIDO), as part of an inter-agency letter of agreement with FAO concerning the implementation of the project "Asia-Pacific Forest Industries Development Group (APFIDG)" (project RAS/86/048). The Workshop was conducted during the period 3-15 December 1990, in Petaling Jaya, Selangor Darul Ehsan, Malaysia. This volume presents the administrative aspects. The texts of the lectures given at the Workshop have been published separately.

The Workshop was regional in coverage, involving countries participating in the APFIDG project. Its immediate objective was to provide existing sawmillers and economic planners of governments of developing countries with adequate and reliable information and develop guidelines on the procedures to follow in their efforts to engage in, or develop further their timber processing activities. The Workshop was also designed to encourage participants and resource persons to share their experiences with their respective sectors of the timber processing industry.

Furthermore, S.M. Wint, APFIDG's Chief Technical Advisor, in his welcome address during the opening ceremonies of the Workshop, reiterated that the main objective of the Workshop was:

"... to improve the qualitative and quantitative output of the local secondary manufacturing industries through training in the identification of the types of downstream processing best suited for integration into the existing primary forest industries...";

and that developing human resource is one of the keys to success in any effort to develop the timber processing industry in developing countries.

To this end, H. P. Brion, UNIDO's Team Leader for the DTP Workshop added that:

"... the sawmilling enterprise wishing to expand its wood processing operations must appreciate that it would be getting into a quite different business situation which would require its management to re-orient its policies and operational plans to include a different type of client, to consider a broader range of management-related problems pertaining to personnel with new fields of specialization, working at higher precision levels, and therefore training needs..."

It was in this spirit that the Workshop proceeded to its serious deliberations on the challenges presented by downstream processing of timber.

## PROJECT BACKGROUND

The United Nations Development Programme (UNDP) has entrusted the Food and Agriculture Organization (FAO) to implement a technical assistance project in the Asian/Pacific region entitled "Asia/Pacific Forest Industries Development Group".

The project had six immediate objectives, among which the following were relevant to the Workshop on Downstream Timber Processing:

1. To strengthen the capability of national governments to evaluate the industrial development potentials of their forest sectors leading to plans for increasing the effectiveness of the structure and operations of the existing forest industry and to the phased overall development of this industry;
2. To improve the managerial efficiency and operational performance of existing forest industries in the period 1987 to 1990 through the training of personnel, the provision of advisory services and the identification of opportunities for re-investment, with particular reference to the small and medium scale producers;
3. To provide extension advisory services and assistance which is designed to have an impact on the large number of small and medium-sized sawmills. Many of these sawmills are technologically obsolescent and would respond significantly to the introduction of simple improved operational procedures and more efficient low cost equipment. Simple demonstration mills, strategically located, designed to illustrate the above benefits and to act as focal points for their industrial extension activities, will be encouraged;
4. To diversify current industrial output by encouraging manufacture of an increased range of secondary and tertiary wood based products.

In implementing this project, FAO had subcontracted to UNIDO the conduct of the project's foreseen activities in the field of developing downstream processing of timber.

Among the activities sub-contracted to UNIDO was the organization of a two-week training Workshop on Downstream Timber Processing, which was held in Petaling Jaya, Selangor Darul Ehsan, Malaysia, from 3 to 15 December 1990.

## I. ORGANIZATION OF AND PREPARATION FOR THE WORKSHOP ON DOWNSTREAM TIMBER PROCESSING

### A. ADMINISTRATIVE MATTERS

In view of the delay in the arrival in Kuala Lumpur of the UNIDO Team Leader, who was then having difficulties in arranging for air transportation out of Bhutan where he was on mission for UNIDO, the Asia-Pacific Forest Industries Development Group (APFIDG, FAO) did an excellent job of preparing the groundwork activities for the Workshop.

In general, communication problems hampered the smooth and speedy processing of nominations of participants in the Workshop. Final screening of the nominations from at least five invited countries was delayed because the original nominees were rejected because they were neither sawmillers nor government officials involved in planning the development programmes for the

timber processing industries of their respective countries. In the case of the nominees from three other countries, the official nomination forms were received beyond the deadline set for submission of the forms. This resulted in the delay of preparation and distribution of the daily subsistence allowances of the Workshop participants. However, special arrangements were made to assure that the participants did not run out of money before they received their DSA's. A classic example of the effect of faulty communication facilities, was the case of the participant from Vanuatu, who arrived in Kuala Lumpur three days after the Workshop had started. He was sent to Kuala Lumpur by his country on the strength of an assurance from the UNDP Regional Office in Fiji that the nominee would be recommended favourably, even before the nomination could be acted upon by the pertinent UNIDO officials. Fortunately for the Vanuatu nominee, advice was received from the participant from Pakistan that he could not attend the Workshop due to circumstances beyond his control. Thus, the Vanuatu nominee was accepted to participate in the Workshop after an exchange of urgent telex messages and telephone calls between the UNIDO Team Leader in Kuala Lumpur and the backstopping officer at UNIDO Headquarters in Vienna.

The leisure time group activities were limited to a tour of Malacca city and the Farewell Dinner for the Workshop staff and participants, as a result of the tight Workshop schedule.

#### B. PARTICIPATION OF UNIVERSITI PERTANIAN MALAYSIA (UPM)

The services of the Universiti Pertanian Malaysia (UPM) was contracted to prepare the necessary local arrangements and clerical and logistical support for the conduct of the Workshop, in close cooperation with the APFIDG. Upon recommendation of the UPM, the Petaling Jaya Hilton Hotel was chosen as the venue for the Workshop. As provided for in their contract with UNIDO, UPM also arranged for the services of ten local specialists on selected sub-sectors of the wood-based industries to prepare technical papers on various aspects of the industry and give lectures on these topics during the Workshop. Three of the local lecturers were currently employed by reputable wood processing firms in Malaysia; while one was a young entrepreneur, who, aside from being a furniture designer himself, also manages a design consultancy firm (based in Petaling Jaya) that has technical connections with foreign firms specializing in furniture design. The rest were members of UPM's Faculty of Forestry and staff scientists of the Forest Research Institute of Malaysia (FRIM) in Kepong.

The team of local timber industry specialists was reinforced by another six international consultants and specialists who were contracted to prepare technical papers on other selected topics of the wood processing industry and give lectures on these subjects during the Workshop.

The UPM formed an Organizing Committee to plan and initiate activities needed for the successful conduct of the Workshop. The Committee was composed of the following members of the faculty of Forestry, UPM:

Dr. Razali Abdul Kader  
(Mrs.) Farida Md. Tahir

Chairman  
Secretary

Members:

Mohd. Zin Jusoh  
Doraisingam Manikam

Ismail Hashim  
 Zaidon Ashaari  
 (Mrs.) Zainap Abd. Ghani  
 Harmaen Ahmad Saffian

Dr. Damis Awang, Dean, Faculty of Forestry, UPM, and Mr. Sein Maung Wint, Team Leader, APFIDG, provided their services as Committee Advisors.

The tour of historic Malacca City, to the southwest of Kuala Lumpur, on 8 December, and the Farewell Dinner for the Workshop staff and participants, at the famous Titiwangsa Sea Foods Restaurant, on 14 December, were both arranged by the UPM Organizing Committee.

Arrangements for the audio-visual facilities used during the Workshop and the plant visits were also made by the UPM Organizing Committee, in cooperation with the APFIDG.

Except for a few minor scheduling problems, which were immediately threshed out and remedied, it can be said that the overall conduct of the Workshop, as arranged by the UPM Organizing Committee, was a remarkable success.

#### C. DOCUMENTATION

Except for the two documents on marketing, all documents were submitted in time by the Workshop lecturers. These documents were reproduced and photocopies were distributed to the Workshop participants. Furthermore, because of problems in clearing the shipment of fifty copies each of two reference documents on marketing shipped from Geneva, Switzerland, the Workshop participants were not furnished the documents, to wit:

- (a) "SECONDARY PROCESSED WOOD PRODUCTS: AN OVERVIEW OF MAJOR MARKETS", ITC, Geneva, Switzerland, 1990; and
- (b) "WOODEN HOUSEHOLD FURNITURE: A STUDY OF MAJOR MARKETS", ITC, Geneva, Switzerland, 1990.

However, the participants were promised by the project that these documents would be mailed as soon as they were cleared by the customs authorities.

The two papers on marketing of wood products were eventually received (via facsimile) by the UNIDO Team Leader and have been included in the volume reproducing the lectures given.

#### II. PROJECT BUDGET

An additional \$US 50,000 was provided by the Food and Agriculture Organization of the United Nations (FAO) to the United Nations Industrial Development Organization (UNIDO) for the purpose of organizing and conducting the Workshop on Downstream Timber Processing. The funds were allocated and spent as follows:

<u>Budget line</u>	<u>Name of consultant</u>	<u>Title of post</u>	<u>Duration (days)</u>	<u>Cost (SUS)</u>
11-58	Boratio P. Brion	Consultant in Downstream processing of timber (team leader)	31	10.083
11-59	Rainer Gloeckner	Consultant in production of mouldings	4	1.053
11-60	Ingemar Engström	Consultant in tool maintenance	3	946
11-61	John Michael Ginnings	Consultant in marketing of manufactured wood products	25	1.686
11-62	William Rance	Consultant in economics of timber	2	765
11-63	Frank Chew	Consultant in production of wooden doors	3	881
21-00	Subcontract with UPM to provide:			
	1. Accommodation:			
	- Undertake booking of a hotel for regional participants and UNIDO consultants. Provide auditorium fully equipped with audio-visual aids and consultant's room at a centrally located hotel in Kuala Lumpur.			
	2. Facilities			
	- Reproduce course documentation and provide writing pads, blackboard, chalk, lantern, overhead projector and screen, other audio-visual aids, demonstration materials, poster boards, stationery and other office supplies, including photocopying, film projector and screen and secretariat services.			
	3. Transportation			
	- Provide necessary transportation in conjunction with factory visits as well as at arrival and departure of regional participants and UNIDO consultants.			
	4. Public Relations			
	- Assist with participants' travel booking requirements. Arrange for, and cover the expenses of, appropriate social activities over the weekend of 8-9 December.			
	5. Catering			
	- Tea/coffee/refreshments in the morning and afternoon. Arrange for the mid-day meals (to be paid by the participants).			
	6. Honorarium			
	- Pay an honorarium not exceeding SUS 1500 for (10) regional resource persons on wood drying, market problems/management, product development, quality control, manpower development, costing and pricing and round table discussions on products range.			
	7. Evaluation report			
	- Submit their evaluation report on the Workshop, in five (5) copies, in English, direct to the Contracts Section of UNIDO			10.000
34-00	Travel of participants			27.350
	Per diem of participants			18.000
41-00	Purchase and shipment of documentation			76
51-00	Miscellaneous local expenses (printing costs)			112 <sup>1</sup>
			TOTAL	70.952

<sup>1</sup> Costs of reproduction of lecture texts and distribution costs are not included in this budget.



### III. WORK PROGRAMME

The Workshop's programme covers a period of two weeks from 3 to 15 December 1990. The first week was devoted primarily to inform the participants of the potential benefits to be derived from downstream timber processing (DTP), the basic technical activities that are required to set up DTP industries, the range of products that may be produced under specific levels of DTP development and the corresponding marketing aspects of export-oriented DTP operations. The second week touched more on the technical aspects of the production operations involved in the manufacture of secondary/tertiary wood products, including product design and development, manpower development, costing/pricing and quality control.

There were four plant visits in all (two per week). These were to: a kiln-drying plant, a moulding plant and two furniture manufacturing plants (one manufacturing furniture components and the other, knock-down furniture items for export).

Two social events were included in the programme: (1) a sight-seeing trip to the historical city of Malacca on the southwestern shores of the Malaysian peninsula, on Saturday, 8 December; and (2) a farewell dinner at the Titiwangsa Sea Foods Restaurant in Klang City, on the evening of 14 December.

The Workshop programme consisted of 36.5 hours (59.35%) of lectures; 14.0 hours (22.75%) of plant visits; 6.0 hours (9.75%) of background information, opening ceremonies and administrative matters; and 5.0 hours (8.15%) of panel discussions, excluding time allowed for coffee and lunch breaks.

Details of the Workshop programme as reconstructed from actual activities, are given below.

#### Monday, 3 December 1990

09:30 - 10:15	Opening ceremony - Welcoming addresses (Sein Maung Wint, CTA, APFIDG and H.P. Brion, UNIDO) - Keynote address (B. Kyrklund, FAO)
10:15 - 10:45	Coffee break
10:45 - 12:00	Introduction of participants (participants) Briefing on Workshop (secretariat)
12:00 - 14:00	Lunch
14:00 - 15:00	Overview of the potential for downstream processing (W. G. Davies, APFIDG).
15:00 - 15:30	Coffee break
15:30 - 17:00	Downstream timber processing in the Asia-Pacific Region: Current Situation and Constraints (H. P. Brion, UNIDO)

#### Tuesday, 4 December 1990

09:00 - 10:15	Principles of wood drying (Zaidon Ashaari, UPM)
10:15 - 10:45	Coffee break
10:45 - 12:30	Methods of seasoning (Razali Abdul Kader, UPM)
12:30 - 13:30	Lunch
13:30 - 17:00	Visit to a kiln-drying plant: CHG Timber Sdn. Bhd., Jln. Meru, Kelang

Wednesday, 5 December 1990

- 09:00 - 10:15 Comparison of different methods of seasoning (Choo Kheng Ten, FRIM)  
 10:15 - 10:45 Coffee break  
 10:45 - 12:00 Economics of kiln-drying operations (W. H. Rance, Hildebrand, Singapore)  
 12:00 - 12:30 Summary and practical aspects of kiln drying operations (H. P. Brion, UNIDO)  
 12:30 - 13:30 Lunch  
 13:30 - 17:00 Visit to a moulding plant: General Lumber Sdn. Bhd. Jalan Kapar Plant, Kelang.

Thursday, 6 December 1990

- 09:00 - 10:15 Technical and Economic considerations in establishing moulding plants (R. Gloeckner, Michael Weinig, FRG)  
 10:15 - 10:45 Coffee break  
 10:45 - 11:30 Technical and economic considerations in establishing moulding plants (continued)  
 11:30 - 12:45 Video (Weinig profiling and Surfacing Machine Systems in Actual Operations)  
 12:45 - 13:45 Lunch  
 13:45 - 15:45 Participants were taken in groups to cash their DSA checks at the Maybank Branch. UNDP Bldg, Damansara Complex. Coffee break was also taken during this period (Transportation was provided by UPM and APFIDG).  
 15:45 - 17:00 Markets for manufactured wood products: furniture, mouldings etc. (Michael Ginnings, Asian Timber Magazine, AT)

NOTE: THE ORIGINAL PROGRAMME FOR THIS DAY HAD TO BE COMPLETELY REVISED IN ORDER TO MAKE UP FOR:  
 (A) MR. ISMAIL IBRAHIM WHO WAS SICK, AND (B) THE FOREIGN PARTICIPANTS REQUESTED FOR TIME TO ENCASH THEIR DSA CHECKS BEFORE THE BANK CLOSED AT 15:00 HOURS.

Friday, 7 December 1990

- 09:00 - 10:15 Tool maintenance (Ingemar Engstrom, Sandvik, Sweden)  
 10:15 - 10:45 Coffee break  
 10:45 - 12:00 Tool maintenance (continued)  
 12:00 - 14:30 Lunch  
 14:30 - 15:30 Market information, surveys, channels, fairs and promotion (Michael Ginnings, AT)  
 15:30 - 16:00 Coffee break  
 16:00 - 17:15 Fundamentals of forest products marketing (Shaari Hamid, UPM)

Saturday, 8 December 1990

- 09:00 - 10:15 Round-table discussions on wood seasoning, product selection, markets and marketing techniques for secondary/tertiary wood products (moderator: H.P. Brion, Resource persons: Choo Kheng Ten, M. Ginnings, Razali Abdul Kader, W. Gwynn Davies, I. Engström, and L. Soon for R. Gloeckner of Weinig).

Saturday, 8 December 1990 (continued)

10:15 - 10:45 Coffee break  
 10:45 - 12:00 Round-table discussion (continued)  
 12:00 - 14:00 Lunch  
 14:00 Free

Sunday, 9 December 1990

Free (sight-seeing trip to Malacca)

Monday, 10 December 1990

09:00 - 10:15 Equipment selection (H. P. Brion, UNIDO)  
 10:15 - 10:45 Coffee break  
 10:45 - 11:20 Equipment selection (continued)  
 11:20 - 12:00 Video (Wadkin-Robinson Surfacing and Profiling Machines, with support equipment)  
 12:00 - 13:30 Lunch  
 13:30 - 17:00 Visit to a furniture component plant: General Lumber, Jln. Pandamaran Plant, Kelang

Tuesday, 11 December 1990

09:00 - 10:15 Plant layout (H. P. Brion, UNIDO)  
 10:15 - 10:45 Coffee break  
 10:45 - 12:00 Plant layout (continued)  
 12:00 - 13:30 Lunch  
 13:30 - 17:00 Visit to a large furniture plant: Federal Furniture Sdn. Bhd., Kelang

Wednesday, 12 December 1990

09:00 - 10:15 Economics of solid door manufacture (Frankie Chew\*, Wadkin-Singapore)  
 10:15 - 10:45 Coffee break  
 10:45 - 12:00 Economics of solid door manufacture (continued)  
 12:00 - 14:00 Lunch  
 14:00 - 15:15 Quality control (Ismail Hashim, UPM and Jegatheswaran Ratnasingam, Singer Furniture)  
 15:15 - 15:45 Coffee break  
 15:45 - 17:00 Quality control (continued)

\*NOTE: IN VIEW OF THE SUDDEN DEATH (TUESDAY 11 DECEMBER) OF MR. F. CHEW'S FATHER, MR. STEVEN TAN, SALES MANAGER, WADKIN-ROBINSON (MALAYSIA) SDN. BHD, PRESENTED MR. CHEW'S PAPER. FURTHER ARRANGEMENTS WERE MADE FOR MR. CHEW TO ELABORATE ON HIS PAPER AND ANSWER QUESTIONS FROM THE WORKSHOP PARTICIPANTS DURING FRIDAY'S MORNING SESSION.

Thursday, 13 December 1990

09:00 - 10:15 Production planning and control (H. P. Brion, UNIDO)  
 10:15 - 10:45 Coffee break  
 10:45 - 12:00 Production planning and control (continued)  
 12:00 - 14:00 Lunch  
 14:00 - 15:15 Product development for industrial production (Stephen S. Tay, STECA Assoc)

Thursday, 13 December 1990 (continued)

15:15 - 15:45 Coffee break  
 15:45 - 17:00 Product development for industrial production (continued)

Friday, 14 December 1990

08:45 - 10:00 Manpower development in industry (Teo Eng Seng, FINEFURN)  
 10:00 - 10:20 Coffee break  
 10:20 - 11:00 Manpower development, training (continued)  
 11:00 - 12:30 Economics of solid door manufacture (Frankie Chew, Wadkin-Singapore)  
 12:30 - 14:00 Lunch  
 14:00 - 15:15 Pricing decisions, objectives, strategies and methods (Shaari Hamid, UPM)  
 15:15 - 15:45 Coffee break  
 15:45 - 17:00 Costing and pricing - a practical approach (Choy Wai Cheong, Federal Furniture Sdn. Bhd.)

Saturday, 15 December 1990

09:00 - 10:15 Discussions on "Where do we go from here?" and summary of Workshop results (Moderator: H. P. Brion, Resource Persons: Frankie Chew, W. Gwynn Davies, Teo Eng Seng, Shaari Hamid, and Stephen S. Tay).  
 10:15 - 10:45 Coffee break  
 10:45 - 12:00 Round-table discussion (continued)  
 12:00 - 13:30 Closing remarks (H. P. Brion, UNIDO; W. Gwynn Davies, APFIDG/FAO; Dr. Razali Abdul Kader, UPM)

## IV. PARTICIPATION IN THE WORKSHOP

In accordance to the main objectives of the Asia-Pacific Forest Industries Development Group (APFIDG), the principal thrust of the Workshop was to assist sawmillers and government planners in their efforts to develop downstream timber processing activities in their respective countries. Thus, in selecting the participants in the Workshop, priority was given to sawmillers intending to engage in the secondary wood processing industry and government planners of countries contemplating to launch or have programmes under way to develop their downstream timber processing industries.

Invitations to nominate up to three qualified participants were sent to the 19 countries participating in the APFIDG project (i.e. from Lebanon in the Middle East to Cooks Island in the Eastern Pacific region). Nominees from Bangladesh, India, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand and Vietnam could not be accepted either because

- (a) their nominations were received too late; or
- (b) the nominees were not sawmillers intending to engage in downstream timber processing or government planners involved in the development of downstream timber processing programmes of their respective countries; or

(c) the country declined to send nominations for one reason or another.

Fifteen nominees from 10 countries other than the host country (Malaysia) were sponsored by the project and their expenses paid from funds provided by UNDP. Another 21 participants from Malaysia were accepted at no cost to the United Nations. The list of participants giving their names, titles and addresses is to be found in Annex I.

#### VII. EVALUATION OF THE WORKSHOP

Evaluation questionnaires were sent to 15 foreign and 21 Malaysian participants of the Workshop at their registered addresses. 14 replies (39% of total participants) were received, of which four were from foreign participants and ten were from Malaysian participants.

The results of the survey have been compiled in Annex II.

#### VI. ROUND TABLE DISCUSSIONS

covering such topics as timber seasoning, selection of wood products and choice of markets for secondary/tertiary wood products, machine systems and corresponding maintenance procedures needed for the manufacture of selected wood product(s)

(Held on 8 December 1990)

(Based on notes taken by H. P. Brion)

The resource panel was composed of the following:

H. P. Brion, UNIDO Team Leader	Moderator
W. G. Davies, APFIDG Expert on Forest Industries Development	Resource Person, Forest Industries
Choo Kheng Ten, Forest Products Research Institute of Malaysia	Resource Person, Wood Seasoning
J. M. Ginnings, Ginnings Far East Associates, Wood Industry Consultants, Singapore	Resource Person, Marketing of Wood Products
Razali A.K., Universiti Pertanian Malaysia	Resource Person, Timber Technology
I. Engström, Sandvik AB, Stockholm, Sweden	Resource Person, Tool Maintenance
L. Soon, Weinig-Malaysia, Kuala Lumpur	Resource Person, Machine Systems

## A. THE PROBLEMS ADDRESSED

Among the major issues raised during the discussions were:

1. Marketing Operations

- (a) How does a sawmiller/builders woodworks products manufacturer from a developing country "break into" the export market for furniture and joinery products?
- (b) What are the advantages and disadvantages, for a furniture manufacturer in a developing country, to manufacture builders woodworks products under license by a well-known firm from an advanced country?
- (c) The problem of pricing products for export to countries which do not collect customs duties but impose sales tax on domestic sales of the product;
- (d) The problem of where and how to get marketing information for a firm located in an under-developed country;
- (e) The role of trade associations in gathering and disseminating industry data.

2. Manufacturing Operations

- (a) The issue of encouraging specialization and complementation related to the establishment of "furniture villages" (industrial estates specifically for furniture and allied products manufacturing);
- (b) Specific problems in kiln-drying facilities and techniques aimed at minimizing the effects of timber shrinkage during and after machining operations;
- (c) The most effective storage techniques and facilities for kiln-dried lumber;
- (d) The need for and the facilities and techniques required in training trainers and key factory workers in existing and/or newly-established labour training institutions;
- (e) The need to know more about the effective use of solar driers in commercial scale wood processing operations.

3. Other Related Matters

- (a) The need for government policies that will encourage downstream timber processing;
- (b) The need to counteract the negative effects on the wood processing industry of activities of environmentalist groups.

## B. THE MEASURES PROPOSED

The workshop's participants, under the guidance of the resource panel, agreed that the following actions would help solve a majority of the problems involved in the issues brought up in the preceding paragraphs.

- (a) Even before actual production and export marketing activities are started, a clear understanding of the wood products and the characteristics of the target markets (distribution networks, pricing practices, etc.) are needed to enable the sawmiller (or the furniture manufacturer) to draw up a realistic and viable programme of activities;
- (b) Manufacturing "under license" is a low profit operation, where the supplier is definitely at a disadvantage *vis-a-vis* the foreign buyer, who, more often than not, is too big to sue in case of unfulfilled commitments to buy the product. However, this type of marketing relationship is an inexpensive (sometimes, even free) method for acquiring technology.
- (c) There exist good sources of marketing information, but these are not yet fully known to the wood products manufacturers in developing countries, particularly the small- and medium-scale furniture/joinery products manufacturing firms. Market studies have been conducted on specific large markets for furniture and joinery products by the United Nations' specialized agencies and other international agencies sponsored by developed countries like the United States of America, Japan, Canada, etc.

The current industry situation in developing countries indicates the need to strengthen or establish, in some developing countries, trade or industry associations. Thus, the industry will attain a more effective bargaining position relative to foreign buyers, and a more forceful voice as regard moves to request assistance from their respective governments. Furthermore, the association, as proven by the ASEAN countries, has become a useful vehicle in the sourcing, collating and distribution of market information and industry data among its members.

- (d) The concept of specialization and complementation as a feature in the establishment of industrial estates for the furniture/joinery products manufacturing industry may be effectively used only if implemented under a well planned programme. The establishment of industrial estates also involves the transfer of factory workers from their homes to the new location. Thus, even during the planning stage, the industrial estate planners should give due consideration to the socio-economic aspects of the project. Failure to do so (in some southeast Asian countries) has resulted in the unsuccessful operation of the furniture village.
- (e) Manpower training is a very important aspect in industrial development. It appears that although some developing countries were successful in establishing training centres for the industry, lack of adequately trained trainers has prevented the successful operation of the training institution. It is in this respect that government assistance is greatly needed. It should provide an attractive

atmosphere for foreign institutions or agencies to help in the training of the industry's key personnel in specific skills needed by the furniture/joinery industry.

- (f) Again, it was emphasized that establishing and/or strengthening existing trade/industry associations is a pre-requisite to securing more assistance from the government in order to adopt policies and regulations which will encourage downstream timber processing activities.
- (g) The negative effects on the wood products industry of the campaign being carried out by environmentalist groups is recognized. However, it now appears that the timber processing industries have a good chance of counteracting the "green people's" activities by presenting the wood products as made from sustainable resources.

#### VII. FINAL ROUND OF DISCUSSIONS: "WHERE DO WE GO FROM HERE?"

(held on 15 December 1990)

(Based on notes taken by H. P. Brion)

Another round of discussions were held on Saturday, 15 December, the last day of the Workshop. The main thrust of the discussions was to seek answer(s) to the question "Where do we go from here?", based on the concepts, knowledge, industrial techniques and experiences shared between the lecturers and the participants, and among the participants themselves, during the preceding two weeks.

The resource panel was composed of the following:

H. P. Brion, UNIDO Team Leader	Moderator
W. G. Davies, APFIDG Expert on Forest Industries Development	Resource Person Forest Industries
Teo Eng Seng, FINEFURN Selangor, Malaysia	Resource person manpower development
Shaari Hamid, FRIM, Kepong, Malaysia	Resource Person Marketing Activities
Franckie Chew, Wadkin-Singapore	Resource person Machinery systems
Stephen S. Tay, STECA Associates, Malaysia	Resource Person Product Design and Development

#### A. THE DISCUSSIONS

Using sawmilling as the take-off point, the Workshop participants sought answers to the question: "Where do we go from here?" The problem was approached from two view points: (a) the sawmillers; and (b) the government planners. A third approach was suggested by some participants, who indicated the need to look at the problem from the view point of the furniture/joinery products manufacturers. The participants, under the guidance of the resource panel, agreed that the following points should be considered in resolving the problem as to which particular downstream processing activity (after



sawmilling) would give the best economic benefits to both the sawmiller and the country.

1. Integration of existing manufacturing processes such as kiln-drying, builder's woodworks manufacturing or furniture/joinery products production may be done by the sawmiller engaging in downstream processing activities.
2. On the other hand, the furniture/joinery products manufacturer, especially any who has peculiar needs for kiln-dried lumber of less common timber species or boards with specific dimensions, moisture content and odd volumes, may expand his operations upstream (backwards integration) and set up his own kiln-drying facilities;
3. A third approach would be to set up a fully integrated processing plant involving sawmilling, kiln-drying and a secondary/tertiary type of woodworking manufacturing operation.
4. The current situation indicates that the volume of sawn timber produced is much more than the volume needed by the furniture and joinery products manufacturing industries, and that more than 65 percent of the sawn timber produced by the sawmilling industry is used by the building and construction industries;
5. Based on studies conducted by UNIDO, ITTO and other international agencies, furniture and joinery products have greater value added than builders' woodworks and other wooden items for the building and construction industries; consequently, the former have bigger profit potentials than the latter;
6. The production of furniture and joinery items require higher precision than that needed to manufacture builders' woodworks, correspondingly, higher levels of skills are required by the former than those required by the latter; and
7. On the basis of equivalent processing capacities (i.e., the same volume of sawn timber inputs), the cost of establishing a planing mill (or moulding plant) to manufacture builders' woodworks is less than that for setting up a furniture/joinery plant.

It must be noted that the discussions on the above-listed guide points referred mainly to the downstream processing of sawn timber. It was recognized and accepted by the Workshop participants that another approach would be to consider the manufacture of wood based panel furniture products; but this definitely required higher levels of labour skills and more sophisticated machinery and equipment with a much higher precision is needed to manufacture the product.

#### B. THE OPTIONS

After extensive discussions on the impact of the above guide points in making a decision (either for the sawmiller or the small/medium size furniture/joinery products manufacturer) as to "where to go from here", the Workshop participants felt that the following options are open to the wood processing industry of a developing country:

1. For the small sawmiller in a small-size domestic market:
  - (a) Set up a small planing mill to produce builders woodworks products for the domestic market;
  - (b) Set up a medium-size kiln-drying plant, in cooperation with other small sawmillers, and supply kiln dried lumber to the secondary wood processing industries of the area; or
  - (c) In cooperation with other sawmillers, establish a factory, complete with kiln-drying facilities, to manufacture secondary/tertiary wood products.
  
2. For the medium-size sawmiller in a big domestic market:
  - (a) Establish a planing mill (or moulding plant) to serve the needs of the domestic building and construction industry;
  - (b) Team up with other sawmillers to establish a good-size kiln-drying plant and, either on his own or in cooperation with other sawmillers, set up facilities for the manufacture of builders' woodworks and/or joinery products to serve the needs of the domestic market and/or support a modest volume of export business; or
  - (c) Set up kiln drying and woodworking facilities to support modest size exports of selected builders woodworks products such as: mouldings, drawer side blanks, door stiles and rails etc.
  
3. For the large-size sawmiller:
  - (a) Establish kiln drying facilities for both the domestic and export markets;
  - (b) Establish a planing mill (or moulding plant), supported by a corresponding size kiln-drying plant to supply both domestic and foreign markets;
  - (c) Establish a door factory, supported by adequate kiln-drying facilities, for both domestic and export markets; or
  - (d) Enter into joint venture with foreign partners to manufacture and sell builders woodworks products for export, on the understanding that the foreign partner will provide technical assistance in the design of the factory, the selection of machinery and equipment and the training of key factory personnel.
  
4. For the small and medium size furniture manufacturers:
  - (a) In cooperation with other furniture producers, establish kiln-drying facilities to support their combined needs for kiln-dried lumber; or
  - (b) Enter into a partnership arrangement with a small or medium size sawmiller to establish kiln-drying facilities to supply the domestic

industry's needs, aside from those of the furniture manufacturer himself.

### C. GOVERNMENT PLANNERS

The Workshop participants were unanimous in their opinion that attainment of a desirable pace and direction in the development of downstream timber processing industries in developing countries, is still heavily dependent upon government policies on the matter. Among the major and urgent issues that face the industry where the government can provide meaningful and effective assistance are:

- i. The lack of adequate capital to finance the development programme;
- ii. The need to acquire technical know-how from foreign sources;
- iii. The need for facilities and trainers to train key personnel for the industry from qualified local manpower resources;
- iv. The need for reliable and up-to-date industry and marketing information which are necessary in the decision-making aspects of the industry entrepreneurs; and
- v. The need for adequate infrastructure (road networks, piers/harbours, container handling facilities, electric power, communication facilities, etc.) which, more often than not, are sadly lacking in a majority of the developing countries in the world.

In other words, government planners in developing countries desirous of developing downstream timber processing activities should provide a sufficiently attractive and encouraging environment, both conceptually and physically, to facilitate the favourable growth of the timber industry.

### VIII. ACKNOWLEDGEMENTS

Gratitude is hereby expressed to all entities and agencies, who, in one way or another, contributed to the success of the Workshop on Downstream Timber Processing. Specific mention is made of the work done by the UPM Organizing Committee; the spirit of cooperation and sense of devotion to the timber processing industry manifested by the lecturers and the institutions/firms they represented; and the cooperation, support and assistance provided by the United Nations Development Programme, Kuala Lumpur (UNDP-Kuala Lumpur) and the Asia-Pacific Forest Industries Development Group (APFIDG, FAO)

All their efforts contributed to the success of the Workshop.

## ANNEX I

## LIST OF PARTICIPANTS

Name of Participants    Title and AddressI. Foreign participants, sponsored by UNIDO/FAO

Andrew Ahliki	Manager Blue Bird Lumber, Ltd. P. O. Box 1612 Apia, Western Samoa
Mahlon Ali	Forestry Officer Forestry Division P. O. Box G24 Honiara, Solomon Islands
Michael Avosa	Forest Industries Council of Papua New Guinea P. O. Box 1889 Port Moresby, Papua New Guinea
(Mrs.) Elizabeth Clayton	Clayton Howard Enterprises International, Ltd. P. O. Box 2082 Government Buildings Suva, Fiji
Stephen P. Koshcade	Manager Timber Processing Division Tropik Wood Industries, Ltd. Private Mail Bag Lautoka, Fiji
Li Yun Kun	Project Manager Department of Forestry, Science and Technology Beijing, People's Republic of China
Kinlay Gyaltshen	Director Penjore Timber Industries, Ltd. P. O. Box 2465 Thimphu, Bhutan
Martono Modjo	Perum Perhutani Gedong Manggala Wanabakti, Block VI Lantai 4, Senayan Jakarta 10770, Indonesia
U Myo Myint	Manager Myanmar Timber Enterprise Ahlone Yangon, People's Republic of Myanmar
Feke Pedro	Department of Forestry Private Mail Bag 061 Port Vila, Vanuatu

<u>Name of Participants</u>	<u>Title and Address</u>
(Mrs.) Carmel Pilcetti	Officer-in-Charge Wood Processing Properties Section Forest Research Institute P. O. Box 314 Lae, Papua New Guinea
Sangey Khandu	Acting Director Department of Trade and Industry Royal Government of Bhutan Thimphu, Bhutan
Mohammad Yusuf Shirzai	Afghan Carpentry Enterprise Kabul, Afghanistan
Son Li Feng	Director of Markets China National Forest Products Industry Corporation Beijing, People's Republic of China
Suyono Suwarno	Directorate-General Multivarious Industry Ministry of Industry Gd. Dept. Perindustrian Jl. Gatot Subroto KAV 52-53 Jakarta, Indonesia

## II. Malaysian participants<sup>2</sup>

Abd. Aziz Neamat	Production Manager Mentiga Forest Products Sdn. Bhd. P. O. Box 1 26607 Pekan, Pahang
Ahmad Lotfi Hj. Mohamed Saleh	Production Executive Delima Industries Sdn. Bhd. Pandamaran Industrial Estate P. O. Box 201 42009 Port Klang Selangor
Hashim Bojet	Executive Officer Pengurus Besar, Perbadanan Perusahaan. Kemajuan Kayu Sarawak (STIDC) Peti Surat 194, Bangunan Yayasan Sarawak, Jalan Tun Haji Openg 93702 Kuching, Sarawak

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<sup>2</sup> Observers, attending at to cost to the project.

<u>Name of Participants</u>	<u>Title and Address</u>
Ganasan a/l Annamalai	Engineer General Lumber Fabricators & Builders Sdn.Bhd. 4th Floor, Wisma Tractors No. 7 Jalan SS 16/1, Subang Jaya 47500 Petaling Jaya Selangor
Kairuddin Mohd. Rani	Planning Officer Lembaga Perindustrian Kayu Malaysia Tingkat 5&6, Wisma DNP Jalan Ampang 50450 Kuala Lumpur
Kamariah Ismail	Puncak Murni No. 14, 2nd Floor, Jalan Yap Ah Shak 50300 Kuala Lumpur
Liew Food Thim	Finefurn (M) Sdn. Bhd. Lot 265, Bt. 22 ½, Sg. Lalang 43500 Semenyih Selangor
Lim Wan Boon	Sandvik Malaysia Sdn. Bhd. No. 5 Jalan 13/6 P. O. Bcx 213 46720 Petaling Jaya
Paul Lau Ngie Hung	Executive Forester Perbadanan Perusahaan Kemajuan Kayu Sarawak (STIDC) Wisma Sumber Alam P. O. Box 194 93702 Kuching, Sarawak
Michael Rajoo	Head, Training Lembaga Perindustrian Kayu Malaysia Tingkat 5&6, Wisma DNP Jalan Ampang 50450 Kuala Lumpur
Mohd. Suhaimi B. Husin	General Manager Kompleks Perkayuan Kelantan Sdn. Bhd. Tingkat 7, Bangunan Pkink Jalan Tg. Maharani 1500 Kota Bharu Kelantan
Norchahaya Hashim	Act. Assistant Director Lembaga Perindustrian Kayu Malaysia Tingkat 5&6, Wisma DNP Jalan Ampang 50450 Kuala Lumpur

<u>Name of Participants</u>	<u>Title and Address</u>
Razali bin Salleh	Operations Officer Pesama Timber Corporation Sdn. Bhd. Kawasan Perindustrian Jakar 24000 Kemaman Terengganu
Roslan Ali	Research Officer (Wood Processing) Institut Penyelidikan Perhutanan Malaysia Kepong, 52109 Kuala Lumpur
Rosly bin Rentah-Rintah	Industrial Manager Ibu Pejabat Perhutanan Jalan Sultan Salahuddin 50660 Kuala Lumpur
Rosmi Said	Assistant Marketing Officer Lembaga Perindustrian Kayu Malaysia Tingkat 566, Wisma DNP Jalan Ampang 50450 Kuala Lumpur
Shahwahid Hj. Othman	Jabatan Eccnomi Sumber Asli Universiti Perindustrian Malaysia 43400 UPM Serdang, Selangor
Sim Heok Choh	Research Officer Institut Penyelidikan Perhutanan Malaysia Kepong, 52109 Kuala Lumpur
Thein Naing Wint	Student 289 (a) Maggin Road (Bogone) Taung Thu Gone Block Insein Township Yangon, Myanmar
Ummi Kalthum Arshad	Intraworld Sdn. Bhd. Box 28 3rd Floor, Wisma Socfin Jalan Semantan 50490 Kuala Lumpur
Wee Tiang Lam	Director Heng Bee Sawmill & Oilmill Co. Sdn. Bhd. S/2 94, Jln. Kg. China 15350 Kota Bharu Kelantan

## ANNEX II

## COMPILATION OF THE EVALUATION BY THE PARTICIPANTS

PROGRAMME: Workshop on Downstream Timber Processing  
 HOST COUNTRY: Malaysia  
 YEAR: 1990

## 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)

	Sufficient	Not sufficient	Missing
Aim of the training	14	0	0
Content of the programme	11	3	0
Level of the programme	11	2	0

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

- TIMBER TREATMENT (PRESSURIZED TREATMENT)
- TIMBER LAMINATION

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

	less than 1 week	1 week	less than 2 weeks	less than 3 weeks	more than 3 weeks
Information about the programme	2	2	2	1	5
Being accepted to the programme	2	8	2	0	0

## Comments:

- I THOUGHT I WAS NOT SELECTED FOR THE WORKSHOP AS I DID NOT HEAR OF THE OUTCOME OF MY APPLICATION FROM UNDP.
- THERE WAS NO PUBLICITY ON THIS WORKSHOP LOCALLY (MALAYSIA), WHETHER TO/TROUGH GOVERNMENT OR NOT WHICH IS SURPRISING SINCE THE COUNTRY IS THE HOST. MOST OR ALL PARTICIPANTS ONLY HEARD/READ OF THIS WORKSHOP THE WEEK BEFORE (3-4 DAYS, INCLUDING THE WEEK-END) IT STARTED. PUBLICITY SHOULD HAVE BEEN MADE MORE TIMELY.
- MORE TIME SHOULD BE GIVEN TO INFORM THE PARTICIPANTS OF THEIR ACCEPTANCE TO THE PROGRAMME SO THAT THEY CAN BE BETTER PREPARED. THE LATE ACCEPTANCE NOTICE CREATED DIFFICULTIES IN BOTH WORK AND HOME COMMITMENTS.



## II. PROGRAMME CONTENT AND ORGANIZATION:

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

Too long	1
Just right	11
Too short	2

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

4 weeks	1
3 weeks	1
1 week	1

Please comment:

- DURATION IS OKAY. HOWEVER, SOME SECTIONS OF THE PROGRAMME SHOULD HAVE BEEN MADE SHORTER AND OTHERS LONGER.
- THE COURSE COVERED A WIDE RANGE OF TOPICS, THEREFORE AT LEAST TWO WEEKS' TIME WAS NEEDED.
- SINCE I AM INVOLVED IN FACTORY WORK THE LONG DURATION MAY AFFECT MY PRESENT PERFORMANCE IN WORK.
- THE DURATION OF THE COURSE ENABLED THE PARTICIPANTS TO KNOW THE SUBJECT IN ENOUGH DETAIL, IN ORDER TO IMPART SUFFICIENT UNDERSTANDING.

4. State your opinion about the daily schedule:

Too heavy	2
Just right	11
Too light	1

Comments:

- FOR A TWO WEEK COURSE IT WOULD HAVE BEEN APPROPRIATE TO HAVE LECTURES IN THE MORNING SESSIONS AND THE OTHER HALF OF THE DAY (AFTERNOON) TO HAVE FIELD WORK OR FACTORY VISITS. THIS TYPE OF ARRANGEMENT IS TO HELP PARTICIPANTS AVOID FEELING BORED AND SLEEPY.
- THE DAILY SCHEDULE WAS ALL RIGHT EXCEPT THAT THERE WERE SOME TOPICS WHICH I THINK NEEDED MORE TIME THAN OTHERS, FOR EXAMPLE PRODUCTION MANAGEMENT.
- ENABLE PARTICIPANTS TO GO THROUGH SUBJECTS THAT HAVE BEEN DELIVERED AND TO RAISE OR SOLVE THE PROBLEMS AT THE END OF THE DAY.

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

- PERHAPS PAPERS PRESENTED SHOULD HAVE SUMMARIES WHICH COULD BE EASILY REFERRED TO DURING QUESTION TIME.
- MORE PRACTICAL DEMONSTRATIONS.

- YES, ROUND-TABLE DISCUSSIONS SHOULD BE HELD MORE FREQUENTLY - NOT ONLY TO DISCUSS WORKSHOP SUBJECTS BUT ALSO TO RELATE TO ACTUAL INDUSTRY/PARTICIPANT EXPERIENCES.

- THE TRAINING PROGRAMME SHOULD STRESS MORE ON FACTORY VISIT RATHER THAN LECTURES/THEORY.

- HAVE GROUP DYNAMIC/GROUP DISCUSSION.

- REDUCE THE NUMBER OF SUBJECTS/TOPICS TO BE COVERED AND BE MORE SPECIFIC AND MICROSCOPIC ON TOPICS COMMON TO ALL E.G. KILN DRYING OPERATION.

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

To a very large extent	4
To a large extent	6
To a sufficient extent	3
To a small extent	1
To a very small extent	0

Please comment:

- I PERSONALLY PROFITED FROM THE COURSE OUTRIGHT. EXCELLENT!

- I WOULD LIKE VERY MUCH TO KNOW THE COMPARATIVE ADVANTAGE OF EACH COUNTRY OVER THAT OF THE OTHERS.

- AFTER ATTENDING THE WORKSHOP I THINK I KNOW SO MUCH ABOUT MOST OF THE PROCESSES AND I AM NOW GETTING MYSELF INVOLVED DIRECTLY WITH THE PROCESS OF WOODWORKING BY MOVING MY OFFICE TO THE FACTORY. (BEFORE, MY OFFICE WAS AWAY IN THE CITY.)

- PART OF MY JOB IS MARKET AND PRODUCT DEVELOPMENT. WORKSHOP HAS SHOWN VARIOUS DTP AND ITS VIABILITY. WORKSHOP HAS ALSO REAFFIRMED/CONFIRMED BY BELIEF IN QUALITY CONTROL WHICH IS VERY LACKING IN MANY ASIAN COUNTRIES.

- AS AN EXECUTIVE FORESTER, THIS COURSE HAS BEEN VERY BENEFICIAL TO ME ESPECIALLY WHEN SARAWAK STATE GOVERNMENT IS ENCOURAGING THE TIMBER INDUSTRY PEOPLE TO GO DOWNSTREAM TIMBER PROCESSING. I HOPE I WILL HAVE THE CHANCE TO ATTEND COURSES OF THIS NATURE AGAIN IN FUTURE.

- IT GREATLY HELPED ME IN THE OVERALL INSIGHT AND EVALUATION OF DTP VIS-A-VIS MY COMPANY'S EXPANSION PROGRAMME.

- A LOT OF THEORIES TAUGHT RATHER THAN PRACTICAL EXPERIENCES.

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

- VERY GOOD

- MORE TIME SHOULD BE ALLOCATED FOR DISCUSSION AFTER EACH VISIT, TO COVER STRENGTH/WEAKNESS OF THE MILL VISITED.

- THE LECTURERS, ESPECIALLY MR. BRION, WERE VERY PARTICULAR THAT THE PARTICIPANTS WERE WELL INFORMED OF THE DETAILS OF THE SURROUNDINGS OF THE FACTORY WE VISITED, BY SHOWING THE DO'S AND DONT'S IN A KILN DRYING PLANT OR A WOODWORKING FACTORY.

- VISITS WERE VERY EYE-OPENING/EDUCATIONAL. HOWEVER I WOULD HAVE APPRECIATED IT MORE IF:

- (1) WE WERE GIVEN MORE INFORMATION/BACKGROUND OF THE COMPANY AND PURPOSE OF VISIT AND WHAT TO LOOK OUT FOR; AND
- (2) DISCUSSION OF VISITS IMMEDIATELY AFTER EACH VISIT INSTEAD OF WAITING FOR ROUND-TABLE DISCUSSIONS AT THE END OF THE WEEK.

- SOME OF THE STUDY VISITS PROVIDE A GOOD INSIGHT INTO THE PRACTICAL ASPECTS OF DTP, WHILE OTHERS ARE NOT SO PERTINENT.

- VERY INTERESTING.

- RELEVANT AND INFORMATIVE.

Please suggest other study visits that might have been valuable:

-VISITS TO THE MTIB OR FRIM.

- WHAT ABOUT FACTORIES PRODUCING TOYS AND OTHER VALUE-ADDED BUT NEGLECTED PRODUCTS, SUCH AS UTENSILS (SALAD BOWLS, DECORATIONS ETC.) WHICH FETCH HIGH PRICES?

- I SUGGEST THAT VISITS TO THE TIMBER CUTTING AREA/LAND SHOULD BE MADE SO THAT PARTICIPANTS WILL KNOW OF THE ACTUAL PROCESS OF THE CUTTING OF A LOG AND SO FORTH.

- MORE VISITS TO THE SUCCESSFUL FACTORIES IN TERMS OF QUALITY AND SCALE OF PRODUCTION.

- VISITS TO PLYWOOD FACTORY AND PARTICLE BOARD FACTORY.

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

Much too high	1
Too high	0
Adequate	13
Too low	0
Much too low	0

Comments:

- INFORMATION GIVEN WERE NOT IN DETAIL OR RATHER TOO GENERAL.

- GENERALLY ACCEPTABLE TO PARTICIPANTS, IF SOME ARE A BIT TOO HIGH - IT IS PROBABLY DUE TO LANGUAGE PROBLEMS. PERSONALLY, IT IS ADEQUATE.

- THE TRAINING ENABLED ME TO UNDERSTAND MORE OF THE PROBLEMS FACED BY TIMBER INDUSTRIES AND ALSO ENABLED ME TO UNDERSTAND THE PROPER TECHNIQUES OF TIMBER PROCESSING.

- SOME ARE QUITE GENERAL, OTHERS ARE A BIT TECHNICAL, BUT OVERALL, THE LEVEL OF TRAINING IS JUST MODERATE AND ADEQUATE.

- MUCH OF THE MATERIAL I WAS FAMILIAR WITH AND I WAS UNDER THE IMPRESSION FROM THE INTRODUCTORY INFORMATION THAT OTHER PARTICIPANTS WOULD HAVE HAD A SIMILAR BACKGROUND AS MYSELF.

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

<u>SUBJECT</u>	<u>REASON</u>
- KILN DRYING/SEASONING	RELEVANT TO WORK, NEW INFORMATION
- EQUIPMENT SELECTION/PLANT LAYOUT	NEW INFORMATION
- QUALITY CONTROL	RELEVANT TO WORK, NEW INFORMATION
- PRODUCTION PLANNING AND CONTROL	RELEVANT TO WORK
- PRODUCT PROCESS/ECONOMICS	RELEVANT TO WORK
- MARKETING	RELEVANT TO WORK, NEW SUBJECT
- DESIGN	PERSONAL INTEREST
- OVERVIEW OF THE POTENTIAL FOR DTP (BY BRION/DAVIES)	THAT SUMMARIZES EVERYTHING THAT IS FOR DTP, ESPECIALLY THE VALUE ADDED OF EACH DTP ACTIVITY.
- FURNITURE PRODUCTION/MOULDING PRODUCTION	IN ACCORDANCE WITH THE GOVERNMENT MOVES TO ENCOURAGE THE DTP.

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

<u>SUBJECT</u>	<u>REASON</u>
- MARKETING	IRRELEVANT AND NOT WELL PRESENTED; INADEQUATE INSTRUCTION
- KILN DRYING	IRRELEVANT
- TOOLING	TOO TECHNICAL/DETAILED. TOO MUCH REPETITION - LECTURE WAS A REPETITION ON VIDEO SHOWN. ANOTHER LECTURE WAS A REPETITION OF PAPERS/CATALOGUES GIVEN.
- MANPOWER	INADEQUATE INFORMATION. NOT CONVINCING.
- COSTING AND PRICING	INADEQUATE INFORMATION; POOR PRESENTATION; THE LECTURER IS NOT TELLING THE TRUTH.
- TOTAL QUALITY CONTROL OF VALUE-ADDED PRODUCTS	INADEQUATE INFORMATION

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

Yes 8

No 6

If yes, what did you miss?

- SPECIFIC EXAMPLE (CASE STUDY) OF A COUNTRY THAT HAS BEEN SUCCESSFUL IN EXPORTING; HOW DID THEY DO IT? HOW CAN OTHER COUNTRIES EMULATE IT?
- HIGHER TECHNOLOGY PROCESSING SUCH AS PLYWOOD, FIBREWOOD, PARTICLE BOARD MANUFACTURE.
- JIGS AND FIXTURES; HARDWARE FOR KNOCK-DOWN CONSTRUCTION.
- MARKETING - MAINLY BECAUSE THE DOCUMENTS THAT WERE SUPPOSED TO ACCOMPANY THE LECTURE ARRIVED LATE AND I HAD INSUFFICIENT TIME TO REFER TO SOME RELEVANT DATA CONTAINED IN THOSE DOCUMENTS.
- MORE INFORMATION ON COSTING AND PRICING.
- TIMBER LAMINATING; TIMBER TREATMENT.
- FURNITURE FINISHING.

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

	<u>no changes</u>	<u>more</u>	<u>less</u>
(a) lectures	10	0	3
(b) group work	4	9	0
(c) demonstrations	1	13	0

Comments:

- MORE SYSTEMATIC APPROACH
- IN MY OPINION I WOULD PREFER TO HAVE MORE GROUP WORK AND DEMONSTRATION OR FACTORY VISIT RATHER THAN TOO MUCH IN LECTURE ROOM, BECAUSE PRACTICAL WILL BE MORE EFFECTIVE RATHER THAN THEORY ALONE.
- MORE CASE STUDIES TO ILLUSTRATE PROBLEMS AND SOLUTIONS IN DTP ACTIVITIES.

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

	<u>(i) command of English</u>	<u>(ii) method of instruction</u>
Very good	9	3
Rather good	4	8
Fair	1	2
Poor	0	0
Very poor	0	0

Please comment:

- EXCELLENT.

- COMMAND OF LANGUAGE WAS VERY GOOD. HOWEVER, USE OF INSTRUCTIONAL MEDIA WAS INEFFICIENT - EITHER TOO REPETITIVE (SAME INFO AS VIDEO) OR FAILURE TO DISCUSS SUBJECTS SHOWN.

- MORE SLIDES OR VIDEO TAPES ARE NEEDED IN THE LECTURES.

- USAGE OF OVERHEAD PROJECTOR STILL CAN BE IMPROVED.

- I HAD DIFFICULTY UNDERSTANDING SOME OF THE LOCAL INSTRUCTORS.

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

	<u>(i) the programme staff</u>	<u>(ii) fellow-participants</u>
Yes	11	12
No	2	1

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

	<u>(i) the programme staff</u>	<u>(ii) fellow-participants</u>
A great deal	6	4
Much	3	3
Somewhat	3	4
Little	1	2
Not at all	0	0

Please comment:

- THE PROGRAMME STAFF WERE REALLY HELPFUL IN DISPENSING INFORMATION: FELLOW PARTICIPANTS START TO "OPEN UP" AND SHARE THEIR EXPERIENCES - BOTH GOOD AND BAD - VERY INSIGHTFUL.

- DIFFERENT COUNTRIES FACE DIFFERENT PROBLEMS. SOME TECHNICAL PROBLEMS ARE SIMILAR AND WAYS TO SOLVE THESE PROBLEMS SHARED BY EXCHANGE OF VIEWS WERE VERY INFORMATIVE.

- THE STAFF WAS VERY PROFESSIONAL AND WELL EXPERIENCED IN THEIR RESPECTIVE FIELD, BUT SOME PARTICIPANTS WERE QUITE LACKING IN EXPERIENCE OR THEY HAVE PROBLEMS WITH COMMUNICATION (ENGLISH).

- THE MEETING OF FELLOW PARTICIPANTS FROM DIFFERENT WALKS OF LIFE WAS MOST REWARDING.

### 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	5
To a great extent	5
To a sufficient extent	3
To a small extent	0

Please state why:

- MY ORGANIZATION'S PRIME OBJECTIVE IS TO PROMOTE AND DEVELOP THE TIMBER INDUSTRY IN PAPUA NEW GUINEA.
- SOME ASPECTS OF MANUFACTURING AND MARKETING DID NOT APPLY.
- FOR ME A GOOD EXPOSURE TO THE CURRENT RESEARCH I AM INVOLVED IN.
- I AM INVOLVED DIRECTLY IN ALL THE TOPICS THAT WERE TAUGHT.
- THE COMPANY IS CURRENTLY UNDERGOING EXPANSION, STARTING WITH KD AND WE WERE SORT OF FEELING AROUND ON WHAT DOWNSTREAM PRODUCT WE SHOULD DO.
- AS AN EXECUTIVE FORESTER, I HAVE A LOT TO DEAL WITH THE TIMBER INDUSTRY IN SARAWAK. HENCE THE KNOWLEDGE GAINED ARE VERY BENEFICIAL.
- OUR COMPANY IS JUST ABOUT TO GO FURTHER DOWNSTREAM INTO ACTIVITIES SUCH AS DOOR MAKING AND MANUFACTURE OF FURNITURE COMPONENTS, HENCE THE RELEVANCE OF THIS PROGRAMME.
- TOPIC ON FURNITURE IS NOT RELEVANT TO MY COMPANY.
- TIMELY WITH THE CURRENT GOVERNMENT POLICY.

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

To a very great extent	2
To a great extent	8
To a sufficient extent	3
To a small extent	0
To a very small extent	0

Please state why:

- THE TIMBER INDUSTRY IN PAPUA NEW GUINEA SEEKS ADVICE IN TERMS OF TECHNICAL, SCIENTIFIC AND A GOOD BASED KNOWLEDGE OF THE GLOBAL FORESTRY SITUATIONS AND THEREFORE THE WORKSHOP GAVE ME THE OPPORTUNITY TO DELIBERATE WHEN THE NEED ARISES.
- NOW I HAVE A GREATER APPRECIATION OF THE PROBLEMS THAT MAY BE ENCOUNTERED IN ENCOURAGING DOWNSTREAM PROCESSING AND LEARNED OF STEPS TAKEN BY OTHER COUNTRIES OF THE REGION TO OVERCOME OR MINIMIZE SOME OF THESE PROBLEMS.
- BESIDES ENHANCING MY KNOWLEDGE IN MOST OF THE SUBJECTS, THIS PROGRAMME BY BRINGING PARTICIPANTS FROM COUNTRIES WITHIN THE REGION WILL ASSIST ME IN IDENTIFYING THE TRAINING NEEDS OF THESE COUNTRIES, WHICH IN FUTURE FRIM (WHICH I REPRESENTED) SHOULD CHANCE TO MEET.
- I'VE BEEN TRAINED (TERTIARY) AS AN ECONOMIST (ALTHOUGH I HAVE MY BS FORESTRY FROM UPM) SO AN EXPOSURE AND DISCUSSION WITH INDUSTRIALISTS AND FORESTERS HELPED.
- DUE TO MY ACADEMIC BACKGROUND, COMPUTER AND BUSINESS, WITH PRIOR KNOWLEDGE OF TIMBER INDUSTRY, I AM STEADILY LEARNING MY WAY IN THE TIMBER INDUSTRY AND GOING TO THE WORKSHOP HAS INCREASED BY "TIMBER" KNOWLEDGE NOT ONLY OF LOCAL CONTENT BUT ALSO REGIONAL AND TO SOME EXTENT, WORLDWIDE. THERE IS OF COURSE, MORE TO BE LEARNED.

- PROFESSIONALLY, THE PROGRAMME, OTHER THAN GIVING A FRUITFUL INSIGHT OF DTP, ALSO GAVE VALUABLE TIPS ON THE DO'S AND DON'T'S IN MANY OF THE DTP ACTIVITIES.

- TO KNOW THE PROGRAMME STAFF IS A PRIVILEGE; TO KNOW YOUR COMPETITORS AND BE ABLE TO DISCUSS WITH THEM ON COMMON PROBLEMS AND BE FRIENDLY BENEFITED EVERYBODY PROFESSIONALLY.

- A LOT OF THE INFORMATION COLLECTED DURING THE PROGRAMME WILL BE USED IN MY WORK.

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	4
To a great extent	2
To a sufficient extent	7
To a small extent	0
To a very small extent	0

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

- CONVINCING RELEVANT COMPANIES OF THE NEEDS TO VALUE-ADD TO TIMBER PRODUCTS.

- TO ACQUIRE CONTINUOUS INFORMATION/ OR ATTEND SIMILAR TRAINING SINCE MOST INFORMATION ON SUCH SEMINARS SELDOM COME TO MY FACULTY.

- WITH THIS ACQUIRED KNOWLEDGE, I CAN ONLY SUGGEST TO MY MANAGEMENT ON CURRENT TRENDS AND ISSUES IN THE INDUSTRY. I CONSIDER MYSELF STILL LACKING IN EXPERIENCE (ONE YEAR) TO CONVINCING OR PERSUADE.

- STILL, IN SOME AREAS SUCH AS DETAILED MANUFACTURING PROCESS/TECHNOLOGY AND COSTING, REMAIN A HIGHLY REGARDED SECRETS OF MOST COMPANIES. THESE ARE THE TWO MOST DIFFICULT AREAS THAT I HAVE TO ENCOUNTER.

- WHEN DEALING WITH DETAILS.

- RESTRICTION ON CAPITAL EXPENDITURE.

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

To a very great extent	1
To a great extent	4
To a sufficient extent	4
To a small extent	3
To a very small extent	1

20. How will this transfer be done?

(a) In a day-to-day work to colleagues and subordinates	10
(b) In specific training activities inside present employment	7
(c) In specific training activities outside present employment	0

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

- DISSEMINATION OF RESEARCH INFORMATION TO RELEVANT MANUFACTURERS AND THEIR ACCEPTANCE OF IT.



- GETTING INTEREST FROM COLLEAGUES - LANGUAGE.
- TO CONVINCE THE BOARD MEMBERS ON THE COST-BENEFIT OF INDULGING IN A CERTAIN DTP ACTIVITY AS WELL AS TO RECOMMEND WHAT COURSE OF ACTION TO BE TAKEN ONCE A PROJECT IS AGREED FOR IMPLEMENTATION.

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

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

- RATHER GOOD.
- LEISURE TIME ACTIVITIES ORGANIZED BY THE ORGANIZER IS MUCH APPRECIATED.
- GOOD - PROMOTE INTEGRATION AND UNDERSTAND EACH OTHER BETTER AMONG THE PARTICIPANTS.
- EXCEPT FOR ONE EXCURSION VISIT TO THE CITY OF MALACCA, THE PARTICIPANTS WERE FREE TO ORGANIZE THEIR OWN ACTIVITIES AFTER LECTURE HOURS. I THINK IT IS OKAY.
- BETTER THAN AVERAGE WHEN COMPARED TO OTHER SEMINARS I ATTENDED.
- THE ONE EXCURSION WAS ENJOYABLE AND WELL ORGANIZED.

What additional activities would you have appreciated?

- GAMES SUCH AS CAROM, CHESS OR SWIMMING INTERMATCH WITH OTHER PARTICIPANTS.
- WOULD HAVE APPRECIATED A "NATURE" KIND OF TRIP, ONE THAT COVERED SOME ASPECT OF FOREST/TIMBER INDUSTRY - TO SEE THE TIMBER "LIVE", ETC.
- ONCE A WEEK, SHOULD HAVE SOME ACTIVITIES AT NIGHT.
- PERHAPS MORE DINNERS SPONSORED BY LOCAL TIMBER-BASED COMPANIES.
- TRIP TO FRIM; MORE WELL ORGANIZED FAREWELL DINNER \*(WITH MORE PRIVACY), MORE VISITS.
- MORE TIME WITH THE PROGRAMME STAFF. THEREFORE A SPONSORED DINNER WITH THEM IS GOOD. THE MORE THE BETTER AND MERRIER.

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

- ALL COVERED.
- WORKSHOP PAPERS/DOCUMENTS/TEXTS - ADEQUATE; QUESTION AND ANSWER SESSIONS, TOO.
- NAME OF PARTICIPANTS SHOULD BE DELETED IN THIS QUESTIONNAIRE FORM (NORMAL PRACTICE - I GUESS); MAY INTRODUCE SCALING SYSTEM TO GRATE THE CRITERIA PUT FORWARD.
- GENERALLY, THE PROGRAMME WAS VERY WELL ORGANIZED.