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**ASSISTANCE TO THE MARA FURNITURE RESOURCE TECHNOLOGY CENTRE**

DP/MAL/92/006

MALAYSIA

**Technical report: Furniture design\***

Prepared for the Government of Malaysia  
by the United Nations Industrial Development Organization,  
acting as executing agency for the United Nations Development Programme

*Based on the work of Selma Arnautovic,  
UNIDO design consultant*

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\* This document has not been edited.

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## I. INTRODUCTION

Following the development of UNIDO Project and assistance to MARA (Majlis Amanah Rakyat - Council of Trust of the Indigenous People) and its FITEC (Furniture Industry Technology Centre, earlier called FRTC- Furniture Resource Technology Centre), Ms Selma Arnautovic was appointed as UNIDO Design Consultant, for the period of two months, between 3 May and 1 July 1994.

The FITEC Centre is a relatively newly established function within MARA structure, created as the follow-up program to a research study "Small Scale Furniture and Joinery Industries in Malaysia", jointly conducted by Technonet Asia and JICA in January - December 1982. The centre has only become operational in middle of 1993 when the building complex was roughly completed and most of the ordered machinery installed. The technical acceptance of the buildings (CF) has not yet been given by the local authority. There are works and elements of the buildings that still need to be completed by the building contractor. It can generally be said that a lot of planned activities regarding FITEC took much longer than initially foreseen and that is still a significant factor to consider for any strategic planning and action.

Prior to the Design Consultant's mission, UNIDO provided assistance to FITEC through a Senior Furniture Expert and Production Specialist. These specialists helped FITEC in starting activities and provided basic training for the staff and Bumiputra entrepreneurs. Their reports are based over a longer period in FITEC, in which day-to-day solutions for factory layout, specification of machinery, basics on product engineering, etc., were provided. That has also served as the basis for the Design Consultant's Job Description and work program. The planned involvement of UNIDO Marketing Consultant was cancelled, and a study trip was organized for the FITEC Factory Manager to visit similar training centres in several developed countries.

The overall UNIDO Project objective was to assist FITEC staff in providing training and services to the small and medium scale Bumiputra entrepreneurs, who are lacking industrial experience, skills and equipment in timber based furniture production.

The specific objective for the Design Consultant was to assist in defining the work program for FITEC Design Unit and train the staff in conducting courses for Bumi industrialists. The following activities were specified, (See ANNEX 1: Job Description).

1. Briefly survey the designs currently produced in factories selected by MARA to be assisted and assess the level of relevant knowledge on product design.
2. Provide ad-hoc assistance and training for the manufacturers in basic elements of design, ergonomics, furniture construction.
3. Basic information on furniture design development and history.
4. Development of furniture design program similar to Shaker line or Bombay Co.

products which can be manufactured and marketed within Bumiputra industry.

With regard to the desired long term result (fully operational Design & Product Development Unit in FITEC, providing efficient service for industry), the defined work program was set rather ambitiously for the given time.

It can be said that the design consultancy achieved instalment of the essential procedures in design process, ranging from formulating the design brief, making concept drawings, producing technical documentation (full scale drawings, part drawings, etc.), to model making. For this purpose the Pilot Project was proposed as an exercise and in-house training for future Design & Product Development Unit executives. In this Pilot Project the design concept developed the idea based on an extendable family of furniture, with eight items presented. It can be qualified as a success to have produced some of the full scale drawings, part drawings and three models, as a good start and basis for further work. The initial plan to develop the prototypes through Workshop with several manufacturers has been transformed into this in-house Pilot Project, as an exercise for the FITEC team, and analyzed with the entrepreneurs during the course. This may be justified by the findings from the brief assessment of the entrepreneurs and FITEC practice.

The FITEC staff has for the first time experienced the design process from concept stage, through to technical documentation and model-making in this Pilot Project. In other words, they have applied the knowledge and the procedure that FITEC is expected to transmit to the manufacturers. Once this procedure is installed as a regular practice, the further step would be to conduct workshops with the manufacturers.

The consultancy has also set the framework for training the entrepreneurs in working with designers, through the course and seminar conducted. The series of lectures with notes and illustrations are gathered in the FITEC booklets. The information is provided on the profession of designer, methods, techniques and tools of design, teamwork procedures in product development, anthropometric principles in furniture and ergonomics. Through the Case Study of the Pilot Project and furniture developed in FITEC, the design process has been studied with the entrepreneurs, as well as the analysis of market categories for furniture and a brief review of the history of furniture. The FITEC executives prepared a presentation on the basics of drawing techniques, furniture construction and engineering elements.

The three day course and one day seminar had the desired response of the participants, in terms of numbers present and activity. The lecture notes and guidelines on Basics of Design were distributed and left in FITEC for future use. A Questionnaire was designed and distributed to the participants, for the purpose of evaluating the training program. (See ANNEX 5. Design Basics Course- Programme and Evaluation and ANNEX 6. Design Seminar with lecture notes and graphs).

It can be said that the specific objectives were largely achieved according to the program, with the very intensified FITEC team engagement in a very short time and other job assignments given to the members of the team, outside of UNIDO Project.

## II. ACTIVITIES AND FINDINGS

In the beginning of this mission, the Production Specialist, Mr D. Brown, was finishing last few days of his assignment in FITEC.

The drawing office was partly equipped with basic drawing tools. The counterpart, the Executive Designer, explained that three computers were ordered with AutoCAD programme, but had not yet arrived, and that there was a plan to train him to use AutoCAD. A technical drawing table was brought in from MARA head office upon the Design Consultant's arrival.

There are relatively a lot of books and periodicals on design and production techniques, not yet sorted and catalogued, due to the shortage of staff. The space allocated to the library and future Information Centre and Data Base is not yet functional and is presently used to accommodate participants of the training, during their lunch and tea. Some of the ordered shelving for the library arrived recently.

The layout of the whole techno-administrative block looks somewhat improvised, as if the internal organization and use of space has not been designed to accommodate the furniture and equipment which needs to be installed. It was suggested that to improve this situation a separate design project is required, whereby some of the items of the furniture could be produced in FITEC as a purposeful and practical exercise. However, this idea was beyond the scheduled work program and could not be implemented this time. It was also learned later on that the library layout had been given as the task for an external interior design consultancy. This illustrates what seems to be common practice to concentrate efforts on details and fragments rather than analyze the problem as a whole and then phase its solution according to the finance and capacities.

After the introduction to all the FITEC staff, personal presentation and initial discussions, the work program was specified, based on the Job Description and FITEC preferences. The Factory Manager emphasized the furniture program development and guidelines for the Executive Designer in future work, with less enthusiasm towards company visits and assessment.

### A. Brief Survey of Furniture Design Related Institutions

There is not much specific information available in FITEC on the company profiles, apart from the address list and general information on product categories, turnover and macro grouping. Towards the end of the mission it was learned that there was a survey going on to provide company and product audits. It was being conducted by external consultancy from Singapore, Paradigm International, for Guthrie Furniture and will include 82 Bumiputra manufacturers, mostly under the Umbrella Scheme. The audits are based upon the analysis of the following factors: raw materials, finished goods, work-in-progress, machinery, workers, quality systems, quality improvement projects, housekeeping, safety, Government projects, open market projects, complaints follow-up and other.

There are some six hundred entrepreneurs within Bumiputra furniture industry. They are all of either small size, with 4-5 employees, or medium size, with 40-50 employees, spread in 11 states of Malaysian Federation. They are roughly grouped into 3 categories according to the size and product potential: group A (large companies), group B (medium size companies) and group C (small size companies). According to FITEC, none of the factories qualifies into A group, which is the target group for all, with export orientation.

Within B and C groups, some of the companies are selected into the Umbrella Project, the Government concept of sponsorship and contract projects distribution, aimed to foster their production development. On the top of this pyramid is GUTHRIE Furniture which provides the marketing and design functions, distributes orders to factories, and works directly with 82 manufacturers. Some of the factories are over ten years in this system of protected market.

There is awareness both among the entrepreneurs, Guthrie furniture and other institutions, of the need to become more competitive and exposed to the open market. This is followed by the efforts to acquire more skills and knowledge, but it appears that often the methods applied are more of the administrative nature and fragmented, which slows down the improvement process.

In order to focus the input to FITEC on realistically achievable and adequate training and furniture program, the first few days of the mission were spent in factory visits and discussions in the furniture related institutions, which are of interest to FITEC for coordinated action in service of industry.

The following institutions were visited (See ANNEX 3: Company Visits & Names & Addresses):

1. SIRIM, to assess current standards related to timber based furniture
2. FRIM, to assess furniture testing practice
3. MTIB, to assess furniture design and development policy
4. ITM, to assess the educational background for furniture designers
5. GUTHRIE Furniture, to assess furniture design and marketing policy in product development

Discussions and information acquired in these institutions gave a good view into the required level of training and was the basis for the course concept and lecture contents for FITEC. There are several clear findings as a result of the discussions.

There is a very small number of professional and experienced designers working directly with Bumiputra furniture industry.

The educational program at ITM, School of Art and Design has existed for some 20 years and trains industrial design graduates with no specific curriculum in furniture. At present, there are projects given as student tasks, with the plan to establish a specialized Furniture Design Course in two years time. Exhibition of final year student works showed very good presentation skills in most of projects. The designs are mostly futuristic, heavily

influenced with already known international design solutions, with little use of local or traditional materials. Although some of the projects have statements on research in traditional materials, there is little application in designs. There is more concentration on visual effects on account of logic in construction and function, which also seems to be common characteristics in design practice. This even broadens the gap between future design professionals and underdeveloped industry.

There are widespread activities within MTIB to promote furniture design in industry. Since 1986 they have sponsored a two-stage furniture design competition. First stage invites designers to submit concepts for the given theme, and the second stage develops prototypes from selected concepts. This involves some of the more advanced Bumi manufacturers in model making. However, no models were accepted to be used for serial production, so far. Most of the manufacturers are not confident enough in the marketing potential of the designs, or are unwilling to commission and pay for the designer's work.

Most of the activity in furniture design is located in Guthrie Furniture, which is directly given the standard Government contracts and which is also exploring other areas of local and export market. It seems that Guthrie has focused more onto the area of custom made furniture for public interiors, and to a smaller extent onto the other categories of furniture. Standard Government contracts have the defined standard models and designs, with instruction to do the redesign every year. Some of the new models in the showroom, oriented to open market, show a lot of formality, lack of respect for ergonomic principles, with little production and market briefing. A designer's performance is annually reviewed, based on the number of designed concepts. The frustration is that most of the ideas end up in the filing cabinet. The use of computers and AutoCAD is currently being explored. Good quality promotional brochures and promotion within the media give the impression of a prosperous environment for design development.

In the area of standards for furniture, more research has been done in use of materials other than timber. Information is available on BS (British Standards) and ISO (International Standards Organization). It seems to be seldom referred to within the Bumi industry.

In the area of furniture testing there is closer collaboration with a selected small group of entrepreneurs. Mostly prototype testing is done on buyer's models made from local rubber wood. The effects of local insects on rubberwood are also the subject to research.

There is a broad, well funded institutional base to provide service for the Bumi industry. It does not have enough insight to the real and basic problems of the entrepreneurs and the communication is conducted often either in the academic or administrative fashion.

FITEC practically has to find its space between entrepreneurs and their basic technical and technological problems in starting or conducting industrial production and GUTHRIE Furniture as distributor and coordinator of product development in the area of contract furniture. So far FITEC has only started to provide some training in production engineering, finishing, use of machines, and most recently with the course in Design Basics. Most of the courses were supported by UNIDO consultancy and external lecturers. Participants invited to the courses are mainly from the Group C



This present orientation is understandable and partly justifiable, given the fact that FITEC is a new organization with a lot of internal day-to-day problems to solve and its profile is yet to be precisely determined. The FITEC staff feel more comfortable with manufacturers who are only making first steps in industry, because of its own lack of production experience. Technical executives do not have much direct insight into the company profiles and production and express frustrations about that. Therefore the training needs are assessed more on a theoretical level, rather than based on the direct research.

After several training courses held so far in FITEC, it appeared that the entrepreneurs do not show enough or further response and do not attend the courses in planned numbers, even if their stay is largely sponsored financially. This suggests that the training is either not well organized, interesting enough or not adjusted to the real needs of the participants.

It is already stated in the reports of previous UNIDO consultants on this project, that the FITEC staff lacks industrial experience in practical work, and can hardly effectively assist factories. There are only two Technical Executives who have worked in production before joining FITEC. (See ANNEX 2: FITEC Staff Profile). That is why currently most of the training is prepared as paperwork with the information from textbooks and some demonstrations of the machine operations, which neither can replace regular educational process nor can address the real production problem.

It also has to be noted that present internal organization lacks strong technical leadership. This is needed to realistically evaluate the existing potentials and direct the parallel action on the development of training and production skills through work and additional education, when and as necessary.

## **B. Brief Survey of Factories**

The short list of more advanced Bumiputra entrepreneurs has been selected with FITEC to assess and provide the basis for future FITEC involvement in their production. The visits were conducted as mini-audits with the emphasis on furniture design practice assessment, with the objective to set the framework for design briefing and serve as the guideline for the FITEC Design Executive. They provided valid information for preparing the material for the training course and seminar on Design Basics.

At first, five companies were planned for visits, but time did not allow the visit to company Hasro in Malacca. The following companies were visited, (See ANNEX 3: Company Visits & Names & Addresses):

1. PROBIL
2. AKURA
3. MATANG
4. ADNAN

All of the above manufacturers have four to five years experience of working under the Umbrella concept, through Guthrie Furniture as main distributor of the orders. Some of them are directing their action towards open markets, through individual contacts with buyers or middlemen. In discussions there appeared a few common findings that can be grouped as follows:

1. Government contract furniture is very diversified in character, size and materials, to be successfully made with the individual factory equipment and machinery. Furniture categories are: office desks, school chairs and desks, wardrobes and storage cabinets for police and military, kitchen units for government apartments.

2. Furniture design is preconceived and set in the price limits and there is a little attempt in Guthrie (who handles it further to the factory) to upgrade it. As a result, there is no respect for the rational use of materials or for dimensioning and detailing to suit the end user. That is consequently followed by production and their inexperience or weak points in furniture construction, assembling and finishes. The outcome is a crude product.

3. There is no authentic or independent product development nor capacities for it in factories. The only design activity is either interpreting photographs and models from brochures or making full scale drawings from Guthrie concepts. Team work on product development is not applied.

4. The biggest problem for the factories represents the practice of prolonged deadlines for delivery. Due to the delays on building sites where furniture is requested, some of the supplies are stored in the factory between six months and one year, which creates enormous problems for production. Equally, the payment for the goods is not processed until delivery, regardless of the order deadline.

5. Manufacturers need basic assistance in factory layouts, machine specification, maintenance and housekeeping, production and market orientation.

6. The training and knowledge in design is lacking. At this stage the design function is placed mainly with Guthrie, or is supplied by rare external designers. Factories need assistance in making workshop drawings for prototype and production planning. They often feel that the documentation provided through Guthrie is not sufficient.

7. Although some individual contacts are made, entrepreneurs feel that they are not ready for export and that they need more specialization for the local market as well. There is a plan to form a consortium of ten manufacturers with more specialized input from each and move operations into a furniture village.

### C. Training Course and Seminar

Based on the information acquired through company and institutional contacts and direct work with FITEC executives, the concepts were made for the three day course and one day seminar on the Basics of Design. The main objective of the training program was to make the entrepreneurs familiar with the profession and work of the designer, to help them understand and read the technical drawings, to explain the design brief and team work in product development.

At present, there is no practice in FITEC to base the invitations to the training on analysis and grouping. Each executive is given the task to organize a number of courses per annum, as the basis for performance evaluation. Some of them find difficulties in successful accomplishment of the task. For this course, FITEC has invited C Group entrepreneurs and mainly B Group entrepreneurs for the seminar.

Most of the participants of the course are only making first steps in production. Some of them are buying second hand components (e.g. doors from Singapore) and selling locally. The real company profile could only be spot-checked, during the intervals.

One of the obstacles in communication was the language, since some of the participants could not speak English well enough to be active. Every effort was made to overcome this, by parallel translations to Bahasa Malay during lectures. Also, the language and expressions were made to be simple, with a lot of illustrations and graphics, and direct demonstrations on the board. There were several group exercises given to activate the participation and allow insight into understanding of the topics. There was a good response in graphic exercises, showing the understanding of the design principles set in the Pilot Project. When it comes to discussions, the cultural aspects seem to be barrier for some participants, either the language, shyness or lack of confidence.

The questionnaires were distributed to help the evaluation of the training program. Only limited conclusions can be made, because half of the participants did not take the trouble to answer the questions. (See ANNEX 3: Company Visits & Names & Addresses, Appendix A. Questionnaire). However, it can be said that the information presented was new for most participants, was illustrative and gave some new ideas. (See ANNEX 5: Design Basics Course- Programme and Evaluation)

Most interest was shown during the analysis of the furniture models developed in FITEC, as part of the in-house training and the Pilot Project. This exercise project was designed as a series of household items, tables and chests with drawers for various use. It was analyzed through the course modules from the following aspects:

- aspects of the design process : from idea to prototype
- evaluation of product what is good design
- from construction aspect modularity and interchangeability of parts for

factory standardization, solid wood operations, joints, fittings and finishes

- from user's aspect: modularity and possibility to add and expand series

Other topics covered principles of ergonomics, market categories of furniture and brief survey of history of furniture development in this century in industrialized countries.

The training program engaged three of the FITEC's technical executives, who were also part of the product development team, to prepare three of the training modules. These modules explained basics of drawing techniques, workshop procedures and prototype making and finishing techniques.

The Seminar Concept was made with FITEC for the more advanced Bumiputra entrepreneurs, who are longer exposed to furniture industry practice. The objective of the seminar was to encourage more involvement of creative design in company practice. For that purpose two of the local lecturers were invited to give talks on the criteria for good product design and team interaction in product development. First lecturer is the Dean of School of Art and Design, ITM and the second was a local consultant, with experience in automotive design and corporate image design.

The third lecture, on the design and culture, was by Ms Arnautovic and was aimed to encourage more analysis and research into the human and cultural values of products. It is important to direct part of the research on design development within Bumi industry to this area, because of the fast changes to which the Malay society is exposed. The changes are reflected in the change of lifestyle and working culture, home design and furnishing, habits and ultimately objects of every day use. The development of local furniture design will only be successful if these changes are taken into consideration, as part of the design brief and basic framework.

In this way, by joining local experience in academic training and practical work, together with overseas experience in design practice and theory, the participants of the seminar were addressed on a higher level of communication and provoked into discussion. The seminar can be qualified as a success and could have lasted at least one more day. It had a lively exchange of ideas and opinions, and some of the entrepreneurs were interested in getting individual consultancy on the product development. Generally speaking, most of the participants expressed that they learned something new and useful for them.

However, in answering the questionnaire after the seminar, the similar outcome is shown in comparison to the course. About half of the participants did not give any answers on the forms. Language seemed to be a smaller obstacle (other lecturers spoke in Bahasa Malay) than at the course, probably due to the more educated audience. (See ANNEX 6: Design Seminar Lecture)

### **D. Furniture Program for FITEC- Pilot Project**

In the Job Description for the Design Consultant. (See ANNEX 1: Job Description), the recommendation is made to develop a furniture program similar to Shaker line or Bombay Co. products.

Having assessed the potential of the few Bumiputra furniture manufacturers and the level of FITEC staff experience and capacities, the above task needed to be clarified for the sake of future orientation.

FITEC is not a production centre but can be further developed into a prototype making centre as one part of its program. Therefore, the organization needs to be positioned in the Umbrella chain or within Bumiputra industry in such a way that it gets precise tasks what to make and where some other institution defines the character or category of furniture. It means that there should be market research with a brief for the designer as the result, with a clear picture of the manufacturer who will take over the prototype and put it into serial production.

In this particular case, such a brief and research has been only based on opinion and indeed attractive trends in USA and partly Europe. It is not yet possible to realistically identify either the manufacturer or the market, within the limits of this project and FITEC. Therefore the designed furniture program can only be considered as an exercise and in-house training in procedures and operations of product development, called Pilot Project. Of course, this does not exclude the possibility to fully develop the designed program and find the adequate production and market, should FITEC so wish.

The design concept is based on the principles of Shaker furniture, in regard of solid wood construction and simplicity of forms and details. That is suitable to the basic equipment available both within FITEC and factories visited. The program consists of a series of items designed in a modular grid 450/450 mm, with two dimensions for width and depth, and three dimensions for height of the elements. There are eight pieces of this modular furniture presented and two mirrors designed from the components.

The Concept presented a family of products in order to illustrate and apply principles of industrial rationalization and standardization through design, with interchangeable components and modular elements, which are attractive both to users and manufacturers.

Standardization in design has the potential of the following standardizations:

- in shapes/profiles of wooden legs
- in measurements/dimensions
- in machine operations
- in joints and fittings

- in assembling
- in packaging

(See ANNEX 4: Pilot Project for FITEC- Photographs)

After almost two months spent as design consultant in FITEC there are two conclusions that can clearly be made. The first is that the scope of FITEC's work with entrepreneurs is too broad and too general for the capacities available. Secondly, the given period was far too short for the fulfilment of the long term task - to make the Design Unit functional. It will largely depend on further directions and technical side of the FITEC's management whether the installed procedures, operations, and training frameworks, supported by UNIDO consultants, will become truly operational.

In order to contribute to that outcome the following recommendations have been formulated.

### III. RECOMMENDATIONS

Two lines of activities should be cultivated in parallel by FITEC: prototype making for furniture industry and training programs. These two lines will support one another, give the staff production experience, closer contacts with factories and their real problems and other training needs. FITEC has to obtain more information about the company profiles of the manufacturers in order to analyze and focus its attention to the defined production groups.

To obtain the role of Prototype workshop within the Bumiputra industry and MARA structure, FITEC has to define its position between Guthrie Furniture, with its marketing and design function, and manufacturers. According to the current decision making structure, this matter needs to be discussed with MARA directors and Guthrie Furniture, preferably supported by the technical proposal originating from FITEC.

If the above is achieved FITEC should be able to provide full technical documentation with costing analysis and models for furniture programs. For the time being, that can be a sufficient task to the Design & Product Development Unit. Once accomplished, the full documentation and approved prototype should be handed to the selected factories, with the necessary follow-through, supervision, additional training and ad-hoc assistance in production.

Further development of the design function in FITEC can be oriented to more independent work and assistance to the Guthrie Furniture Design Department in developing new models of furniture for production. The FITEC Executive Designer and production Executives should be exposed directly to information on furniture design trends and practice, through occasional study trips and attendance at furniture fairs. This needs to be planned in

detail once FITEC has defined goals and cooperation with manufacturers on the production side.

Finally, further assistance would be of benefit for FITEC. That assistance should concentrate on identifying a group of more advanced manufacturers, to work on product development, identifying market areas and categories of products (locally, regionally and overseas) and defining the furniture design program. This should be achieved through a team effort of external consultants (marketing, production and design specialists) and a selected FITEC technical team, and the small group of manufacturers, suitable for the task. The future action in connection to FITEC profile and development should result from evaluation of this phase of the UNDP/UNIDO project and within the MARA structure.

**ANNEX 1: JOB DESCRIPTION****Assistance to the MARA Furniture Resource Technology Centre  
DP/MAI/92/006/11-53/J13101**

- Post title:** Consultant in Furniture Design
- Duration:** Two months
- Date required:** Early 1994
- Duty Station:** Kuala Lumpur with travel within country
- Purpose of project:** To enable the MARA Furniture Resource Technology Centre to effectively assist the Bumiputra furniture industry by training and guiding the managers and technical staff.
- Duties:** The expert will be attached to the MARA Furniture Resource Technology Centre. He will assist its management in establishing its work programme, the training of its key personnel and the conduction of courses for Bumiputra industrialists. In particular he will be expected to:
- 1) Briefly survey the designs currently produced in the factories selected by MARA to be assisted. Assess the level of knowledge in technical and ergonomics of their design staff.
  - 2) Provide ad hoc assistance to these plants, and to the extent possible, to designers from other plants in Malaysia stressing the following points:
    - basic elements of design including standard dimensions
    - basic elements of ergonomics
    - Construction details (joints, elimination effect of movement due to shrinkage, etc.)
    - construction using veneered wood based panels.
  - 3) Provide ad hoc basic information on the history of furniture design and its development.
  - 4) Develop through the Workshop, a series of products, that have market potential (if possible through a joint effort by several manufacturers). A suggested line of products could be similar to those marketed by Bombay Co. in the USA, or a Shaker line of products.



- 5) Make a detailed proposal how FRTC could maintain and continue a furniture design programme.
- 6) Lecture on the above subjects.
- 7) Prepare a technical report describing his findings, work done, conclusions and recommendations.

**Qualifications:** Extensive experience in the design of simple solid wood and panel furniture of medium quality and price including for export markets (Europe and USA). Experience in export marketing an asset.

**Language:** English

**Background information:** The furniture industry in Malaysia is generally underdeveloped. The industry:

- lacks knowledge of and is isolated from up-to-date technological developments in woodworking, leading to a low level of productivity.
- Lacks the knowledge required for a serial production (industrial costing, production planning and control, process control, inventory control etc.) This is particular true in the small and family based firms.
- Lacks detailed knowledge of or expertise in furniture design and quality standards. Design at present is copyist in nature, while quality is low.
- Faces a continuing low level of investment, is only partly mechanized and as a result unduly labour intensive.
- Suffers from a shortage of working capital due to delay in payment of contracts and has difficulty in getting bank credits.
- Has little understanding of marketing, both for the internal and export markets.

Most managers in the Malaysian furniture industry, especially the Bumiputra sector, are inexperienced and insufficiently trained, particularly on the technical side. No supporting services in product design and development are available. A Furniture Resource Technology Centre is only now being set up by MARA.

Majlis Amanah Rakyat (Council of Trust of the Indigenous People), MARA, which is assisting small and medium scale industries, has decided to establish a Furniture Resource Technology Centre. The centre is expected to assist in replacing the low levels of technology and production management currently practiced by the industry with those more appropriate to present as well as future market and productivity demands. The immediate objective of the Centre is to bring the Bumiputra furniture manufacturers at par with the much better trained and equipped non-Bumiputra producers. A long term objective would be to develop successful export-oriented Bumiputra furniture enterprises. The Centre is expected to train about 400 small-scale furniture

manufacturers in several aspects of production technologies, management and marketing subjects. The Centre will also conduct research and development to assist furniture manufacturers to upgrade its production technology, design and quality. The Centre is located on a 5-acre site at Kampung Batu, Kuala Lumpur.

The management and technical staff of the newly created MARA Furniture Resource Technology Centre is as yet insufficiently capable to fulfil the demanding task of catalyzing the development of the Bumiputra furniture industry in Malaysia. This problem is to be addressed by the project. Under the guidance of the experts, the Furniture Research Technology Centre management and staff will upgrade its capabilities to conduct the functions are required. Staff will attend in-house and external training. The needs of the industry will be identified.

At the end of the proposed project the local managers and technicians will be able to run the Centre effectively and will enable the Centre to play a key role in developing a strong and dynamic Bumiputra furniture industry. The Centre will conduct training courses for local manufacturers on various technical and managerial subjects. The Research and Testing Unit at the Centre will be able to provide services to the furniture manufacturers in Malaysia.

**ANNEX 2 : FIITEC STAFF PROFILE**

	<b>NAME</b>	<b>JOB TITLE &amp; OTHER ASSIGNMENTS</b>	<b>EDUCATIONAL BACKGROUND</b>
1.	Mohd Noor Sulong	Factory Manager	University of Malaya, Faculty of Economy, MARA Veteran
2	Ismail Mutalib	Executive Designer	ITM- School of Art and Design, Industrial Designer, some experience in Design Studio
3	Hamdan Selaman	Technical Executive for Production & Planning and Control	ITM- School of Applied Science, major in Wood Technology, experience in industry
4	Abdul Moin	Technical Executive for Joinery & Administration	UTM- University Technology Malaysia, Major in Civil Engineering
5	Ismail Jidin	Technical Executive for Joinery	Vocational School & various overseas trainings, MARA Veteran
6	Radin Abdulah	Technical Executive for cabinet making	Vocational School & various overseas trainings, MARA Veteran
7	Abd. Wahid Harun	Technical Executive for Maintenance	Vocational School & overseas trainings
8	Rahmat	Technical Assistant	
9	Samat	Technical Assistant	
10	Azman	Technical Assistant	
11	Jusuff	Receptionist & Typist	MARA Veteran
12	Mahmud	Clark, Photocopy	
13	Roslan Kadir	Accountant Clark	
14.	Zahari Bin Md Jasir	Technical Executive (Finishing Studio) & Library	ITM - School of Applied Science, Major in Wood Technology

### ANNEX 3: Company Visits & Names & Addresses

#### COMPANY DESIGN AUDIT

**Company:** MTIB (The Malaysian Timber Industry Board)  
**Address:** Block A-E Anjung Felda, Jalan Maktab, P.O. Box 10 887  
 50 728 Kuala Lumpur:  
**Telephone:** + 60 3 2926233 **Fax:** + 60 3 2929254/2929834  
**Contact person:** Mr Kamarrudin Othman, Senior Ass. Utilisation Officer  
 Mr Yousuff, Design Section

#### Company background & history:

Technical Division of MTIB gives courses in wood work, training for furniture & rattan industry, using outside speakers for local industry or ad-hoc speakers from abroad. They received design related assistance from GTZ (Deutsche Gesellschaft fur Technische Zusammenarbeit GmbH.) ten years ago in organizing a design workshop titled: "From idea to prototype". Recently, there was assistance from the Italian Government, with several design courses held.

#### Furniture design policy:

Since 1987, every year MTIB has organized the National Furniture Design Competition, partly sponsored by the Italian company "Adler Friuli" (specializing in finishing technology and materials). The same company provided study visits to Italy for the local entrepreneurs in April 1994.

Every year more participants submit competition projects, with a significant increase in the number of architects participating. Every year a new theme is defined in the household furniture category. Competition is divided in two stages, the first is conceptual with a one and a half months deadline and the second is selected prototype making with a two months deadline. The objective of the competition is to increase awareness of the need for design in industry. Manufacturers are invited to assist in making prototypes. However, nothing has been put into production yet, either because the designs do not look marketable to manufacturers, or in one case royalty arrangement fell through.

#### Marketing policy:

MTIB cooperates with Malaysian Furniture Industry Council which publishes a magazine "Furniture in Malaysia". There is a plan for MTIB and the Malaysian Timber Industry Council to establish a Furniture Design Center along similar lines to the Design Center in London.

#### Comments on designs

MTIB helps promoting Malaysian furniture design through publishing brochures with finalists and awarded designs. The two brochures available during this survey gave a good view of the current design ideas of young designers. Presentation and graphics are of a very good quality. Most of the designs are of an experimental and exclusive nature. There are some good ideas on exploring local heritage in the use of materials, simple construction and design concepts, which could be further explored.

**Company:** FRIM, Furniture Research Institute of Malaysia  
**Address:** Kepong, 52 109 Kuala Lumpur  
**Tel:** 03- 634 26 33 **FAX:** 03- 636 77 53  
**Contact person:** Mr Mohd Arshad Saru, Furniture Research Officer

Company background & history:

Furniture research is oriented to testing, assistance in production engineering and costing. There are 500 employees.

Present products/ services:

FRIM is more interested in working with the four advanced Bumi manufacturers : Probil (dining tables & chairs), Hasro from Malacca (up-market solid wood loose furniture), Matang (panel products), Priyakin from Kelantan (solid wood garden sets).

Plans and objectives:

To upgrade present production of selected companies, providing quality testing both for prototypes and series.

Furniture design policy:

There are two industrial design graduates from ITM working as CAD and testing specialists. They assist manufacturers in making parts of technical documentation, working drawings or part drawings for furniture.

**Company:** IIM, Institute of Technology MARA, School of Art & Design  
 Industrial Design Department  
**Address:** 40 450 Shah Alam, Selangor  
**Tel:** 03- 559 36 22 FAX: 03- 550 72 40  
**Contact person:** Dr Tamyez Bajuri, Dean

Company background & history:

This high level education institution has three and four year courses in Architecture, Interior design and Industrial design. It is well equipped with workshops and CAD laboratory for practical work, and with an exhibition gallery. There is no specific curriculum for furniture design, which is studied within the seminars and individual projects

Plans and objectives:

To develop Design History Course and Furniture Design Course. Wood workshop will be getting more attention when this becomes functional. More visiting lecturers from abroad will be invited for the courses and as external assessors of final diploma projects.

Comments:

Final year student's works exhibition, currently on display showed projects of furniture with models. Most of them are preoccupied with futuristic interpretations of basic functions, with desire to lean on local tradition. It is more achieved in the project statements than in designs. Presentation skills are generally very good, not always geometrically precise.

Key staff and lecturers mainly received their academic training in United Kingdom universities, with little or no experience in working with industry. They seem to be very enthusiastic about high profiled venues, lecturing on design, not necessarily in correspondence to the level of knowledge and receptiveness of the participants. When ITM was considered to organize the FITEC Seminar, most of the discussion was concentrated on the promotional material, position of the logo, print, etc., with no reflection to the contents of the seminar. There is a lot of appreciation of high-tech design tools and techniques, but little application to real situations.

**Company:** SIRIM, Standards & Industrial Research Institute of Malaysia  
**Address:** Persiaran Dato' Menteri, Section 2, 40 911 Shah Alam, Selangor  
**Tel:** 03- 559 26 01 FAX: 03- 550 80 95  
**Contact person:** Mr Sulaiman Ismail, Research officer

Company background & history:

SIRIM is a national multidisciplinary research and development agency under the Ministry of Science, Technology and Environment, set up to assist companies solve technical problems through the use of technology. There are 1100 employees and the divisions are Research and Technology Development, Standards and Quality and Technical Services

Present activities:

There is little related to timber based furniture industry. Furniture standards are based on British standards (BS). There is an initial presentation of ISO 9000 to a few local companies. More attention is paid to quality standards of plastic, metal and other components in furniture

**Company:** Guthrie Furniture SDN. BHD.  
**Address:** 4 th floor, City Square Complex, 182 Jalan Tun Razak  
 50 400 Kuala Lumpur  
**Tel:** 03- 263 20 20 **FAX:** 03- 263 18 99  
**Contact person:** Mr Suhaimi Hashim, Executive/ Designer.  
 Mr Nor Azizi Ahmad , Industrial Designer  
 Mr Saiful Anwar Abu Hasan, Technical Executive  
 Mr Terrence Howe, Paradigm International Consultant

Company background & history:

Guthrie coordinates and distributes Government contracts to entrepreneurs. It assists them in re-designing their proposals, experiments with new ideas and interior design. The new internal organization started last year. Internal organization has Interior Design Division and Design & Costing Division, Technical Department and Marketing Department.

Present products/ services:

One line of services is to design office, school and kitchen units for standard Government projects. It is covered by the Umbrella scheme for the Bumiputera selected entrepreneurs. Another line is oriented to open market and custom made furniture, either directly contracted with the client or subcontracted through building contractors, with a preference for the first type of arrangement. The third line of products is developed for the retail market, mainly in the category of kitchen and lounge furniture, and is open for participation of all the Bumi entrepreneurs.

Plans and objectives:

To do more work for the open and export market. Designer wishes to develop new concepts for young professionals living in condominiums and knock-down furniture with modern lines.

Furniture design policy:

Designer's views and frustrations come from the belief that local market favours antique-copied furniture which limits chances to explore modern design. He has interesting ideas on research in traditional culture of living and its modern interpretations in furniture design. Most of the new design concepts end up in the drawer. His defined work program is to design 140 design concepts in six months, which is the basis for the performance evaluation. Presently, he has AutoCAD program Version 12.0 installed on the office PC and is learning to use it. He is encouraged by the management to follow-up on the latest design information, and occasionally will be sent to international design exhibitions. He has participated in the national Furniture Design Competition and is one of the award winners, which made his work public.

Comments on designs:

There are interesting ideas in using local heritage. Designs are rather formalistic. More exposure to the direct work in the prototype workshops with manufacturers would enable better understanding of the rational use of material, proportions and ergonomics.

**Company:** AKURA (MARA Category: B)  
**Address:** Lot 763, Kg. Sg. Tankgas, Jalan Reko, 43 000 Kajang, Selangor  
**Tel:** 03- 836 80 60 FAX: 603- 836 8058  
**Contact person:** Nor Rahmat Hj. Sulaiman, Manager

Company background & history:

Started in 1985 with six workers. The manager has a background in carpentry. AKURA has worked through Guthrie for 5 years in the Umbrella scheme for the Government Projects, based on custom made furniture. The present product range is broad and too diversified. It is hard to concentrate on one line of production and the existing machinery is not suitable for the required scope of products.

Present products:

The products are mainly simple chairs, solid wood and panel-based products, box furniture and wall panelling.

Plans and objectives:

To join the consortium with 10 other Bumi entrepreneurs and move the panel-based production into the new factory in the newly planned Furniture Village. Orientation is to develop the export market for the Middle East countries with an office furniture program. The feeling is that the assistance from Guthrie is not adequate, especially in the marketing area. There is a strong desire to work directly with the Government or other clients.

Furniture design policy:

The company engaged external local design consultants (CIPTRA Design) to propose new designs for loose furniture, coffee tables, etc. They are commissioned to do concept designs and working drawings, with fee based on 10% of the order value (up to RM 100 000) or 5% (above RM 100 000 order value). There is a feeling that having an internal designer could reduce costs, especially when the series are small.

Marketing policy:

They made a brief survey of the local office furniture exporters to Middle East market. As a result, they believe there is a niche for a panel-based office system. They plan to develop and promote it at the Oman Furniture Fair, probably next year.

Comments on designs:

There are too many different items produced at present. There is a lot of potential to upgrade the standard furniture for Government contracts, but with the present communication system in the chain of orders distribution it is a difficult task for the factory. The weak area in production is finishing. There is no in-depth research and development work, and no prototype development workshop.



Other:

The Factory Manager is a group leader for 5-6 other less advanced Bumi factories, in the Umbrella scheme. These leading ones, and there are 15 of them, work directly with Guthrie on Government orders, subcontracting less advanced ones. The four of the present group leaders feel they can work directly with the Government Departments and that the existing scheme does not contribute to their progress any more.

Major problems are experienced in handling Government orders. Often the goods are made and ready for delivery, but the Government office is unable to accept the consignment due to delays on building sites. This creates enormous storage problems for manufacturers, in regards of the space, costs, transport and rescheduled delivery arrangements. It also means that the factory is not paid for work until the goods are delivered to the building site.

**Company:** PROBIL (MARA Category: B)  
**Address:** Lot 4692, Jalan 57, Selayang Baru, 68 100 Batu Caves,  
 Selangor Darul Ehsan  
**Tel:** 03- 618 94 62 FAX: 03- 618 76 20  
**Contact person:** Ahmad Kamal Ghazali, Managing Director

Company background & history:

PROBIL started in 1980 with 2-3 carpenters. They increased the initial annual turnover of 1000- 2000 RM to 4 million RM last year. Dining sets account for 50% of production, from which 40% is for Government contracts, the rest for the open market. 50% is custom made furniture and interior works, consisting of wall panelling, low and high cabinets, showcases and upholstery. Contract interiors are done 70 % for Government, other 30 % for public companies. These jobs do not have enough continuity.

Present products:

The company makes 2000 chairs per month, solid wood and panel based products. Furniture categories are: office furniture, beds and cupboards, built-in wardrobes, dining room sets.

Plans and objectives:

To develop a new program of dining room furniture for serial production and move its production into the new Hulu Yam Village, within the consortium of ten other entrepreneurs.

Furniture design policy:

There are three industrial design graduates from ITM employed, with the tasks more oriented to prototype making, supervision and production. They assist Guthrie in developing standard products for Government contracts, trying to rationalise use of materials in production, according to the available saw mill profiles. The product finish and lack of local quality finishing materials are the weak points.

Marketing policy:

The company is bidding in tenders for interior design projects to obtain contracts for custom made furniture. They cooperate with architects and building contractors and with Guthrie for Government jobs. They presented their product, solid wood garden furniture at the furniture fair in High Point last year, through Guthrie.

Comments on designs:

A photo album was available in the factory, showing present products, mainly of copyist nature. There is no proper prototype development practice.

Other:

The main problem in the current production is the semi-professional staff in the factory, almost at all levels. They are lacking qualified supervisors. There is a need for more knowledge in production process planning, cost cutting, production systems. Some phases of finishing are very labour intensive due to poor quality of coating and varnishing materials.

Storage for finished products is overcrowded with the completed orders for Government contracts. The furniture is waiting to be delivered for up to one year, due to the delays in building deadlines. Payment is delayed consequently, and communication "up-the-ladder" is inadequate.

**Company:** PERABOT ADNAN (MARA Category: B)  
**Address:** Lot 7&8, Kawasan Industri, 44 300 Batang Kali  
 Selangor Darul Ehsan  
**Tel:** 03- 805 2501/213 **FAX:** 03- 805 26 72  
**Contact person:** Adnan A. Buyong, Managing Director

Company background & history:

The Managing Director was previously a teacher. The company employs 40 people now, which the Managing Director thinks is too much. Production started in 1982 as small workshop on another location, and in 1992 moved to the present site.

Present products:

They manufacture solid wood furniture (outdoor furniture, V- folding chairs, tables), contract furniture (kitchen cabinets) for police apartments through Guthrie. Some loose furniture is made for the local market.

Plans and objectives:

A new line of school furniture is planned. The company wishes to be the part of the consortium of ten other category B Bumi entrepreneurs, to do more specialized production. There are architectural plans for this new building complex ,waiting for approval.

Furniture design policy:

There is a technician/ draughtsman in the factory who makes workshop drawings following Guthrie's order. There is the feeling that the information provided this way is not sufficient for the prototype making and production. There is a need for more detailed technical documentation. The desire for more specialization in production comes from experience with too wide a range of present products.

Marketing policy:

There is a recent joint venture with a New Zealand company (through local Beau Furniture Sdn, Bhd. retailer) in exporting outdoor furniture. The company believes there is a potential for kitchen units and box type furniture for the local market. The manager visited trade fairs in High Point, Milan and Tokyo.

Comments on designs:

Designs are simple, as per standards set by Government and Guthrie. There is no creative input from the factory. There is a lot to improve in function, use of materials, proportions, ergonomics, finishes, etc.

**Company:** PERABOT MATANG (MARA Category: B)  
**Address:** AL 288, Lot 826 B, Jalan Kg. Baru, Sungai Buloh,  
 47 000 Selangor Darul Ehsan  
**Tel:** 03- 656 11 43 **FAX:**  
**Contact person:** Jerry Rodrigues, Factory Manager

Company background & history:

The company is 5 years old. It started with 4 workers and basic machinery. In 1988 they registered with Guthrie, and now employ forty five people. All the profit is reinvested in growth and purchasing of new machines.

Present products:

Panel-based production is using particle board, plywood, chipboard and MDF, but also solid wood (local nyato and maranti). At present they make office desks and cabinets, kitchen units, wardrobes for Government contracts. They started manufacturing loose furniture like console tables in antique-copied style, copied from Bombay Co. USA products.

Plans and objectives:

To develop more products for the open market, first locally, then for the export. They will develop modular kitchen units.

Furniture design policy:

They support the national Furniture Design Competition by making prototypes for selected projects. There is a young, self-taught and talented draftsman in the factory showroom, who makes conceptual drawings, based on external brochures and models. There is awareness of the need for design and belief that current practice with Guthrie distributed projects does not provide adequate information for production.

Marketing policy:

They feel that the factory is not yet ready for export markets. They have sent samples of bunk beds to High Point Furniture Fair and Japan, but they cannot fulfill the orders. There are contacts made with a private buyer from USA, who took two samples of tables. There is a recently opened showroom in Petaling Jaya, with Designer and Marketing executives.

Comments on designs:

One group of products is a direct copy from Bombay Co., USA, in the Queen Anne line of console and occasional table. Study of proportion and use of materials is lacking and the legs and tops are too thick.

There is a new kitchen unit displayed at the showroom, aimed for up-market condominiums. Apart from luxuriously lined elements, the study of dimensions, rounding of edges for safety reasons, and other elements of design are not applied.

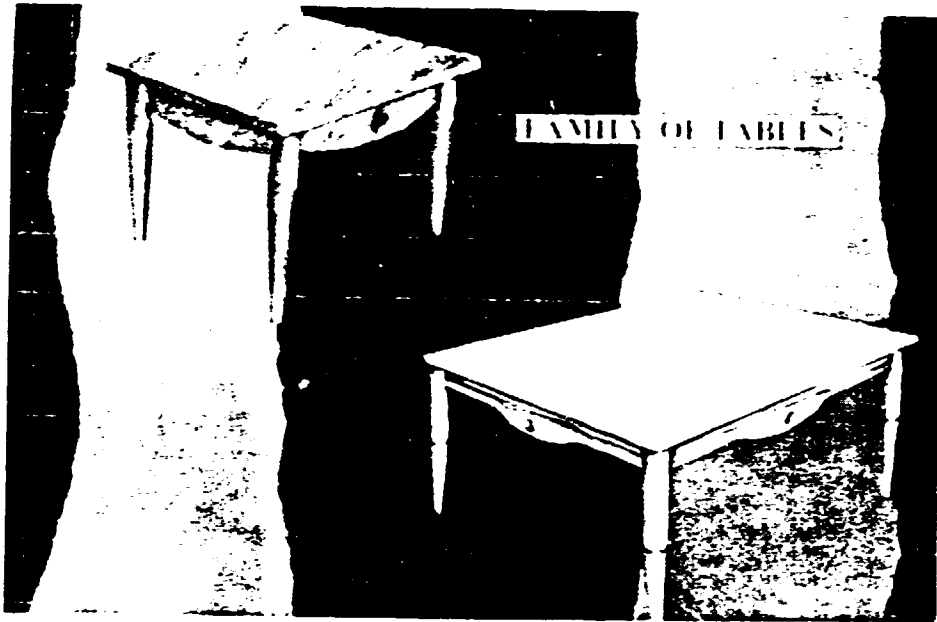
There is a chair model from the design competition in the factory, made in a combination

of bamboo, rattan and solid wood sides, which is ergonomically unacceptable. The back rest is curved as part of back legs and bent from bamboo tubes. Since the upper part is loose the material can't keep the curve designed to be comfortable for the back.

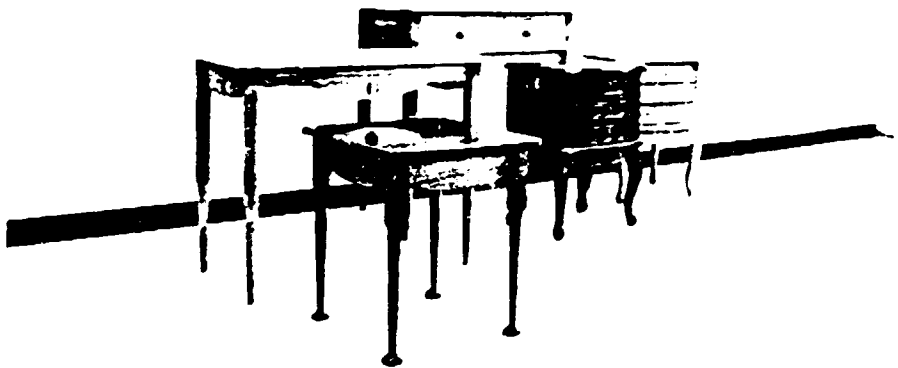
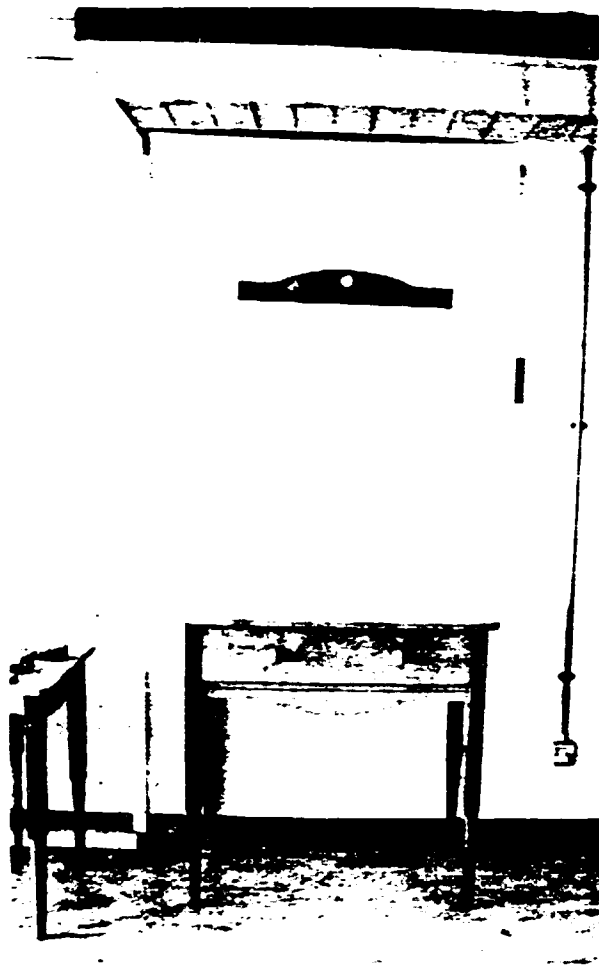
Other:

There is an open minded attitude towards design and its need in furniture production. However, the factory is still dealing with basic production problems, equipment, unskilled labour and supervisors, etc., which needs to be more addressed.

**ANNEX 4 Pilot Project for FITEC- Photographs**

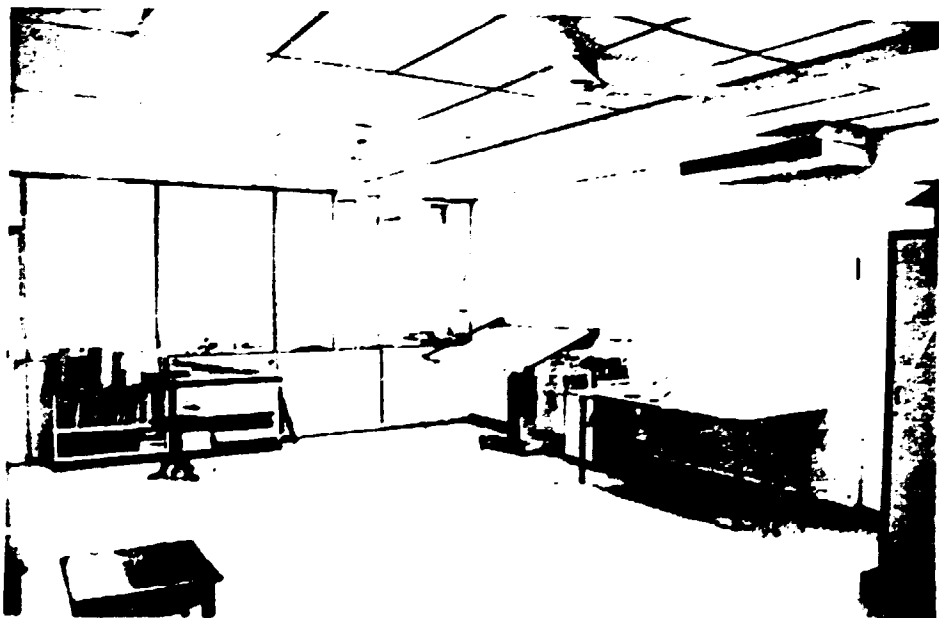


**1.5 : Family of tables and drawers- Rendering drawings**

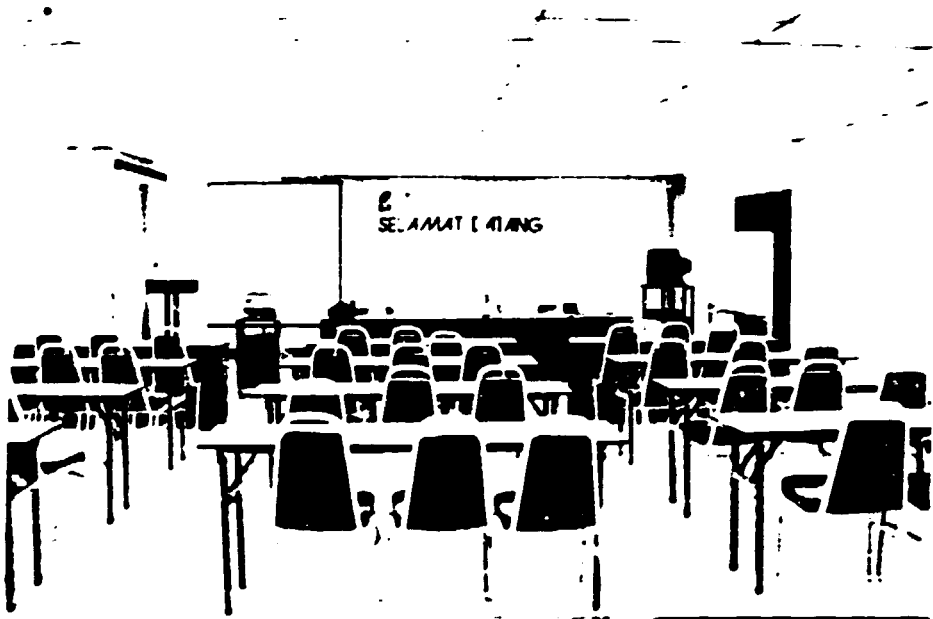


3.4 : Family of tables and drawers- Prototypes





5.6: FITC entrance and drawing office



7.8 : FITEC workshop and auditorium

## ANNEX 5 Design Basics Course - Program & Evaluation

**DURATION:** 3 days (13-15 June 1994) **PLACE:** FITEC, Kampung Batu, K.L.

**LECTURERS:**

1. Selma Arnautovic, UNIDO Design Consultant for FITEC
2. Ismail Mutalib, Pengawai Senireka FITEC
3. Hamdan Selaman, Penyelia Teknikal FITEC
4. Zahari Md. Yassin, Penyelia Teknikal FITEC

**PARTICIPANTS:** 11 participants from groups C and B of Bumi entrepreneurs

(Annex 8: Questionnaire for FITEC training program evaluation)

### DESIGN BASICS COURSE PROGRAM

NO	TOPIC	LECTURER
<u>13 June 1994</u>		
1.	What is Design? Who is Designer? What is Good Design? Designer as Part of Product Development Team	S. Arnautovic
2.	Office drawing equipment & drawing techniques	Ismail Mutalib
3.	Design Process (From Idea to Prototype - Case Study of Pilot Project)	S. Arnautovic
4.	Group Exercises (A. Add items to Pilot project furniture program; B. Evaluate contract school chair design)	
<u>14 June 1994</u>		
5.	Human Body Measurements for Furniture (Basics of Ergonomics)	S. Arnautovic
6.	Basic Drawing Principles (2D drawings, 3 D drawings, Isometric drawing)	Ismail Mutalib
7.	Group Exercise (Drawings)	
<u>15 June 1994</u>		
8.	Furniture Categories	S. Arnautovic
9.	Prototype Development (Workshop drawings, material specification, part drawings, fittings & accessories, glues, finishing materials)	Ismail Mutalib Hamdan Zahari
10.	Brief History of 20 th Century Design & Trends	S Arnautovic

**DESIGN BASICS COURSE EVALUATION****TOPIC 1 (13/6)                      CONTENTS    PRESENTATION    NOTES&HANDOUTS**

1. EXCELLENT	3		2
2. VERY GOOD	3	6	1
3. SUFFICIENT	1	1	1
4. NOT SUFFICIENT			1
5. NO RESPONSE	4	4	6
<b>TOTAL</b>	<b>11</b>	<b>11</b>	<b>11</b>

**TOPIC 2 (13/6)**

1. EXCELLENT	3	3	5
2. VERY GOOD	3	6	3
3. SUFFICIENT	1	1	
4. NOT SUFFICIENT	1		1
5. NO RESPONSE	3	1	2
<b>TOTAL</b>	<b>11</b>	<b>11</b>	<b>11</b>

**TOPIC 3 (13/6)**

1. EXCELLENT	4	1	4
2. VERY GOOD	2	7	1
3. SUFFICIENT	1	2	2
4. NOT SUFFICIENT	1		1
5. NO RESPONSE	3	1	3
<b>TOTAL</b>	<b>11</b>	<b>11</b>	<b>11</b>

**TOPIC 4 (13/6)**

1. EXCELLENT		1	
2. VERY GOOD	2	3	1
3. SUFFICIENT			2
4. NOT SUFFICIENT			
5. NO RESPONSE	9	7	8
<b>TOTAL</b>	<b>11</b>	<b>11</b>	<b>11</b>

**TOPIC 5 (14/6)**                      **CONTENTS**    **PRESENTATION**                      **NOTES&HANDOUTS**

1. EXCELLENT	2	1	2
2. VERY GOOD	4	4	1
3. SUFFICIENT			1
4. NOT SUFFICIENT			1
5. NO RESPONSE	6	6	6
<hr/>			
TOTAL	11	11	11

**TOPIC 6 (14/6)**

1. EXCELLENT	3	2	2
2. VERY GOOD	4	5	3
3. SUFFICIENT			1
4. NOT SUFFICIENT	1	1	1
5. NO RESPONSE	3	3	4
<hr/>			
TOTAL	11	11	11

**TOPIC 7 (14/6)**

1. EXCELLENT	2	1	3
2. VERY GOOD	5	7	3
3. SUFFICIENT			1
4. NOT SUFFICIENT	1	1	1
5. NO RESPONSE	3	2	3
<hr/>			
TOTAL	11	11	11

**TOPIC 8 (15/6)**

1. EXCELLENT	2	1	2
2. VERY GOOD	4	7	3
3. SUFFICIENT	1		1
4. NOT SUFFICIENT			1
5. NO RESPONSE	4	3	4
<hr/>			
TOTAL	11	11	11

**TOPIC 9 (15/6)**                      **CONTENTS**   **PRESENTATION**      **NOTES&HANDOUTS**

1. EXCELLENT	3	2	5
2. VERY GOOD	5	5	2
3. SUFFICIENT		1	1
4. NOT SUFFICIENT			1
5. NO RESPONSE	3	3	2
<b>TOTAL</b>	<b>11</b>	<b>11</b>	<b>11</b>

**TOPIC 10 (15/6)**

1. EXCELLENT	2		3
2. VERY GOOD	5	6	2
3. SUFFICIENT		1	2
4. NOT SUFFICIENT			
5. NO RESPONSE	4	4	4
<b>TOTAL</b>	<b>11</b>	<b>11</b>	<b>11</b>

**COURSE PROFILE EVALUATION**

**E- EXCELLENT**                      **V- VERY GOOD**                      **A- ADEQUATE**  
**N- NOT ADEQUATE**                      **NR- NO RESPONSE**                      **T- TOTAL NO**

<b>ASPECT</b>	<b>E</b>	<b>V</b>	<b>A</b>	<b>N</b>	<b>NR</b>	<b>T</b>
1. Selection of participants	3	6	1	1		11
2. Selection of topics		2	5	3	1	11
3. Group exercise	2	3	2	2	2	11
4. Use of AV equipment	5	5			1	11
5. Duration of course		2	5	3	1	11
6. Suitability to the level of understanding	1	5	2	2	1	11
7. Achievement of the objective	3	3	2	2	1	11
8. Food	3	7			1	11
9. Place	3	8				11
10. Accommodation	3	8				11
11 Overall coordination	2	7	2			11

**GENERAL COMMENTS:**

1. Most of the participants felt that they have learned something new and useful
2. Most of them feel the need for more exercise during the training.
3. Duration of the course could be extended to four days
4. They should like to have a visit to furniture showroom or factory.
5. Some of them were interested to hire a designer or a draughtsman

## ANNEX 6: Design Seminar - Program & Evaluation

**SEMINAR:** Product Development and Role of Designer in Furniture Industry

**DATE:** 16 June 1994

**PLACE:** KL International Hotel, Jalan Raja Muda, Kuala Lumpur

### OBJECTIVES:

This seminar addressed 40 selected Bumiputera manufacturers of solid wood based furniture. They were selected out of 500 entrepreneurs of medium sized factories (Group B) and had more advanced production experience than others. Some entrepreneurs are participating in the Umbrella project, designed by the Government to process contract furniture orders

The objective of the seminar is to develop better understanding of the function of creative furniture design and its role in the companies.

### LECTURERS:

1. Dr Muhammad Tamyez B. Bajuri, Dean of School of Art and Design, ITM, Shah Alam  
Module 1: "CRITERIA FOR GOOD FURNITURE DESIGN"
2. Selma Arnautovic, UNIDO Design Consultant for FITEC  
Module 2: "FURNITURE DESIGN AND CULTURE OF LIVING"
3. Sulaiman Mohd Salleh, Design Consultant, Kuala Lumpur  
Module 3: "DESIGNER AS PART OF PRODUCT DEVELOPMENT TEAM"

### SEMINAR PROGRAM EVALUATION

Module 1	CONTENTS	PRESENTATION	NOTES&HANDOUTS
1. EXCELLENT	7	6	
2. VERY GOOD	7	8	8
3. SUFFICIENT	1	2	5
4. NOT SUFFICIENT			
5. NO RESPONSE	23	22	25
<b>TOTAL</b>	<b>38</b>	<b>38</b>	<b>38</b>



<b>Module 2</b>	<b>CONTENTS</b>	<b>PRESENTATION</b>	<b>NOTES&amp;HANDOUTS</b>
1. EXCELLENT	2	2	3
2. VERY GOOD	8	10	3
3. SUFFICIENT	3	3	4
4. NOT SUFFICIENT		1	2
5. NO RESPONSE	25	23	26
<b>TOTAL</b>	<b>38</b>	<b>38</b>	<b>38</b>

**Module 3**

1. EXCELLENT	4	4	1
2. VERY GOOD	10	11	6
3. SUFFICIENT	2		3
4. NOT SUFFICIENT			4
5. NO RESPONSE	22	23	24
<b>TOTAL</b>	<b>38</b>	<b>38</b>	<b>38</b>

**SEMINAR PROFILE EVALUATION**

**E- EXCELLENT                      V- VERY GOOD      A- ADEQUATE**  
**N- NOT ADEQUATE              NR- NO RESPONSE**

<b>ASPECT</b>	<b>E</b>	<b>V</b>	<b>A</b>	<b>N</b>	<b>NR</b>
1. Selection of participants	5	15	1	1	16
2. Selection of topics	1	18	4		15
3. Group exercise					
4. Use of AV equipment	7	8	7	1	15
5. Duration of seminar	1	9	9	4	15
6. Suitability to participant's level of understanding		14	8	1	15
7. Achievement of the objective	1	8	12	1	16
8. Catering	6	13			19
9. Place	6	16	1		15
10. Overall coordination	3	17	3		15

**GENERAL COMMENTS:**

Most participants feel that they have learned something new and useful. Some of them believe that the duration of the seminar and the discussion time should have been longer. Some of the manufacturers were interested in getting direct design consultancy.

## ANNEX 7: Bibliography

### Books:

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4. R. J. de Cristoforo: "Woodworking for Beginners", TAB Books. Blue Ridge Summit, 1993
5. Volker Fischer Ed.: "DESIGN NOW, Industry or Art?", Frankfurt, 1986
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2. International Standard ISO 8555- 1 till 4, 1987

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1. AD, Architectural Digest, April 1994, USA
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4. Malaysia Furniture Manufacturers & Exporters Directory, 1993/94, Asia Medialine

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3. Promotional brochures on Malaysian furniture (Guthrie)