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HIGH LEVEL ADVICE TO THE WOOD FURNITURE SECTOR IN DURANGO STATE  
IN THE DEVELOPMENT OF THE WOOD PROCESSING SECTOR

SI/MEX/87/802

MEXICO

Terminal report\*

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

Based on the work of a UNIDO staff member

Backstopping officer: Antoine V. Bassili, Industrial Management and  
Rehabilitation Branch

United Nations Industrial Development Organization  
Vienna

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\* This document has not been edited.

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1. INTRODUCTION

As a result of a request for technical assistance made by the CANACINTRA regional office in the State of Durango, UNIDO sent a staff member of its Industrial Management and Rehabilitation Branch, Antoine V. Bassili, Senior Industrial Development Officer to the State of Durango, Mexico, on a 3.5 week mission to Mexico - of which two weeks were spent in the State of Durango - from 13 October to 5 November 1987.

His terms of reference were to advise the authorities of Durango State on the measures they, the industry's professional association(s) and individual plants will have to take to enable it to improve design, productivity and quality to the point where they could enter world markets.

He was further to shortly assess inter alia the state of the industry, its raw material supply, its manpower skills at all levels, the design capability, level of technology, etc. Based on this short assessment he would recommend, in a report, the measures to be taken by all concerned.

During his mission he visited ten wood processing plants in the town of Durango, one in Vicente Guerrero, and a further nine in the Laguna area. The plants visited in Durango produced sawwood, plywood, particle board, laminated particle board, cement bonded boards, blockboard, solid wood and panel doors, glulam beams, wirebound boxes, mouldings, prefabricated houses, as well as various types of furniture (panel, "reproduction" and "American Colonial" as well as the "rupero" a well designed traditional low cost cupboard for which Durango is well known). In Vicente Guerrero the plant laminated mouldings and produced panel and solid wood furniture.

In Gomez Palacio the plants visited produced laminated particle board, panel furniture, rattan furniture and solid wood furniture.

Over and above his terms of reference, he visited four furniture producers in Mexico D.F. and provided ad hoc assistance to them. A visit was also made to LANFI, the National Laboratory of Industrial Development in Mexico D.F., and discussions were held on the possibility of locating there a "Furniture Institute". The list of persons met are given in Annex 1.

## 2. PRESENT STATE OF THE WOODWORKING INDUSTRY IN THE STATE OF DURANGO

### 2.1 Primary Wood Processing

The mission visited only two sawmills and two plywood mills and a blockboard mill (all in Durango). One of the sawmills was part of the very large and ultra modern Grupo Guadiana, while the other was an old type. Similarly, the plywood plants visited were old. All these cannot be considered as a representative sample, so no judgement can be passed on the current situation of the sawmilling and plywood sectors.

The Grupo Guadiana has, in its complex in Durango, very modern particle board, laminated particle board, cement bonded particle board and moulding facilities as well as a plant to produce adhesives.

A modern panel lamination plant was visited in the Gomen Palacio area. It was laminating plastic foil onto particle board. In Vicente Guerrero, a plant laminating foil onto mouldings was visited. Both produced products of a high quality but were operating well below capacity.

### 2.2 Secondary Wood Processing

The same group (Guadiana) has a prefabricated house plant and a glue-laminated beam plant that are extremely modern.

A plant in Durango producing wire-bound boxes was visited that was old, but the quality of the products was acceptable. Productivity could have been improved.

Solid wood and flush doors were produced by a plant in Durango that had modern facilities. Their quality was good.

The situation of the furniture producing plants varied considerably. By and large it can be said that the plants in the Laguna were more advanced technically, better equipped and better managed than those in Durango. They produced for a more affluent clientele, a far wider range of products of higher quality than those in Durango. Most of the latter had specialized in the production of Ruperos, a low cost wardrobe for which Durango had acquired a certain national recognition. The quality of this Rupero was adequate (commensurate with its cost); the design excellent, in so far that it used small cross section pine sawwood and plywood with minimal waste. Production used basic woodworking machines and assembly was mainly by hand. Yet it had something of an industrial aroma, since it was produced in series, with some simple yet well designed

jigs. Because the wood was soft and the price low, tool maintenance and surface finishing needed not to be of a high level. Improvements in jigs - namely making them more robust and precise - and the introduction of more pneumatic tools (sanders, borers, screwdrivers etc.) and low cost automation could greatly increase productivity. Because of the very repetitive nature of the production, problems relating to its planning and to material procurement and inventory control have been solved. On the other hand, improvements in the equipment (through additions), and increases in production capacity because of market demand, resulted in a deterioration of plant layout, which furthermore must already have been poor initially. Much remains to be done in this respect, and it should be awarded the importance it deserves. In most plants in Durango internal transport was poor, as was overall housekeeping (removal of offcuts, sawdust, chips, etc.). One furniture plant in Durango, producing American Colonial style chairs, was producing them on a fully industrial scale, and by and large the above comments do not apply to it.

A plant visited in Vicente Guerrero producing panel furniture was also above the standard of those Durango, though tool maintenance and dust extraction needed improvement.

In the Laguna area, plants produced in series, one exception being a mechanized craft producer of high quality, original-styled furniture for the USA market. Here again, wood drying was not recognized as an important factor in furniture production and managers lacked basic knowledge of wood technology.

### 3. FINDINGS CONCERNING THE FURNITURE INDUSTRY

Summing up, for both sites visited by the mission, it was apparent that:

- There exists considerable installed capacity which is underutilized.
- The lack of technical knowledge, especially in wood drying, is striking.
- Lack of cooperation and collaboration between the firms has led not only to underutilized capacity but also to a lack of specialization, which affects the profitability of all.
- Equipment is by and large adequate, but its choice is very haphazard.

Relatively sophisticated imported machines, such as circular end tenoners and semi automatic mortizers lie side by side with locally made, "hobby size" circular saws, band saws, planers and simple moulders routers. The metalworking industry in Mexico is developed enough to produce far better and more sophisticated machines.

- Production is still only in very small batches. Parts are not interchangeable and only produced for a given order. This results not only in small runs but also in more wasteful cutting of raw materials.
- The cross cutting operation is not given the importance it deserves, resulting in more waste and lower quality components.
- Designs are adequate for craft production, not for serial production, in so far that no use is made of the possibility of using the same component for several products.
- Very few of the firms have intermediate stocks of components (blanks).
- Designs are never for KD construction, resulting in very high level transport costs of the final product.
- The possibility for factories to ship further afield components and sub-assemblies and have them assembled locally by their dealers, clients (end users) or even by their staff travelling with the load does not seem to have been seriously investigated.
- By an large, layout is poor.
- Dust extraction is more often the exception and than the rule.
- Internal transport is erratic or non-existent.
- Surface finishing layout and facilities are very poor, resulting in waste of paint, excess sanding and lower quality.
- The current classification of CANACINTRA's groups is market (product) oriented and ignores doors and windows. A technologically more suitable breakdown would be: solid wood furniture; upholstered furniture; panel furniture and doors and windows.
- Plywood plants do not buck logs accurately (perpendicularly) resulting in big wastes. Furthermore, excess margins are left (+/- 10 cm) resulting in additional wastes.
- Plywood plants do not check quantity of glue applied.
- Safety attachments on machines are more the exception than the rule.

4. RECOMMENDATIONS (ADDRESSED TO CANACINTRA)

A. Involving only CANACINTRA

- (1) Organize locally a course on wood drying at three levels:
  - (a) Wood technology: how and why wood dries.
  - (b) Options for artificial drying: criteria for the selection of kilns.
  - (c) Course for kiln operators.
- (2) Create in IMAC or INFOTEC a specialized library to cater for the industry.
- (3) Create in LANFI a special testing centre for inputs and finished products.
- (4) Carry out tests on the best drying schedules for Ensino (and other hardwoods currently not used).
- (5) Encourage firms to specialize and provide services to others e.g. lamination, tool maintenance, drying, production of jigs, etc.

B. Involving CANACINTRA and UNIDO

(1) Organize a three week study tour for four officials from CANACINTRA, IMAC, LANFI and CENDEC (one each) to five leading European Furniture Research and Development Institutes (such as CTBA in Paris, France; FIRA in Stevenage, U.K.; Mobel Institutet in Stockholm, Sweden; AIDIMA near Valencia, Spain; and CATAS in San Giovanni all' Natisone, near Udine, Italy - although the latter is much smaller). The object would be to familiarize themselves with the objectives, work programme, financing, staffing and operation of such institutes and obtain an idea of their equipment, with an aim of eventually establishing a similar centre in Mexico.

(2) Conduct three one week seminars (for up to 30 persons each) covering raw materials and design, production technology and marketing. These would be held at CANACINTRA's headquarters and have local lectures with UNIDO consultants to complement them when needed.

Because of the difficulty of ensuring the attendance by decision takers from industry for a three week period, three one week courses should be organized, at one month interval.

The tentative programmes for such seminars is given in Annex II.



(3) Additional ad hoc advice to industry should be provided by the UNIDO consultants during their stay in Mexico D.F.

(4) As a result of the total three one week seminars it will become apparent to the managers attending them that their personnel would benefit from special in-depth courses in such fields as tool maintenance, design and production of jigs, product development, etc. These should be organized on an ad hoc basis, with UNIDO assistance if necessary.

(5) The local designers should be familiarized with modern concepts of knock-down furniture and in the design of products for serial production.

(6) Timber could play an increased role in construction, be it for temporary works (shuttering), structural uses (roof trusses, floor joists, load bearing and non-load bearing walls) or non structural uses (doors and windows). This calls for an in-depth assessment of the situation including a study of codes, their modification or drafting of new ones, provision of ad hoc assistance to industry and the adaptation or creation of an institution to cater for industry's needs.

Annex I

LIST OF PERSONS MET

A. In Mexico City (D.F.)

- Lic. Armando Ruiz Galindo Urquidi, Director of Foreign Investments, CANACINTRA
- Ing. Antonio Maza Pereda, Assistant Director, Consultancy Services, INFOTEC
- Ing. Salvador Diaz Espejel, Consultant, INFOTEC
- Ing. Fernando Grimaldi de Leon, Director, Consultancy Services, INFOTEC
- Lic. Hugo Vega Torres, Director of Promotion and Industrial Vinculacion LANFI
- D.I. Mauricio Morali Baz, Chief, Industrial Design and Graphics Dept., LANFI
- Ing. Jaime Martinez Negrete, General Director, STYLCS
- C.P. Jorge Aduna Rodriguez, President, Section 80 (Manufacturers of Kitchen Furniture) CANACINTRA, and Director, Artistique,
- Sr. Porfirio Cruz Ventura, Production Manager, Artistique
- C.P. Benjamin Santiago Perez M, General Manager, Muebles Fyli
- Lic. Francisco J. Sobrino Castro, Muebles Fyli
- Lic. Jorge Matar, Small and Medium Industry, SECOFI
- C.P. Domingo Cuellar Jamez, President, Section 33 (Wooden Furniture Manufacturers) CANACINTRA and General Manager, Muebles Para Ejecutivos y Residenciales S.A.
- Ing. Luis Magidin Matluk, President Section 98 (Office Furniture Manufacturers) CANACINTRA and Manager, RIVIERA (Office Furniture)
- Sr. Francisco Sobrino Requerra, Director, Small and Medium Industries, CANACINTRA
- Lic. Sergio Rivas, Director, CENDETEC
- Lic. Claudia Henriquez, CENDETEC
- Ing. Carmina Enriquez, Coordinator, Consejo Mueblero, CANACINTRA
- Lic. Aurora Sanchez, CENDETEC
- Sr. Mauricio Mural
- Sr. Luis J. Baquejano B., President, Industrial Mueblera EMEX S.A.

B. In Durango (Dgo)

Sr. Mariano Loaiza Diaz, Director, Development, CANACINTRA and Owner-Manager, Industrias Lesa S.A.

Sr. Jose Guadalupe Soto, Secretary, CANACINTRA

Ing. Gilberto C. Rosas Solorzano, General Manager, Grupo Guadiana

Lic. Jose Antonio Sanchez Perez, Grupo Guadiana

Lic. Fernando Nunez Dominguez, Triplay y Maderas del Norte S.A.

Sr. Enrique Nunez Dominguez, Triplay y Maderas del Norte S.A.

Sr. Roberto Dominguez Rodarte, Director General, Grupo Dorsa

Sr. Alberto Saravia Castillon, Director of Public Relations, Fabrica de Muebles Guadiana

Ing. Rolando Andrade Rodriguez, General Manager, Fabrica de Muebles Guana S.A.

Sr. Ricardo Andrade J., Production Manager, Enchapados Alfa S.A.

Sr. Gerardo Vela, D'Agely Furniture Showroom.

Sr. Jesus Veloz Castellon, Director of Public Relations. CANACINTRA and Owner-Manager, Muebles Popular.

Sr. Miguel Canales Felix, Manager, Muebles Pacifico

Sr. Armando Herrera, Armigo Industrial S.A.

Sr. Ibrahim Mansour, Muebles Finos, S.A.

Sr. Pablo Mansour, Muebles Finos, S.A.

C. In Vicente Guerrero (Dgo)

Sr. Enrique Garcia Solis, Manager, Muebles Garda, S.A.

D. In Gomez Palacios (Dgo)

Sr. Ricardo Murra Talamas, General Coordinator, Advase Group

Ing. Jaime Murra Talamas, Planning and Development, Advase Group

Lic. Fernance Lopez Borrego, Commercial Manager, Faber Commercial, S.A.

Sr. Blas M. Garza, President, Galleria, S.A.

Lic. Jose Grageda F., Owner-Manager, INGRAF

Ing. Ernesto Tatay Alvarez, General Manager, Muebles Decorativas de la Laguna, S.A.

Sr. Miguel Milan Alatorre, Chief of Production, Muebles Decorativas de la Laguna, S.A.

Sr. Gerardo Schmal P., General Manager, Dimap Diseno

Sr. Eduardo Zablah Mourra, Manager, K. Delta

Sr. Gustavo Aguirre Moreno, Manager, Muebles Marno S.A.

Ing. Boyardo E. Salmon Acosta, Manufacturas Post Form S.A. & Productos Gebesa S.A.

E. UNDP, Mexico City

Mr. Carlos Del Castillo, Resident Representative

Ms. Silva Drucker, JPO, UNIDO

Mr. Mario Silberman, CTA, Development of Small and Medium Industry Project

Mr. Andrea Zanetti, Associate Expert, Development of Small and Medium Industry Project

**TENTATIVE PROGRAMME FOR THREE MODULES ON TOPICS RELATED TO FURNITURE PRODUCTION TECHNOLOGY AND MANAGEMENT**

**Module 1: Raw Materials**

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:30	<u>Opening Ceremony</u>	Use of plywood in	Adhesives	Product development	Surface furnishing
10:30	Raw material and wood drying	furniture MICRO	BORDEN	Industrial Design School	(materials) AUROLIN
13:00	-----				
16:00	Continued	Use of particle board in furniture	Tool Maintenance (demonstration)	Design Ergonomics Industrial Design	Surface Finishing (demonstration)
20:00	Ramon Echenique	GUADIANA	Local Lecturer	School	AUROLIN at a Factory

**Module 2: Production Technology (One month after Module 1)**

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:30	<u>Opening Ceremony</u>	Plant Layout and	Production Planning	Production Technology	Design and Use of Jigs
10:30	Value Analysis UNIDO-(A. Juva)	Internal Transport UNIDO-(A.V. Bassili)	and Control UNIDO-(A.V. Bassili)	UNIDO-(P.J. Paavola or P. Borretti)	UNIDO-(P.J. Paavola or P. Borretti)
13:00	-----				
16:00	Upholstery Technology UNIDO-(A. Juva)	Equipment Selection UNIDO-(A.V. Bassili)	Quality Control UNIDO-(P.J. Paavola or A.V. Bassili)	Continued	Continued (Demonstrations)
20:00	-----				

**Module 3: Marketing Aspects (Two months after Module 1)**

	<b>MONDAY</b>	<b>TUESDAY</b>	<b>WEDNESDAY</b>	<b>THURSDAY</b>	<b>FRIDAY</b>
9:30	<b>Opening Ceremony</b>	<b>Marketing:</b>	<b>Packaging of</b>	<b>Product Development</b>	<b>Costing and Inventory</b>
10:30	<b>Marketing:</b> <b>World Markets for</b> <b>Furniture</b> <b>J.L.Albaladejo (ITC)</b> <b>+ INFOTEC</b>	<b>USA Market</b> <b>E. Frank + INFOTEC</b>	<b>Furniture for</b> <b>for Export</b> <b>J.L.Albaladejo (ITC)</b>	<b>for Serial Production</b> <b>Local Industrial</b> <b>Designer + UNIDO</b> <b>Production</b> <b>Specialist</b>	<b>Control</b> <b>Local Business school</b>
13:00					
14:00	<b>Marketing:</b> <b>Local Markets</b> <b>Local panel</b>	<b>Continued +</b> <b>How to exhibit</b> <b>How to prepare</b> <b>catalogues, etc.</b> <b>E. Frank +</b> <b>J.L. Albaladejo (ITC)</b>	<b>Local Incentives</b> <b>and procedures for</b> <b>export</b> <b>BANCOMEXT</b>	<b>Continued</b>	<b>Closing (Round Table</b> <b>discussions)</b>
20:00					