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FURNITURE AND JOINERY INDUSTRY 1/
IN CHILE

by
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1.0. INTRODUCTION

The great variety of small and medium size industries in the country, its exclusion from official or sectoral statistical data. It was only investigated when national industrial census was carried out. The lack of a sectoral forestry model was the main problem. In 1971 with the national economy organized into industrial sectors and the development of a national forestry statistical system, a systematic and scientific study of this activity began.

There exist in this field a great number of small and medium size industries (2,000 approximately) of relatively high national importance. The technological level and the capital investment per production unit is relatively small. The work is carried out with a large installed capacity unutilized, even in times of high production levels. Production fluctuates, there being a tendency to increase in the long term.

Working conditions are dangerous with poor hygiene conditions. the work requires great physical effort, and demands highly skilled and experienced workers. The levels of personal income are lowest in the forestry manufacturing industries.

The above pertains to the furniture industry. Before going into more details of the status of this industry, Table 1 gives some idea of the national possibilities as far as forest products are concerned. These figures are valid for 1971 and relate to the main forestry economic activities.

- TABLE 1.- Physical sector production per item of forestry economic activity (1971)

Items	Units	Production 1971
- PULP AND PAPER		
- Mechanical pulp	Metric tons	112.530
- Chemical pulp	Metric tons	284.960
- News print	Metric tons	101.600
- Paper and card board for printing, stationary and packaging	Metric tons	226.920
- Wall paper	Rolls	906.244
- PANELS		
- Veneers	m ²	1.570.000
- Fibre board	Metric tons	19.000
- Particle board	Metric tons	15.000
- Plywood	m ³	10.450
- Wood for matches	Board feet	4.930.000
- Sawnwood	Board feet	700.000.000
- Planed, moulded and grooved and tongued wood	Board feet	400.000.000
- Prefabricated houses	m ²	-

2.0. CLIMATE

Chile is a long strip of land running from north to south between 18° and 53° latitude. Its altitude varies from sea level to 7.000 m. in the mountains. Hence all types of climatic conditions can be found. Temperatures vary from 20°C all year round in Arica to - 8°C in winter in Puna Arenas. Mean relative humidity varies from 30 - 80 % depending on the region. The average moisture content fluctuate between 8 % (Tal-Tal) to 18% (south region). For heated spaces 10 - 14% average moisture

content is accepted, depending on the type of setting.

This means that depending on the location of the industry

3.6. TIMBER AND CASE STUDY OF USE IN CHILE.

Most timbers used in furniture are native timbers. Some of them are: Lingue (Lingue - lingue); Baulé (Nothofagus - procera); Laurel (Laurel - laurifolia); Calque (Nothofagus - domboya); Alcece (Fitzroya - patagonica); Araucaria (Araucaria - imbricata) and Pino Insigne (Pinus - radiata) which is a lower quality raw material coming from plantations.

The country does not import timber.

As far as drying is concerned, the situation is as follows:

Drying capacity.

N° of plants	Provincia	Charge capacity (board - feet)	Daily capacity board-feet/day	Annual capacity board-feet/year
3	Valparaiso	16.000	1.408.3	352.700
25	Santiago	937.000	60.733.3	17.343.320
1	O'Higgins	10.000	500.0	125.000
1	Sala	3.000	1.000.0	
2	Huilo	600.000	116.952.3	29.238.000
6	Concepcion	665.000	120.000.0	47.500.000
1	Arauco	30.000	0.571.4	2.142.000
2	Malleco	32.000	1.300.0	340.000
1	Bio-Bio	20.000	24.333.0	6.083.250
2	Cautin	10.000	3.653.0	913.250
3	Valdivia	16.000	3.040.0	960.000
1	Cocupo	20.000	600.0	200.000
3	Llanquihue	21.000	810.0	210.000
TOTAL		2.395.200	422.631.3	105.658.450

It is estimated that there is a

Other materials available are: wool fibres, acrylic fibres, hides and sheepskins. Of the synthetic materials: synthetic leather and plastic foam have been introduced. The employment of expanded polyethylene on the frames of seating furniture is still in the initial stages.

4.0. LABOUR

According to 1967 census, this industry employs 12,564 workers, which is approximately 3 % of the total population of the forestry sector.

60 % of these are in Santiago.

21.83 % of the workers are employed in their relatives.

6.78 % are administrative employees and

71.39 % are production workers.

As far as training is concerned, it is estimated that 70 % of the workers have not received systematic training, they have acquired their skills directly on the job. The usual system is: apprentice - assistant - skilled worker, starting at primary school level. Most workers have between ten years schooling.

For the engineers and technicians, their professional training is essentially that of a university or technical school but they do not have a furniture manufacturing background as there is no such training.

In the country there is an organisation INACAP (National Training Institute) which provides technical training in various fields which

5.0. FURNITURE FACTORIES

(Analysis based on industrial census 1967)

There are 1,819 furniture factories, producing 1,819,000 units of furniture. Of these 98.34 % are small industries.

Distribution of furniture factories by size:

	N° of industries	%
1 - 4 workers	1,359	74,7
5 - 9 workers	275	15,1
10-19 workers	116	6,3
20-49 workers	69	3,7
	<hr/> 1,819	

5.1. LOCATION.- These industries are concentrated mainly in Santiago with lesser concentrations in Valparaíso and Concepción.

Distribution by Province:

Province	N° of Industries	Workers
Tarapaca	45	275
Antofagasta	54	339
Atacama	18	75
Coquimbo	62	231
Aconcagua	32	91
Valparaíso	175	962
Santiago	879	7.570
O'Higgins	36	98
Colchagua	50	173
Curicó	24	70
Talca	31	75
Maule	26	56
Linares	35	82
Ñuble	48	196
Concepción	91	572
Arauco	13	30
Bío-Bío	33	89

Province	N° of Industries	Workers
Malleco	46	379
Cautín	59	296
Valdivia	40	282
Osorno	33	197
Llanquihue	34	193
Chiloé	20	52
Aysén	11	26
Magallanes	36	137
	<u>1.931</u>	<u>12.564</u>

5.2. MACHINES.- The distribution of the most common used machines is as follows.

Spindle moulder	591 machines
Circular saw	1.025 machines
Band saw	570 machines
Sander	512 machines
Planer	357 machines
Double planer	185 machines

Data are not available relative to more specialized machines: such as finger jointers, moulders, presses, jig saws, sash stretchers, etc.

The following table clasifies machines by types and years of use.

Type	% of machines			
	years of use			
	1 - 5	6 - 10	11 - 20	more than 20
Spindle moulder	33 %	4 %	36 %	10 %
Circular saws	15 %	8 %	49 %	8 %
Band saws	7 %	7 %	47 %	27 %
Sanders	19 %	11 %	30 %	28 %
Planer	13 %	9 %	39 %	26 %
Double Planer	21 %	5 %	47 %	21 %

From the table it can be seen that the machinery is modern though in the last years there has been a tendency to renew the machinery (see column 10 and 11 years)

in nearly all

In general the techniques in use are traditional with very little mechanisation.

6.0. MARKETING

Most plants sell their products direct to the customers through their own sales outlets or direct contacts with other enterprises or organisations.

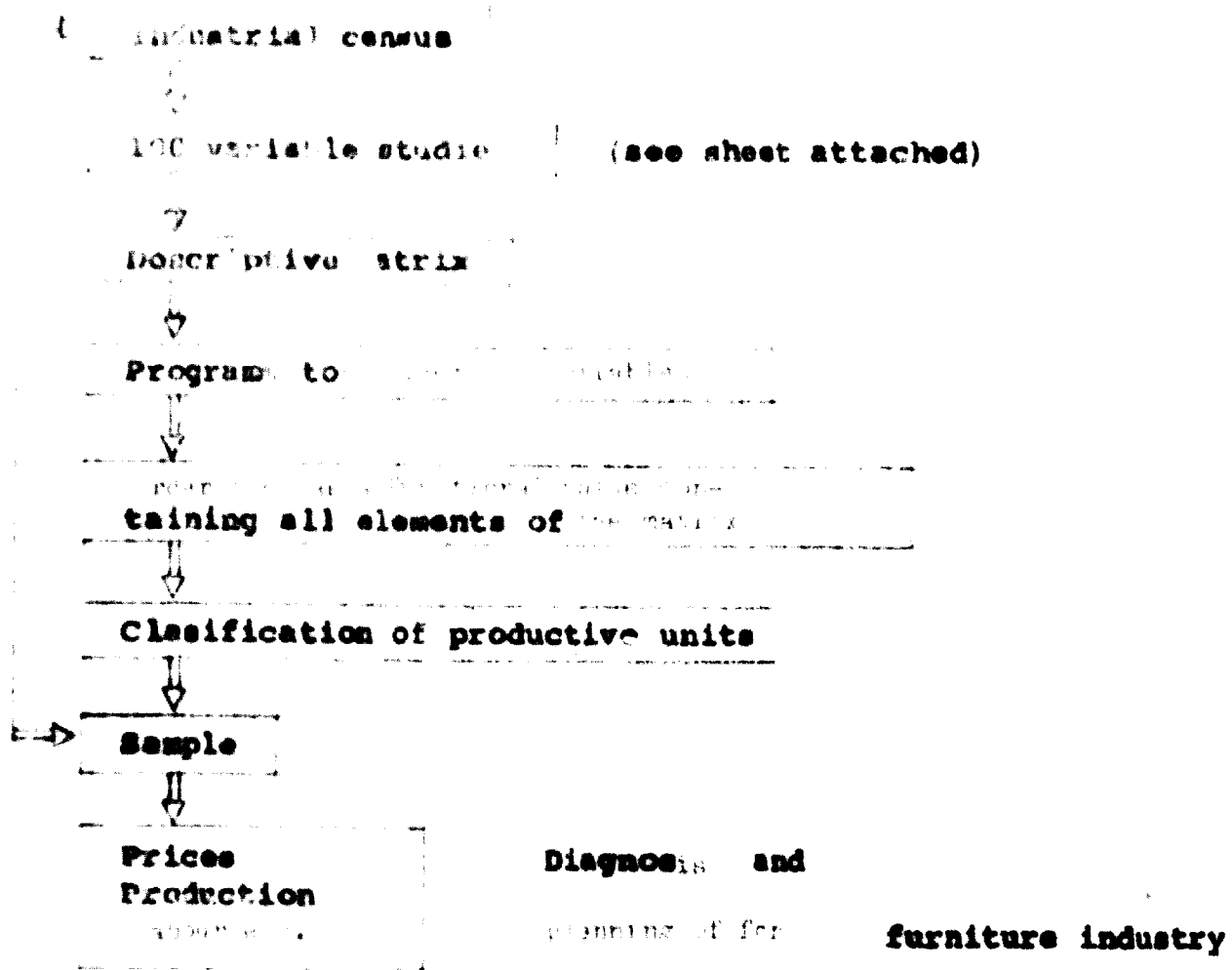
Exports are very scarce.

7.0. FUTURE DEVELOPMENT in FURNITURE INDUSTRY

The future development of this activity is very closely connected with the establishment of a nationalised industrial complex in Santiago, Valparaiso and Concepcion and the gathering of sufficient data for this manufacture. The last available data was obtained in 1967 manufacturing industry census.

The Forestry Institute through its statistical section is currently endeavouring to establish a system of information for the furniture manufacture. This will be done through the availability of information on the production of the industry.

This systematic analysis will be completed in the near future.



For the purposes of this study, furniture includes:

- 1.- Home furniture
- 2.- Office furniture
- 3.- Kitchen furniture
- 4.- Children's furniture
- 5.- Institutional furniture
- 6.- Furniture for machines and equipment
- 7.- Special furniture

COBERTURA

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PROCESAMIENTO
ANÁLISIS A ASERRA Normal Jefe

Recopilación Proyecto Fecha Extensión

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form. 10

Nº	BOL	APP	E	O	U	T	HP	M O		S		E		S		Product	
								paig	m²	m²	m²	m²	m²	m²	m²		
1								1	2	3	4	5	6	7	8	10	01 02
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Producto 01 álamo o pino barnizado o quemado
02 otros

10 textil
OBS:

- 1 madera aserrada (pino magne)
- 2 madera aserrada (otras especies)
- 3 chapa
- 4 tablero de partículas
- 5 tablero de fibra
- 6 madera terciada
- 7 placa carpintera
- 8 formita
- 9 tevinil

EST. M.F.F.

Nº	Función	Establecimiento	E													
			1	2	3	4	5	6	7	8	9	10	11			
1	TROZADORA	HP Nº Est														
2	SIERRA RADIAL	HP Nº Est														
3	HUINCHA PARTIDORA	HP Nº Est														
4	CIRCULAR SIMPLE	HP Nº Est														
5	MOLINERA	HP Nº Est														
6	REFRIGESADORA	HP Nº Est														
7	CEPELLADORA PLANA	HP Nº Est														
8	TUPA	HP Nº Est														
9	HUINCHA CARPINTERA (Hasta 2")	HP Nº Est														
10	TORNO	HP Nº Est														
11	ESCOPEADORA	HP Nº Est														
12	ESPIGADORA	HP Nº Est														
13	TALADRADORA O TALADORES	HP Nº Est														
14	DESFONDADORA	HP Nº Est														
15	ENDIENTADORA	HP Nº Est														
16	TARUGUERA	HP Nº Est														
17	ENSAMBLADORA	HP Nº Est														
18	ENCOLADORA	HP Nº Est														
19	LIJADORA	HP Nº Est														
20	AJUSTADORA DE CHAPAS	HP Nº Est														
21	PRENSA	HP Nº Est														
22	SECADOR (Nº de Cámaras)	HP Nº Est														
23	EXTRACTORES	HP Nº Est														
24	COMPRESOR	HP Nº Est														
25	MAQUINA DE COSER	HP Nº Est														
26	SALA DE AFILADO	HP														

GEOG C.A.F.F. SET

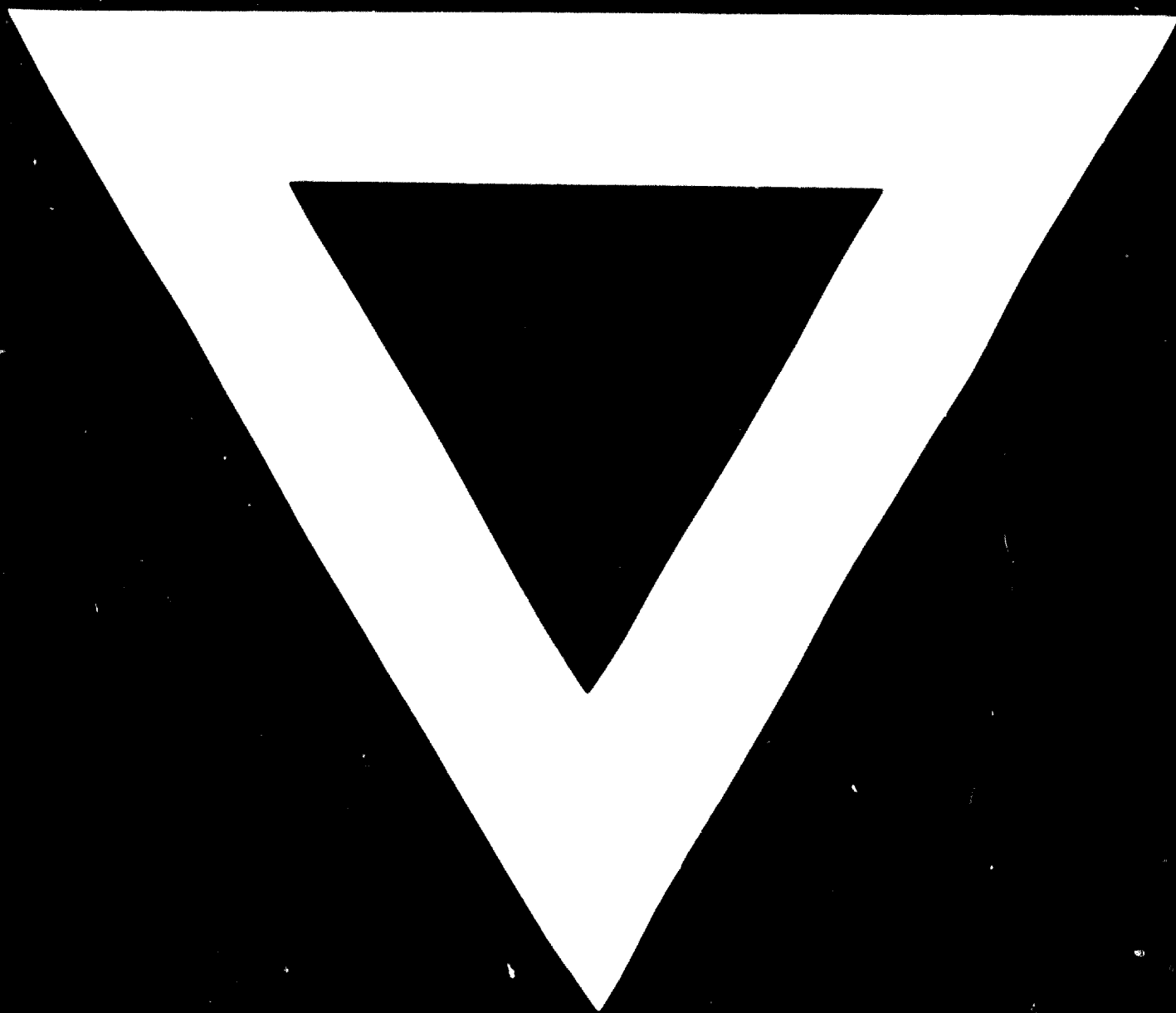
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Analista 1 Analista 2 Jefe Normaliz

Extensión

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Proyección

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