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UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

WOOD BASED INDUSTRIAL PROJECTS IN TURKEY :

(1) Particle Board Factory at ARHAVI
(2) Furniture Factories at BOLU and DÜZCE 1/

A Report to the

GOVERNMENT OF TURKEY

to be presented at the Meeting to Promote Investment and Industrial Co-operation in Selected Wood-Processing Industries, Montreal, Canada, 2 to 6 May 1977

by

H. Mueller-Eckhardt
UNIDO Consultant

1/ This report has been reproduced without formal editing.

id.76-6953

CONTENTS

1. Introduction

On behalf of UNIDO a consultant was appointed to assist the Turkish Governmental Authorities compile the necessary data for the Industrial Project Information Forms for a planned Particle Board Factory and two planned Furniture Factories which will be submitted by Turkey at a Meeting to Promote Investment and Industrial Co-operation in Selected Wood-processing Industries at Montreal in May 1977.

The consultant, Mr. H. Mueller-Eckhardt, arrived in Ankara/Turkey on 31.10.76 and left on 17.11.76. During this time available background papers already prepared for the mentioned projects have been evaluated and detailed discussions have taken place with governmental representatives dealing with them.

Based upon these results the Industrial Project Information Forms have been completed and those problems been analysed where further investigations are necessary before implementation of the planned industries.

The projects are handled by the Ministry of Forests through the Directorate of Planning and Coordination Dept. (Director : Mr. Adnan Kir).

2. The Particle Board Factory Project (See Annex V)

Within the Forest Region along the Black Sea Coast some 500.000 ha are overgrown with Rhododendron holding approximately 100 Million m^3 (stacked) 1/ of wood raw material, which up to now is used as fuel wood only.

The goal of the project is two-fold :

- to use for the first time in Turkey this wooden raw material for the production of particle board, i.e. for industrial purpose, and at the same time

- to regain valuable forestal areas for their re-afforestation with fast growing, multi-purpose wood species for future industrial usage.

A successful implementation of this project is of high interest for the forestry economy of the country.

It is planned to locate this first particle board factory - with Rhododendron as raw material basis - in the area of ARHAVI (see Annex I: Map of Turkey). The capacity is planned to be 250 m^3/day or 67.500 m^3/ year.

In the following the main problems will be discussed which are connected with the setting up of the proposed industry, for which the optimum technical and economic solutions have to be developed in order to safeguard the economic feasibility of the factory.

A. Raw material supply;

In the area of Arhavi a forest inventory has been carried out, covering approximately 6000 ha of that Rhododendron area which is planned to be the raw material basis for the factory. The total stock available there is estimated at 4,7 million m^3 (stacked), with an average of approx. 500 m^3 (stacked) per ha. One m^3 (stacked) holds approx. 0,5 m^3 solid wood

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1/ Figures relate to Reference No in Annex IV (List of References).

material. 1/ Thus the stock available in this area is sufficient for 15 - 20 years of particle board production at the planned rate of 67.500 m^3 annually. For further details see Annex II.

Due to climatic conditions, transportation of wood raw material from the forests to the factory can only take place from April/May to October/ November. Therefore, based on the factory's annual capacity, a maximum of approximately 120.000 m^3 (stacked) of wood raw material is to be stocked at factory site, and in total some 240.000 m^3 (stacked) are to be transported out of the forest areas within the above-mentioned period of time.

For this, different systems can be chosen :

- hogging of the raw material in the forest, transportation of hogged chips to the factory by lorries or ropeway;
- transport of the round wood to the factory with lorries;
- a combination of the above systems.

In this connection consideration should also be given to eventually occuring wood-technological problems, such as decay of the material through insects and/or fungi, miscolouring, impact on chipping/refining process, etc. If possible, large scale hogging and chipping tests should be carried out before a final decision is taken.

The technically and economically best solution is to be developed to solve all interlinked problems connected with this part of the planned industry, as it will decisively influence the economic feasibility of the project.

B. Location of the Factory

It has not yet been decided where exactly the site of the factory will be due to the size of the compound needed (estimated : 50.000 m^2).

Considering the great distance to the main consumption areas and the factory delivering adhesives - approx. 1500 km - a site with direct shipping facilities seems economically to be most advantageous. All different alternatives available should be investigated and their impact on the total cost-structure and profitablitiy of the factory when in operation be calculated.

C. Wood Technological Aspects

The Forest Research Institute, Ankara, has already carried out extensive tests to analyse the technological aspects of the production of particle board with Rhododendron as wood raw material. The results (see Annex III) are encouraging and indicate clearly that Rhododendron can be used as raw material for production of particle board with acceptable technological properties. However, the tests also indicated some possible problems connected with the chipping/refining operation if the raw material is very dry and hard after long-time storage (shape of chips, dust percentage, knife edge life !).Therefore it is recommended to carry out further comprehensive full scale chipping tests in the factories at Ayancik and Bolu. Based on these results it will be possible to determine the best technical and economic solution for the chipping operation in the planned factory.

D. Production of the board - Machinery equipment.

The limitation of the planned factory's capacity to 250 m^3/day = 67.500 m^3/year, results from the already discussed problems connected with the supply and storage of wood raw material at site. As to size of panels and thicknesses to be produced, the market situation indicates a panel size of 180 x 360 cm and thicknesses of mainly 8, 16, and 19 mm to be planned for the new factory. As to the type of board, it is recommended to produce a 3 - layer board with fine surface , suitable for coating with resin-impregnated papers or thin high-quality veneer.

Based on these data, quotations should be requested from potential bidders for complete production lines with both one-opening and multi-opening press systems on a turn-key basis. For this purpose own Quotation Forms, specifying all technical and economic data relevant to a comparative analysis of offers should be developed and sent to them. A detailed evaluation of offers received should follow, which will then enable the decision for the best technical and economic solution.

E. Marketing

The total nominal annual production capacity installed end 1976 in Turkey is 360.000 m^3. The total actual production in 1975 is estimated to have been 220.000 m^3 6/. The average sales price per m^3 is said to be 3000.- TL ex factory. The main consumption area is the West of Turkey (Istanbul, Izmir, Ankara). According to information recieved, the market is not yet saturated and selling of the planned annual production is not expected to raise any problems.

However, it is recommended to carry out a detailed marketing survey in order to obtain exact figures for attainable sales prices, planning of an optimum production programme, (size of panels, quality of board, coating/veneering of board, etc), and possibilities for export.

F. Cost/Profit Calculation and Profitability Analysis

For the preparation of a profitability analysis for this project it is necessary to calculate all relevant cost factors, i.e.,

- investment costs (land, buildings, machinery, etc).
- capital costs, including depreciation, insurance, working capital, etc.
- direct production costs (raw materials, electric and thermal power, etc).
- fixed production costs (labour, administration, maintenance, etc),

and calculate the anticipated annual revenues. For this the results of the investigations as mentioned before will provide all required data.

3. The Furniture Factories Project. (See Annex VI)

According to available information, there is a distinct lack of low cost furniture on the market. In average the prices for furniture available are very high and hardly payable by low and middle income groups. The prices for school furniture produced today are also said to be extremely high.

Therefore the Turkish Government has planned to set up one furniture factory in Bolu for the production of low-cost house furniture, and one factory in Düzce for production of school furniture.

They are planned to be integrated with already existing government enterprises (one sawmill, one plywood factory, one particle board factory in Bolu; one sawmill in Düzce).

For this project detailed pre-investment studies and feasibility studies have already been prepared , covering all relevant aspects such as marketing, production programme (styling and quantities), production capacity, production costs, necessary machinery equipment, investment costs for machinery and buildings, capital costs, total production costs for all furniture to be produced, etc.

In order to complete necessary investigations before implementation of the project, it is recommended to request detailed quotations for the complete production system from potential machinery manufacturers on a turn-key basis . An evaluation of offers received should follow for selection of the best technical and economic solution.

Based on these figures and all data already available, the preparation of a cost/profit calculation and a profitability analysis for each factory is recommended.

4. Summary and Recommendations

In order to start making industrial use of some 100 million m^3 (stacked) wood raw material from Rhododendron it is planned to set up a particle board factory in the area of Arhavi with a capacity of 250 m^3 per day = 67.500 m^3 per year.

For this purpose detailed forestry inventories of the Rhododendron area around Arhavi have been carried out in 1976 by the General Directorate of Forests, showing a stock of wood raw material sufficient for 15 - 20 years of particle board production at the planned annual rate.

In 1976 the Forest Research Institute in Ankara has carried out large scale tests of the technological properties of both Rhododendron wood material and particle board produced with it. The results indicate clearly that Rhododendron can be used as raw material for production of particle board with acceptable technological properties. The tests indicate also possible problems connected with the chipping operation.

In order to enable a successful implementation of this project, the following recommendations are given :

- to carry out detailed investigations concerning
  - (a) the handling and storage of wood raw material in the forests and at factory site
  - (b) the chipping process
  - (c) alternatives for location of the factory
- to carry out a market survey
- to ask for quotations from potential bidders for complete production lines on a turn-key basis,
- to investigate the exact costs for land and buildings,

and based upon the figures and results of the above-mentioned investigations

- to prepare a detailed feasibility study, covering all technical and economical aspects of the project

- to carry out a comprehensive evaluation of offers, for selection of the best production system both technically and economically and its machinery equipment.

The Government of Turkey has planned to set up one furniture factory for low-cost house furniture in Bolu and one factory for school furniture in Düzce.

For these projects detailed pre-investment studies and feasibility studies have already been prepared.

In order to complete necessary investigations before implementation of the project the following recommendations are given :

- to request detailed quotations for necessary machinery equipment from potential machinery manufacturer on a turn-key basis.

- to prepare a cost/profit calculation and a profitability analysis for each factory

- to carry out the evaluation of offers for selection of the best equipment.

It is further recommended, that UNIDO may provide possible assistance for the following tasks :

1. Completion of necessary pre-investment studies and preparation of a feasibility study for the particle board factory project.
2. Preparation of a comprehensive evaluation of offers for selection of the technically and economically best production system and its machinery equipment for the particle board factory project.
3. Preparation of cost/profit calculations and profitability analysis for the furniture factories project.
4. Evaluation of offers for selection of the most appropriate machinery equipment for the furniture factories projects.

ANNEX I Map of Turkey *

Legend : A. Existing Particle Board Factories in 1976

No.	Town/area	Name	Ownership	Capacity (m^3/year)	Actual Prod. 1975 (m^3)
(1)	Istanbul	Sunta	Private	70.000	85.000
(2)	Isparta	Ovma	-"-	60.000	45.450
(3)	Kastamonu	Yongapan	-"-	60.000	27.460
(4)	Düzce	Düzsan	-"-	54.000	5.000
(5)	Gebze	Tever	-"-	30.000	18.235
(6)	Istanbul	Modta	-"-	26.000	17.860
(7)	Inegöl	Istas	-"-	26.000	20.965
(8)	Ayancik	-	Public (ÜRÜS)	23.000	-
(9)	Bolu	-	-"- (ÜRÜS)	10.000	-
				359.000	219.970

B. Planned Particle Board Factories (Public Sector only)
Status : End 197[illegible]

1	Arhavi	Public (ÜRÜS)	60.000
2	Kastamonu	Public (ÜRÜS)	40.000

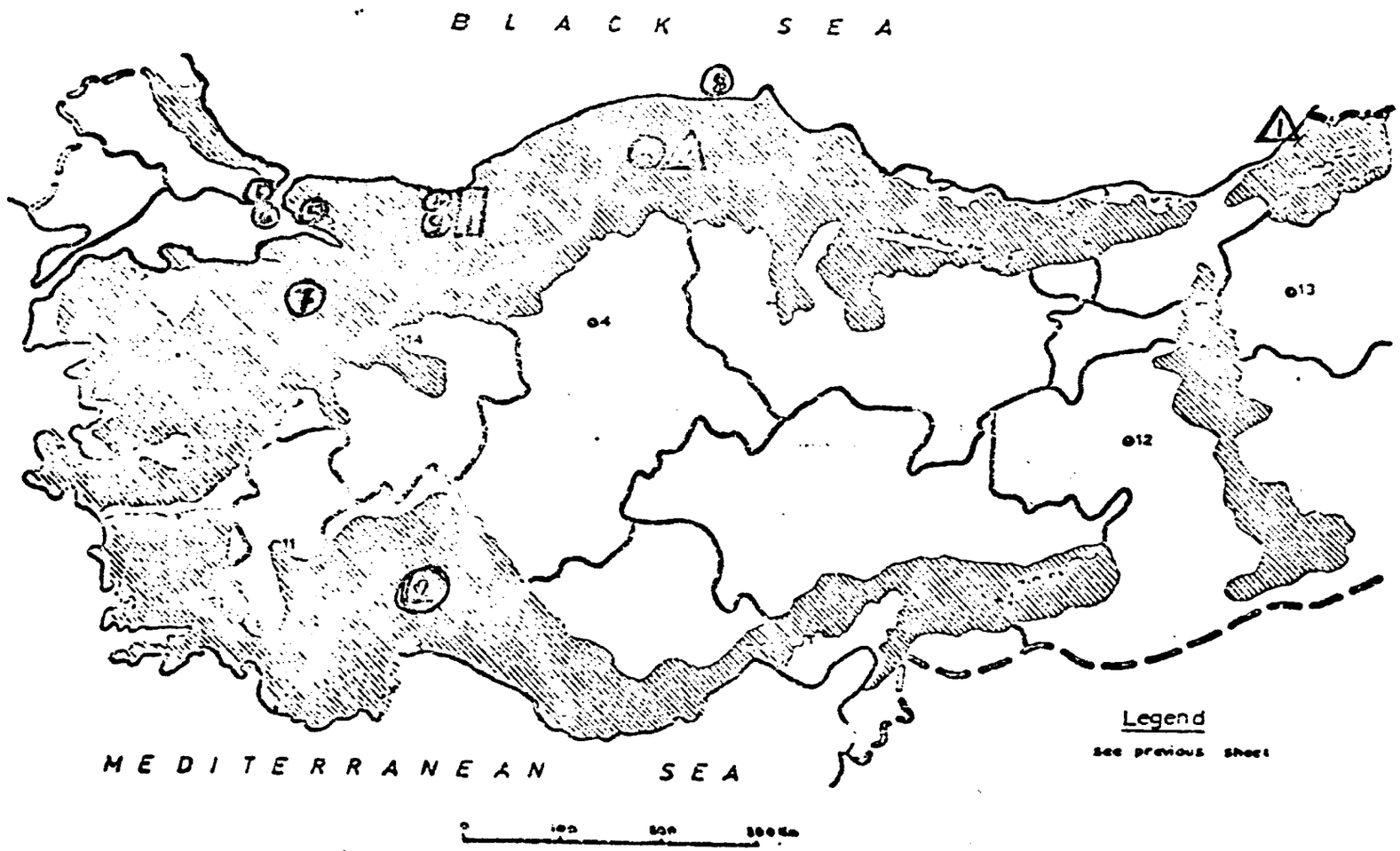
C. Planned Furniture Factories (Public Sector Only)
Status : End 1976

1	Bolu	Public (ÜRÜS)
2	Düzce	Public (ÜRÜS)

* Source : Reference No 1

TURKEY

Forested Areas



ANNEX II.

FOREST INVENTORY RESULTS

The inventory of Rhododendron areas around Arhavi has been carried out in 1976 by the General Directorate of Forestry 1/. Its results are summarized as follows :

District I.

Area in ha	Stock/ha m^3 (stacked)	Total stock m^3 (stacked)
3.264	800	2.627.200
1.827	500	913.500
561	100	56.100
5.672		3.596.800

District II.

1.020	800	816.000
669	500	344.000
155	100	15.500
1.844		1.165.500

Diameter distribution: 50% with 10 cm and more
50% below 10 cm.

Average of diameters : 9 cm.

ANNEX III.

TEST RESULTS OF PARTICLE BOARD FROM RHODODENDRON

The Forestry Research Institute, Ankara, has carried out extensive tests of Particle Board produced from Rhododendron (Rhododendron ponticum) during 1976.

The evaluation of all findings has not yet been finalized, but according to information from the Research Institute the following results can be valued as reliable interim results :

1. Properties of Rhododendron material :

(a) Density : Material taken from 3 selected forest areas of 300 m^2 each, only selected material (thick diameters) tested :

0,690 g/cm^3	0,674 g/cm^3
0,682 "	0,655 "
0,686 "	0,670 "
0,683 "	0,666 "
0,658 "	0,687 "

(b) Hardness : Material to be classified as hard wood, chipping not difficult directly after felling, difficult when dry.

(c) Moisture : Directly after felling approx. u = 70 %
3 weeks after felling approx. u = 30 %

(d) Length of fibres : Approx. 0,82 mm (for comparison :
Eucalyptus american 1,0 mm;
Pinus 1,9 mm,
Beech 1,3 mm).

(e) Contents of solid wood / m^3 (stacked) : 246 kg to 342 kg at 17% moisture; 400 kg to 602 kg at 70 % moisture.

2. Properties of Particle Board made from Rhododendron :

A full scale test has been carried out in one of the country's particle board factories under normal, unchanged production conditions, using $25m^3$ (stacked) selected Rhododendron raw material (thick diameter), UF-adhesive and paraffin . 26 panels 3-layered board of 19 mm thickness have been produced out of 4.450 kg raw material (ind. 17% moisture) = 13 m^3 (stacked), at press temperature : 150 ^{o} C, pressing time : 4 min., and spec. pressure : $35kg/cm^2$.

Testing of the panels has been carried out following the Turkish Testing Standards which equal the German DIN standards, giving the following results :

(a) Density of the board : average of 100 tests = 0,664 g/ cm^3.

(b) Bending strength : 148 - 156 kg/cm^2 (bad shape of chips !).

(c) Tensile strength (perpendicular) : 9,04 kg/cm^2

(d) Swelling : 8.49 % .

ANNEX IV

References :

(1) Bassili, A. : The Development Prospects of Turkey, Volume VI, Annex IV - The Forest Industries. Report No EMA - 30a. International Bank for Reconstruction and Development, December 1971.

(2) Centre Technique Forestier Tropical ; Paris/France : Bolu ev Mobilyalari Fabrikasi ile Düzce Okul Mobilyalari Fabrikasi Kurulus on Etütleri :(Pre-Investment Study for a House-Furniture Factory in Bolu and a School Furniture Factory in Düzce); printed 1976. (Investigations carried out 1974).

(3) Chambon Engineering, Paris/France : Bolu ve Düzce Mobilya Fabrikaları, Fizibilite Etüdü :(Feasibility Study for the Furniture Factories in Bolu and Düzce), Summer 1976.

(4) Orman Ürünleri Sanayii Genel Müdürlüğü : Kastamonu, Kereste, Kontraplak, Yonga Levha Entegre Tesislerine Ait. Ön Proje Formu (Pre-Investment Study for the Integrated Wood Industry Project in Kastamonu - Sawmill, Plywood, Particle Board), Ankara 1975.

(5) Orman Ürünleri Sanayii Özel Ihtisas Komisyonu Dördüncü Beş Yillik Kalkinma Plani Raporu (Report of the Expert Committee for Wood Based Industries for the Fourth Five-Year-Plan), Ankara, September 1976.

(6) FAO (prepared by Sandwell Management Consultants Limited): Project X 3885, North Turkey Industrial Studies. Project Memorandum X 3885/5 Preliminary Selection of Development Options; Rome, 27 August 1976.

References :

(7) General Directorate of Forests (Internal Report): Orman Gülü servet Envanteri Hakkinda Yazi
Okman Bakanligi, Orman Genel Müdürlügü
Şb. Silvikültür Fen. H. Md.
H. N.: 7130-20
U. No.: 1204
Tarih : 21 Eylül 1976
(Report on the Rhododendron - forest inventory) 21 September 1976.

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MEETING TO PROMOTE INVESTMENT AND INDUSTRIAL CO-OPERATION IN SELECTED WOOD-PROCESSING INDUSTRIES

Montreal, Canada, 2 to 6 May 1977

Jointly organized by the

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

and the

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

INDUSTRIAL PROJECT INFORMATION FORM

(to be submitted not later than 31 October 1976)

Project Title: PARTICLE BOARD FACTORY in the ARHAVI Region.

Country: Turkey

Submitted by: Ministry of Forests, through Directorate of Planning and Coordination Dept.

Name:

Address: Paris Cadd. Ha.uz lu Sok 4, Ankara/Turkey

Date: 15 November 1975

When completed please send this form to:

United Nations Industrial Development Organization
Investment Co-operative Programme Office
P.O. Box 707
A-1011 Vienna
Austria

INTRODUCTORY NOTE

1. A project proposal to be submitted through completion of this Form is restricted to the following branches of wood-processing industries:

   i. Logging
   ii. Sawmills
   iii. Wood-based panels
   iv. Building components
   v. Furniture
   vi. Pulp and paper
   vii. Packaging
   viii. Waste utilization
   ix. Auxiliary material (including glue, foils, hardware, etc.)
   x. Woodworking machinery and equipment.

2. After submission of this Form to UNIDO, your project proposal will be widely distributed in advance of the Montreal Meeting to individual firms, associations and federations which are all related to wood-processing industries, financial institutions and aid agencies in almost all the industrialized countries. The distribution is intended that your project proposal will be examined and selected by a number of prospective foreign investors for their personal meetings with you at the Montreal Meeting to enter into initial discussions on your project in the direction of its possible implementation with their supplemental contributions. Thus, you would be able to negotiate with them in a bargaining position in favour of you. In order to strive for a successful promotion of your project at the Meeting, the following are to be particularly emphasized:

   i. This Form should be filled with utmost available factual information of your project proposal.
   ii. The closing date for submission of this Form to UNIDO, 31 October 1976 should be strictly observed.
   iii. Physical attendance to the Meeting by a person who represents your project is indispensable. Moreover, he should be well prepared to respond on the spot to both technical and policy-oriented questions on the project that are expected to be extensively raised by prospective foreign investors.

3. In order for you to adequately fill in this Form, assistance may be provided, upon your request, by the UNIDO Senior Industrial Development Field Adviser who can be contacted through the Regional or Resident Representative Office of the United Nations Development Programme (UNDP) in your country. Additional copies of this Form will also be obtainable from the UNDP office.

PART A

I. PROPONENT

1.1 Precise name and address of company or person sponsoring the Project:
Ministry of Forests, through: Directorate of Planning and Coordination Dept.
Paris Cadd. Haruz lu Sok. 4, ANKARA/Turkey

Telephone Number: Ankara 17 62 14

Cable Address: - -

Telex Number: - -

1.2 Name and title of the chief executive officer:
Mr. Adnan Kir, Director

1.3 Name and title of your representative who will attend the Meeting:
Mr. Adnan Kir, Director

1.4 Present legal status of your company (delete those not applicable):

(a) i. ~~Private sector~~/Public sector/~~Private and public mixed~~

ii. Sole proprietorship/Partnership/Private limited company/
Public limited company

If public sector owned, please state controlling Ministry or Authority:
Ministry of Forests

(b) Date and place of registration/incorporation:
- -

1.5 How many people are presently employed in your firm? - -

1.6 Describe briefly your current business activity:
Planning and Co-ordination of Public wood industry
projects in Turkey, on behalf of the Ministry of Forests.

1.7 Indicate precise names and addresses of your bankers for reference purposes:

(a) MERKEZ BANKASI, Ankara/Turkey
(Central Bank of Turkey)

(b) _____

_____

II. DESCRIPTION OF THE PROJECT

2.1 This project is for [x] new establishment, [ ] expansion, [ ] modernization or [ ] diversification of an existing factory.

(check whichever is applicable and if you are running a factory already, please also complete Part B.)

2.2 Specify precisely each product to be manufactured and respective annual production capacity.

	Name of Product	Capacity
(a)	Particle board	250 m3/day = 67.500 m3 p.a.
(b)	_____	_____ p.a.
(c)	_____	_____ p.a.
(d)	_____	_____ p.a.

2.3 Specify size and other important specifications of each product.

(a) Panels 180 x 360 cm, 660 - 680 kg/m3 for 19 mm board,

(b) 3-layer board with fine surface for laminating/coating;

(c) urea formaldehyde resin, thicknesses: mainly 8, 16, 19 mm

(d) _____

2.4 Number of working days per annum and hours per day required to achieve the projected production capacity.

270 working day p.a. 24 hours per day.

III. MARKET

If the products are planned to be sold (check whichever is applicable below):

- [x] entirely to the domestic market, answer item (A) below.
- [ ] entirely to the foreign market, answer item (B) below.
- [ ] both to domestic and foreign markets, answer both items (A) and (B) below.

A. Domestic Market

3.1 If available from the Statistics Department of the Government or any other reliable sources, indicate the quantity of domestic consumption of individual items for the previous years up to the present:

	Name of product	Quantity per annum (1000 m3) 1973	1974	1975
(a)	Particle board			240
(b)	Plywood		30	45
(c)	Hardboard		67	68
(d)				

The above mentioned consumption is:

- [ ] all met by imports.
- [x] all supplied by 7 (insert number) local factories.
- [ ] partly met by imports and the rest supplied by local factories. If so, state below respective figures of imports and domestic supply and number of existing local factories:

	Name of products	Quantity for 1975 Imports	Domestic	No. of local factories
(a)				
(b)				
(c)				
(d)				

3.2 Indicate current selling prices of the proposed products:

	Name of product	Unit sales price ex-factory-$US
(a)	Particle Board	170,- to 193,-/m3 *)
(b)		
(c)		
(d)		

*) Exchange rate Nov. 1976: 1US$ = 16,50 TL

B. Foreign Markets

3.3 Expected annual export of your products to foreign markets:

Country	Quantity per year
Iran	Export to this country considered as a possibility, no export quantities planned.

3.4 Have you ever explored the possibilities of exporting the products to these countries?

☒ Yes ☐ No

If yes, check whichever is applicable among the following:

☐ You have foreign importers or local shippers who guarantee to take delivery of the above specified quantities of the products at currently competitive prices.

☒ You have no such guarantee. However you know that the countries are importing substantial quantities of the products.

IV. AVAILABILITY OF WOOD AND OTHER AUXILIARY MATERIALS

A. Unprocessed Raw Materials

4.1 Logs

(a) Names of species both in commercial and botanical names:

	Commercial Name	Botanical Name
Item i)	Rhododendron	Rhododendron ponticum
Item ii)	- " -	- " - caucacium
Item iii)		
Item iv)		
Item v)		

(b) Size (diameter under bark at smaller end of log):

	Length	Diameter	
Item i)	2 - 4m	Minimum 3 cm	Maximum 20 cm *)
Item ii)	2 - 4 m	Minimum 3 cm	Maximum 20 cm *)
Item iii)		Minimum	Maximum
Item iv)		Minimum	Maximum
Item v)		Minimum	Maximum

*) Average diameter approximately 9 cm.

Logs (cont'd.)

(c) Price (check and fill in below whichever is applicable):

☐ Buying logs from local traders. If so, state their current prices delivered at factory.

Item i) at US$ _____ per _____ delivered at factory

Item ii) at US$ _____ per _____ delivered at factory

Item iii) at US$ _____ per _____ delivered at factory

Item iv) at US$ _____ per _____ delivered at factory

Item v) at US$ _____ per _____ delivered at factory

☐ Importing logs directly from foreign shippers. If so state their current prices and terms such as FOB, CIF, C and F and particulars of charter party.

Item i) at US$ _____ per _____ on _____

Item ii) at US$ _____ per _____ on _____

Item iii) at US$ _____ per _____ on _____

Item iv) at US$ _____ per _____ on _____

Item v) at US$ _____ per _____ on _____

☒ Receiving logs from own concession or reserve. If so, please answer the questions in paragraphs 4.2 Details about timber concessions and Part V. Logging Operation.

4.2 Details about timber concession (lease)

(a) Area available: 6.000 hectares/~~acres~~

Probable duration of ~~construction~~ exploitation: 15 - 20 years

Physical location Artvin ~~state~~/province

Has an inventory of the concession been carried out?

☒ Yes ☐ No

If yes, please give brief particulars on type of the inventory

Inventory of the whole area has been carried out, total available stock approx. 4,7 million m3 (stacked), average stock per ha approx. 500 m3 (stacked), average diameter 9 cm.

(b) Royalty or stampage fees

Please check and complete whichever is applicable:

Do you have to pay ☐ royalty fee fixed at US$ _____

Details about timber concession (cont'd.)

per hectare/acre a year and/or ☐ stampage fees per unit quantity extracted?

If you have to pay the stampage fees, please indicate their rates for each species:

Item i) at US$ _____ per _____ (specify unit)

Item ii) at US$ _____ per _____ (")

Item iii) at US$ _____ per _____ (")

Item iv) at US$ _____ per _____ (")

Item v) at US$ _____ per _____ (")

If you have to pay fees other than royalty and stampage fees, please briefly specify: _____

_____

(c) Logging costs: (state in US$)

	Species				
	Item i	Item ii	Item iii	Item iv	Item v
Fixed fee	-	-			
Stampage	-	-			
Felling costs	5.00	5.00			
Replanting costs	1.50	1.50			
Transporting costs	4.50	4.50			
TOTAL COSTS ex-factory	$11.00	$11.00	$	$	$

(d) Logging methods:

Please briefly specify your proposed methods of felling (such as use of ax, chain saw or rooting etc.) _____

Complete cleaning of the area, using ax and chain saw.

_____

Please also specify your proposed methods of log extraction from a felling point to a loading point (such as use of cable, tractor, animal or slope rolling etc.) _____

cable and tractor

_____

B. Semi-processed Materials

4.3 Sawn wood

	Specification				Price delivered at factory	
	Species	Cross Section (Indicate Unit)	Length	Proportion	Price	Unit
Item i)	_____	x	m	%	at US$	per
Item ii)	_____	x	m	%	at US$	per
Item iii)	_____	x	m	%	at US$	per
Item iv)	_____	x	m	%	at US$	per
Item v)	_____	x	m	%	at US$	per

4.4 Wood-based panels

	Name 1/	Type 2/	Specification (Indicate Unit) Size	Thickness	Price delivered at factory Price	Unit
Item i)	_____	_____	x	_____	at US$	per
Item ii)	_____	_____	x	_____	at US$	per
Item iii)	_____	_____	x	_____	at US$	per
Item iv)	_____	_____	x	_____	at US$	per
Item v)	_____	_____	x	_____	at US$	per

1/ Specify either of veneer, plywood, particle board or fibre board.
2/ Specify kind of bonding agent plus surface condition whether sanded or unsanded.

4.5 Other manufacturing materials (such as glue, laminating foils, hardware, etc.)

Specify exact names of necessary manufacturing materials other than logs, sawn wood and wood-based panels and state their annual quantities required and current unit prices in US$ delivered at factory.

Name of Materials	Quantity		Price *)	Unit **)	Imported or local
UF adhesive	5.000	p.a. at US$	333.- per	m.ton	local
Am. chlor. (NH_4Cl)	10	p.a. at US$	364.- per	m.ton	local

*) Exchange rate November 1976: 1 US$ = 16,50 TL

**) Solid resin contents: approx. 55 %.

Other manufacturing materials (cont'd.)

Name of Materials	Quantity		Price	Unit	Imported or local
Am. hydrox.(NH_4OH)	9 p.a.	at US$	364,- per	m.ton	local
Paroffine	300 p.a.	at US$	606,- per	m.ton	local

V. LOGGING OPERATION

If you have own timber concession or reserve to supply logs to the proposed factory, please answer the following:

5.1 Location and facilities

i. Indicate the distance between the concession and the proposed factory:

distance: 30 km/miles

ii. Proposed means of transporting logs to the factory.

(check whichever is applicable)

☐ by log rafting or barges through a nearby river or lake. If so, indicate the distance between the water and the operation site.

_____ km/miles

☐ by railway. If so, ☐ the rails have already been laid and wagons have already been acquired or ☐ both have to be purchased.

☒ by lorries. If so, state whether:

☐ a road passable by lorry has already been constructed between the concession and the proposed factory.

☒ a road passable by lorry for a distance of 10 km/miles is to be constructed. Please state the maximum load limit on the road: 12 tons.

☐ by other means such as the use of horses, elephants, etc. If so, please specify.

_____

iii. Are you already logging under a leased concession or own reserve?

☒ Yes ☐ No

If yes, state:

a) Current quantity logged 3.000 m³ per month. (stacked).

Location and facilities (cont'd.)

b) Specify respectively types and numbers of heavy duty vehicles; such as tractors and timber loaders used for logging:

_____

_____

_____

5.2 Rain and Snow Fall

Indicate the period during which the logging operation is discontinued because of rain or snow falls. (Only if applicable.)

From November (month) to April (month)

From _____ (month) to _____ (month)

VI. PROPOSED FACTORY

6.1 Site

(a) State name of town, city and province of the proposed factory site:

Arhavi, Artvin Province

(b) Indicate space of factory building estimated to be necessary:

5000 square metres/~~feet~~.

Have you already bought or leased the factory land?

☐ Yes ☒ No

(c) Indicate area of ☐ log pond or ☒ storage ground estimated to be necessary.

40.000 square metres/~~feet~~.

State whether an all weather road suitable for a heavy vehicle is readily available between the two places (b) and (c) above.

☐ Yes ☒ No

Also indicate its distance: 30 km/miles.

6.2 Availability and costs of utilities

Fuel to be used (check whichever is applicable).

☐ timber waste

☒ oil. Price at US$ 94.- per ton delivered at factory.

☐ others. Please specify: _____

Price at US$ _____ per _____ delivered at factory.

Electricity

Check whichever is applicable among the following:

☒ Power supply is readily available at the site.
If so, state price in US$ 0.04 per KWH.

☐ Power supply is presently unavailable at the site, therefore extension of a power cable for a distance of about _____ km is necessary and its cost will be borne by:

☐ Power company or local authority.

☐ The company to be formed. Please indicate an estimated extension cost: US$ _____.

☐ Power generators must be installed due to permanent unavailability of power supply.

Water

Check whichever is applicable among the following:

☒ Public water supply is readily available at the site.

☐ Public water supply is presently unavailable at the site, therefore extension of a municipal water line for a distance of about _____ metres is necessary and its cost will be borne by:

☐ Local authority

☐ The company to be formed

A public water supply is permanently unavailable at the site, therefore:

☐ Water must be pumped from the nearest water supply at a distance of _____ metres from the site.

☐ A well must be dug by the proposed company within the site.

Effluent disposal

If the projected factory needs drainage facilities for effluent disposal, check and complete whichever is applicable among the following:

☐ The facility is readily available at the site.

☒ The facility is presently unavailable at the site.

A drainage facility of _____ metres must be completed at the expense of:

☐ Local authority

☐ The company to be formed

Is there any local regulation which induces the proposed factory to install a water treatment facility?

☐ Yes ☒ No

6.3 Infrastructure

Check whichever is applicable among the following:

(a) ☐ A road suitable for a lorry is readily available from a trunk road to the site. If so, how much maximum gross load is allowed? _____ tons.

☒ A road suitable for a lorry is presently unavailable.

Road construction for a distance of 150 km is necessary and the cost will be borne by:

☒ local authority

☐ The company to be formed

(b) Indicate the distance between the nearest railway station and the site by road suitable for a lorry: 500 km.

(c) If some of the necessary machinery and equipment and some of the materials are to be imported or some of the products are to be exported, state:

Name of port Trabzon

Distance from site to port 150 km of which:

Transportation by rail - - km.

Transportation by road 150 km.

6.4 Staffing

(a) Indicate estimated personnel requirements and average monthly wages inclusive of all allowances and benefits.

	Number		Per man/month
Management	3	persons at US$	825,-
Technical supervision	5	persons at US$	710,-
Clerical	15	persons at US$	400,-
Skilled labour	33	persons at US$	360,-
Semi-skilled labour	-	persons at US$	-
Unskilled labour	60	persons at US$	180,-
Seasonal labour	-	persons at US$	-

If any are unavailable locally, state only "unavailable".

(b) If the above monthly wages are including some form of allowances or benefits such as free rice, sugar, cooking oil, housing etc., please specify briefly:

_____

_____

Staffing (cont'd.)

Check whichever is applicable among the following:

[x] Labour specified in item (6.4) is readily available within commuting distance.

[ ] The specified labour is available but beyond the commuting distance.

[x] Housing facilities will need to be provided.

6.5 Machinery and Equipment

If this project is for the expansion, modernization or diversification of an existing factory, attach a list indicating maximum details of the machinery and equipment already installed in the factory, giving age, condition, rated capacity, costs and manufacturer's names.

VII. FINANCING OF PROJECT COSTS

If you have a roughly estimated project costs and financing plan for your project, complete 7.1 and 7.2 below:

7.1 Composition of investment (figures in US$)

	Local currency costs	Foreign exchange costs	Total
*Pre-investment costs:			
Assets: Land			
Buildings	Calculations under preparation and figures not yet available, will be presented at Montreal.		
Housing for labour			
Machinery		8 million	
Other assets			
Working capital	see above		
TOTAL			

*Legal expenses, underwriting fees, etc.

7.2 Financing plan (figures in US$)

	Local Contribution	Foreign Contribution	Total
Share capital	--		
Loan capital	To be discussed in Montreal		
Working capital	??		
TOTAL			

Financing plan (cont'd.)

7.3 Have you submitted an application to or had discussions with any development banks or other institutions in your country in regard to your proposed venture?

☐ Yes ☒ No

If yes, please state their response and attach copies of any relevant documents.

_____

_____

7.4 If not, what are the names of credit and investment institutions in your country which you propose to contact for financing of your project?

Ministry of Finance

_____

_____

7.5 Please state your company's or personal contribution to the capital required: in cash US$ _____, in kind US$ _____.

7.6 If in kind, please specify: _____

VIII. FOREIGN CONTRIBUTION DESIRED

Check whichever is needed among the following:

☐ Equity participation (state maximum percentage _____)
☒ Loan capital/supplier's credit
☒ Machinery and equipment
☒ Turnkey contract
☒ Processing technology, ☐ licensing, ☐ Patents, ☐ Trade marks
☒ Management: ☒ technical, ☐ commercial
☐ Marketing: ☐ export, ☐ domestic
☐ Other, please specify _____

IX. INCENTIVES

9.1 Do your government's plans ascribe any special priority to your proposed project?

☒ Yes ☐ No

If yes, please explain briefly:

Priority is given to the industrial use of available wood raw material, up to now only used for fuel wood, especially in this non-industrialized area.

9.2 For machinery and equipment imported, check and complete whichever is applicable:

[x] There is no difficulty in obtaining import licence.

[ ] Issue of import licence is restricted under particular conditions which are:

____

____

____

[x] Import duty is entirely exempted.

[ ] Import duty is charged and its rate is _____ per cent ad valorem.

9.3 For the proposed company: (check and complete whichever is applicable)

[ ] Tax on company's profit is entirely exempted for ______ years.

[x] Partially exempted ~~([illegible] per cent [illegible]) for _____ years~~ according to the initial investment.

[ ] Tax on the company's profit is not exempted. If so, state rate of income tax on net profits _______ per cent.

9.4 For the transfer of dividends, licence fee and salaries of foreign personnel, and for the repatriation of capital, (check and complete whichever is applicable among the following):

[ ] Remittance of dividend is permitted without any restrictions,

or

[ ] restricted under certain conditions. If so, specify:

____

____

[ ] Remittance of licence fee is permitted without any restrictions

or

[ ] restricted under certain conditions. If so, specify:

____

____

[ ] Remittance of salary of foreign personnel is permitted without any restrictions

or

[ ] restricted under certain conditions. If so, specify:

____

____

9.4 (cont'd)

☐ Repatriation of foreign capital is permitted without any restrictions

or

☒ repatriation of foreign capital is restricted under certain conditions. If so, specify:

Depending on financing agreements

9.5 For imports of raw or other manufacturing materials. Check and specify whichever is applicable among the following:

☐ Import duty is totally exempted.

☐ Import duty is refunded if the products are re-exported.

☐ Import duty is charged at an average of _____ per cent ad valorem.

9.6 Please indicate briefly special protective measures, if any, on the proposed products from competitive imports (such as import quotas, tarrif barricades etc.)

No import of wood based panel materials is allowed.

9.7 Please indicate special export incentives (such as bonus voucher, tax relief, etc.)

Tax relief

9.8 Please describe any special incentives for new industrial enterprises or for expansions of existing industrial units given by your Government.

1. Partial tax exemption

2. Import duty exemption or reduction on imported capital goods.

X. OTHER INFORMATION

10.1 If you intend to form a new company for the project, what will be the proposed legal structure?

☒ Sole proprietorship

☐ Partnership

☐ Private limited company

☐ Public limited company

10.2 Have you conducted any studies to ascertain the techno-economic viability of the project?

☒ Yes ☐ No

If yes, please attach a copy of the study.

10.3 Have you previously been in contact with potential foreign collaborators for your project?

☐ Yes ☒ No

If yes, it would be useful if you provide names and dates of contacts and describe briefly the status of your negotiations.

10.4 Has your firm had or does it now have any collaboration agreement with foreign parties? If so, please state name of the collaborator, duration and brief nature of the collaboration.

10.5 Does your country require you to have an industrial licence to establish your enterprise? If yes, please attach a copy of the licence issued.

☐ Yes ☒ No

10.6 If you wish to stress certain matters concerning the project which would be interesting to foreign investors, please state briefly below.

UNITED NATIONS NATIONS UNIES

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

LERCHENFELDER STRASSE 1, A-1070 VIENNA, AUSTRIA
P.O. BOX 707, A-1011
TELEPHONE: 43 500 TELEGRAPHIC ADDRESS: UNIDO TELEX: 75612

MEETING TO PROMOTE INVESTMENT AND INDUSTRIAL CO-OPERATION IN SELECTED WOOD-PROCESSING INDUSTRIES

Montreal, Canada, 2 to 6 May 1977

Jointly organized by the

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

and the

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

INDUSTRIAL PROJECT INFORMATION FORM

(to be submitted not later than 31 October 1976)

Project Title: **Furniture Factories at A) Bolu - B) Düzce or Dermirkoy**

Country: **TURKEY**

Submitted by:

Name: **Ministry of Forests, through Directorate of Planning and Coordination Dept.**

Address: **Peris Cadd. Havus lu Sok 4, Ankara, Turkey**

Date: **15 November 1976**

When completed please send this form to:

United Nations Industrial Development Organization
Investment Co-operative Programme Office
P.O. Box 707
A-1011 Vienna
Austria

INTRODUCTORY NOTE

1. A project proposal to be submitted through completion of this Form is restricted to the following branches of wood-processing industries:

   i. Logging
   ii. Sawmills
   iii. Wood-based panels
   iv. Building components
   v. Furniture
   vi. Pulp and paper
   vii. Packaging
   viii. Waste utilization
   ix. Auxiliary material (including glue, foils, hardware, etc.)
   x. Woodworking machinery and equipment.

2. After submission of this Form to UNIDO, your project proposal will be widely distributed in advance of the Montreal Meeting to individual firms, associations and federations which are all related to wood-processing industries, financial institutions and aid agencies in almost all the industrialized countries. The distribution is intended that your project proposal will be examined and selected by a number of prospective foreign investors for their personal meetings with you at the Montreal Meeting to enter into initial discussions on your project in the direction of its possible implementation with their supplemental contributions. Thus, you would be able to negotiate with them in a bargaining position in favour of you. In order to strive for a successful promotion of your project at the Meeting, the following are to be particularly emphasized:

   i. This Form should be filled with utmost available factual information of your project proposal.
   ii. The closing date for submission of this Form to UNIDO, 31 October 1976 should be strictly observed.
   iii. Physical attendance to the Meeting by a person who represents your project is indispensable. Moreover, he should be well prepared to respond on the spot to both technical and policy-oriented questions on the project that are expected to be extensively raised by prospective foreign investors.

3. In order for you to adequately fill in this Form, assistance may be provided, upon your request, by the UNIDO Senior Industrial Development Field Adviser who can be contacted through the Regional or Resident Representative Office of the United Nations Development Programme (UNDP) in your country. Additional copies of this Form will also be obtainable from the UNDP office.

PART A

I. PROPONENT

1.1 Precise name and address of company or person sponsoring the Project:

Ministry of Forests, through Directorate of Planning and Coordination Dept.

Eskiş Cadd, Menekşelu Sok 4 Ankara/Turkey

Telephone Number: Ankara 17 62 14

Cable Address: -

Telex Number: -

1.2 Name and title of the chief executive officer:

Mr. Adnan KIR, Director

1.3 Name and title of your representative who will attend the Meeting:

Mr. Adnan KIR, Director

1.4 Present legal status of your company (delete those not applicable):

(a) i. ~~Private sector~~/Public sector/~~Private and public mixed~~

ii. Sole proprietorship/Partnership/Private limited company/ Public limited company

If public sector owned, please state controlling Ministry or Authority:

Ministry of Forests

(b) Date and place of registration/incorporation:

-

1.5 How many people are presently employed in your firm? -

1.6 Describe briefly your current business activity:

Planning on coordination of public wood industry projects in Turkey on behalf of the Ministry of Forests.

1.7 Indicate precise names and addresses of your bankers for reference purposes:

(a) MERKEZ BANKASI, Ankara

(Central Bank of Turkey)

(b) _____

_____

II. DESCRIPTION OF THE PROJECT

2.1 This project is for ☒ new establishment, ☐ expansion, ☐ modernization or ☒ diversification of an existing factory.

(check whichever is applicable and if you are running a factory already, please also complete Part B.)

2.2 Specify precisely each product to be manufactured and respective annual production capacity.

		Name of Product	Capacity
(A)	(a)	BOLU : Housing furniture	92.000 units p.a. in 1 shift
(B)	(b)	DÜZCE : School furniture	102.000 units p.a. in 1 shift
	(c)	_____	_____ p.a.
	(d)	_____	_____ p.a.

2.3 Specify size and other important specifications of each product.

(A)	(a)	8000 beds, 8000 cupboards, 16 000 side boards, 8000 stools
	(b)	6000 tables, 6000 side boards, 40.000 chairs.
(B)	(a)	50.000 double desks + 50.000 double benches, 2000 cupboards
	(b)	_____

2.4 Number of working days per annum and hours per day required to achieve the projected production capacity.

270 working day p.a. 8 hours per day.

III. MARKET

If the products are planned to be sold (check whichever is applicable below):

- ☒ entirely to the domestic market, answer item (A) below.
- ☐ entirely to the foreign market, answer item (B) below.
- ☐ both to domestic and foreign markets, answer both items (A) and (B) below.

A. Domestic Market

3.1 If available from the Statistics Department of the Government or any other reliable sources, indicate the quantity of domestic consumption of individual items for the previous years up to the present:

	Name of product	Quantity per annum 1973	1974	1975
(a)	dining room sets	-	100.000	-
(b)	bedrooms sets	-	66.463	-
(c)	living room sets	-	113.843	-
(d)	arm chair sets	-	252.033	-
	cubinet units	-	31.586	-

The above mentioned consumption is:

- ☐ all met by imports.
- ☒ all supplied by _____ (insert number) local factories.
- ☐ partly met by imports and the rest supplied by local factories. If so, state below respective figures of imports and domestic supply and number of existing local factories:

	Name of products	Quantity for 1975 Imports	Domestic	No. of local factories
(a)				
(b)				
(c)				
(d)				

3.2 Indicate current selling prices of the proposed products:

	Name of product	Unit sales price ex-factory-$US *)
(a)	dining room sets	1000.-
(b)	bedroom sets	950.-
(c)	living room sets	600.-
(d)	arm chair sets	500.-
	cubinet unit	200.-

*) Based on market survey 1974 with exchange rate : 1$ = 15TL

B. Foreign Markets

3.3 Expected annual export of your products to foreign markets:

Country	Quantity per annum
The possibilities for export will be investigated after implementation of the projects.	

3.4 Have you ever explored the possibilities of exporting the products to these countries?

☐ Yes ☒ No

If yes, check whichever is applicable among the following:

☐ You have foreign importers or local shippers who guarantee to take delivery of the above specified quantities of the products at currently competitive prices.

☐ You have no such guarantee. However you know that the countries are importing substantial quantities of the products.

IV. AVAILABILITY OF WOOD AND OTHER AUXILIARY MATERIALS

A. Unprocessed Raw Materials

4.1 Logs

(a) Names of species both in commercial and botanical names:

	Commercial Name	Botanical Name
Item i)		
Item ii)		
Item iii)		
Item iv)		
Item v)		

(b) Size (diameter under bark at smaller end of log):

	Length	Diameter	
Item i)		Minimum	Maximum
Item ii)		Minimum	Maximum
Item iii)		Minimum	Maximum
Item iv)		Minimum	Maximum
Item v)		Minimum	Maximum

Logs (cont'd.)

(c) Price (check and fill in below whichever is applicable):

☐ Buying logs from local traders. If so, state their current prices delivered at factory.

Item i) at US$ _____ per _____ delivered at factory

Item ii) at US$ _____ per _____ delivered at factory

Item iii) at US$ _____ per _____ delivered at factory

Item iv) at US$ _____ per _____ delivered at factory

Item v) at US$ _____ per _____ delivered at factory

☐ Importing logs directly from foreign shippers. if so state their current prices and terms such as FOB, CIF, C and F and particulars of charter party.

Item i) at US$ _____ per _____ on _____

Item ii) at US$ _____ per _____ on _____

Item iii) at US$ _____ per _____ on _____

Item iv) at US$ _____ per _____ on _____

Item v) at US$ _____ per _____ on _____

☐ Receiving logs from own concession or reserve. If so, please answer the questions in paragraphs 4.2 Details about timber concessions and Part V. Logging Operation.

4.2 Details about timber concession (lease)

(a) Area available: _____ hectares/acres

Probable duration of concession: _____ years

Physical location _____ state/province

Has an inventory of the concession been carried out?

☐ Yes ☐ No

If yes, please give brief particulars on type of the inventory

_____

_____

_____

(b) Royalty or stumpage fees

Please check and complete whichever is applicable:

Do you have to pay ☐ royalty fee fixed at US$ _____

Detail's about timber concession (cont'd.)

per hectare/acre a year and/or ☐ stampage fees per unit quantity extracted?

If you have to pay the stampage fees, please indicate their rates for each species:

Item i) at US$ _____ per _____ (specify unit)

Item ii) at US$ _____ per _____ (")

Item iii) at US$ _____ per _____ (")

Item iv) at US$ _____ per _____ (")

Item v) at US$ _____ per _____ (")

If you have to pay fees other than royalty and stampage fees, please briefly specify: _____

_____

(c) Logging costs: (state in US$)

	Species				
	Item i	Item ii	Item iii	Item iv	Item v
Fixed fee	_____	_____	_____	_____	_____
Stampage	_____	_____	_____	_____	_____
Felling costs	_____	_____	_____	_____	_____
Replanting costs	_____	_____	_____	_____	_____
Transporting costs	_____	_____	_____	_____	_____
TOTAL COSTS ex-factory	$ _____	$ _____	$ _____	$ _____	$ _____

(d) Logging methods:

Please briefly specify your proposed methods of felling (such as use of ax, chain saw or rooting etc.) _____

_____

_____

Please also specify your proposed methods of log extraction from a felling point to a loading point (such as use of cable, tractor, animal or slope rolling etc.) _____

_____

_____

B. Semi-processed Materials

See attached lists of material for (A) YOLU and (B) BUSCH

4.3 Sawn wood

	Specification: Species	Cross Section (Indicate Unit)	Length	Proportion	Price delivered at factory: Price	Unit
Item i)	Beech	different	different	%	at US$ 200	per m^3
Item ii)	Pine	"	"	%	at US$ 200	per m^3
Item iii)	Pinee	"	"	%	at US$ 200	per m^3
Item iv)		x	m	%	at US$	per
Item v)		x	m	%	at US$	per

4.4 Wood-based panels

	Name 1/	Type 2/	Specification (Indicate Unit): Size	Thickness	Price delivered at factory: Price	Unit
Item i)	Particle board	UF, sanded	different	10 mm	at US$ 200	per m^3
Item ii)	Fibre board		"	3 mm	at US$ 250	per m^3
Item iii)	Plywood	UF	"	diff.	at US$ 800	per m^3
Item iv)			x		at US$	per
Item v)			x		at US$	per

1/ Specify either of veneer, plywood, particle board or fibre board.
2/ Specify kind of bonding agent plus surface condition whether sanded or unsanded.

4.5 Other manufacturing materials (such as glue, laminating foils, hardware, etc.)

Specify exact names of necessary manufacturing materials other than logs, sawn wood and wood-based panels and state their annual quantities required and current unit prices in US$ delivered at factory.

Name of Materials	Quantity		Price	Unit	Imported or local
Cloths		p.a. at US$	10	per m	local
Upholstry material		p.a. at US$	70	per m^3	"

Other manufacturing materials (cont'd.)

Name of Materials	Quantity		Price	Unit	Imported or local
polish	_____ p.a.	at US$	3.-	per kg	local
glue	_____ p.a.	at US$	0.50	per kg	-"-
veneer			0.60	m^2	-"-

V. LOGGING OPERATION

If you have own timber concession or reserve to supply logs to the proposed factory, please answer the following:

5.1 Location and facilities

i. Indicate the distance between the concession and the proposed factory:

distance: _____ km/miles

ii. Proposed means of transporting logs to the factory.

(check whichever is applicable)

☐ by log rafting or barges through a nearby river or lake. If so, indicate the distance between the water and the operation site.

_____ km/miles

☐ by railway. If so, ☐ the rails have already been laid and wagons have already been acquired or ☐ both have to be purchased.

☐ by lorries. If so, state whether:

- ☐ a road passable by lorry has already been constructed between the concession and the proposed factory.
- ☐ a road passable by lorry for a distance of _____km/miles is to be constructed. Please state the maximum load limit on the road: _____ tons.

☐ by other means such as the use of horses, elephants, etc. If so, please specify.

_____

iii. Are you already logging under a leased concession or own reserve?

☐ Yes ☐ No

If yes, state:

a) Current quantity logged _____ per month.

Electricity

Check whichever is applicable among the following:

☒ Power supply is readily available at the site.
If so, state price in US$ 0.04 per KWH.

☐ Power supply is presently unavailable at the site, therefore extension of a power cable for a distance of about _____ km is necessary and its cost will be borne by:

☐ Power company or local authority.

☐ The company to be formed. Please indicate an estimated extension cost: US$ _____.

☐ Power generators must be installed due to permanent unavailability of power supply.

Water

Check whichever is applicable among the following:

☒ Public water supply is readily available at the site.

☐ Public water supply is presently unavailable at the site, therefore extension of a municipal water line for a distance of about _____ metres is necessary and its cost will be borne by:

☐ Local authority

☐ The company to be formed

A public water supply is permanently unavailable at the site, therefore:

☐ Water must be pumped from the nearest water supply at a distance of _____ metres from the site.

☒ A well must be dug by the proposed company within the site.

Effluent disposal

If the projected factory needs drainage facilities for effluent disposal, check and complete whichever is applicable among the following:

☒ The facility is readily available at the site.

☐ The facility is presently unavailable at the site.

A drainage facility of _____ metres must be completed at the expense of:

☐ Local authority

☐ The company to be formed

Is there any local regulation which induces the proposed factory to install a water treatment facility?

☐ Yes ☒ No

Location and facilities (cont'd.)

b) Specify respectively types and numbers of heavy duty vehicles; such as tractors and timber loaders used for logging:

_____

_____

_____

5.2 Rain and Snow Fall

Indicate the period during which the logging operation is discontinued because of rain or snow falls. (Only if applicable.)

From _____ (month) to _____ (month)

From _____ (month) to _____ (month)

VI. PROPOSED FACTORY

6.1 Site

(a) State name of town, city and province of the proposed factory site:

A: BOLU (Bolu) ; B: DÜZCE (Bolu)

(b) Indicate space of factory building estimated to be necessary:

A: 20,000 ; B: 4,400 square metres/~~feet~~.

Have you already bought or leased the factory land?

☒ Yes ☐ No

(c) Indicate area of ☐ log pond or ☐ storage ground estimated to be necessary.

_____ square metres/feet.

State whether an all weather road suitable for a heavy vehicle is readily available between the two places (b) and (c) above.

☐ Yes ☐ No

Also indicate its distance: _____ km/miles.

6.2 Availability and costs of utilities

Fuel to be used (check whichever is applicable).

☐ timber waste

☒ oil. Price at US$ 0.10 per ltr delivered at factory.

☐ others. Please specify: _____

Price at US$ _____ per _____ delivered at factory.

6.3 Infrastructure

Check whichever is applicable among the following:

(a) ☒ A road suitable for a lorry is readily available from a trunk road to the site. If so, how much maximum gross load is allowed? 20 tons.

☐ A road suitable for a lorry is presently unavailable.

Road construction for a distance of _____ km is necessary and the cost will be borne by:

☐ local authority

☐ The company to be formed

(b) Indicate the distance between the nearest railway station and the site by road suitable for a lorry: A: 150 km.
B: 100 km

(c) If some of the necessary machinery and equipment and some of the materials are to be imported or some of the products are to be exported, state:

Name of port A: Istanbul B: Istanbul

Distance from site to port A: 250 Km
B: 150 Km of which:

Transportation by rail — km.

Transportation by road A: 250 km.
B: 150 km

6.4 Staffing

(a) Indicate estimated personnel requirements and ~~average monthly~~ wages inclusive of all allowances and benefits.

	Number A	Number B		Per ~~man/month~~ year A	Per ~~man/month~~ year B
Management	5	2	persons at US$	19.000	8.000
Technical supervision	6	6	persons at US$	15.000	16.000
Clerical	11	5	persons at US$	27.000	14.000
Skilled labour	—	—	persons at US$	295.000	149.000
Semi-skilled labour	173	77	persons at US$		
Unskilled labour	—	—	persons at US$		
Seasonal labour	—	—	persons at US$	—	—

If any are unavailable locally, state only "unavailable".

(b) If the above monthly wages are including some form of allowances or benefits such as free rice, sugar, cooking oil, housing etc., please specify briefly:

—

Staffing (cont'd.)

Check whichever is applicable among the following:

☒ Labour specified in item (6.4) is readily available within commuting distance.

☐ The specified labour is available but beyond the commuting distance.

☐ Housing facilities will need to be provided.

6.5 Machinery and Equipment

If this project is for the expansion, modernization or diversification of an existing factory, attach a list indicating maximum details of the machinery and equipment already installed in the factory, giving age, condition, rated capacity, costs and manufacturer's names.

VII. FINANCING OF PROJECT COSTS

If you have a roughly estimated project costs and financing plan for your project, complete 7.1 and 7.2 below:

7.1 Composition of investment (figures in US$) ≈ 1000 $

	Local currency costs		Foreign exchange costs		Total	
	A	B	A	B	A	B
*Pre-investment costs:						
Assets: Land		-		-		-
Buildings	2.424	550	-	-	2.424	550
Housing for labour	-	-	-	-	-	-
Machinery	301	202	1.659	768	1.960	970
Other assets	-	-	-	-	-	-
Working capital	760	460	-	-	760	460
TOTAL	3.485	1.212	1.659	768	5.144	1.980

*Legal expenses, underwriting fees, etc.

7.2 Financing plan (figures in US$)

	Local Contribution		Foreign Contribution		Total	
	A	B	A	B	A	B
Share capital						
Loan capital	To be discussed at Montreal					
Working capital	760	460	-	-	760	460
TOTAL	3.485	1.212	1.659	768	5.144	1.980

Financing plan (cont'd.)

7.3 Have you submitted an application to or had discussions with any development banks or other institutions in your country in regard to your proposed venture?

☐ Yes ☒ No

If yes, please state their response and attach copies of any relevant documents.

_____

_____

7.4 If not, what are the names of credit and investment institutions in your country which you propose to contact for financing of your project?

_____

Ministry of Finance

_____

7.5 Please state your company's or personal contribution to the capital required: in cash US$ _____, in kind US$ _____.

7.6 If in kind, please specify: _____

VIII. FOREIGN CONTRIBUTION DESIRED

Check whichever is needed among the following:

☐ Equity participation (state maximum percentage _____)
☒ Loan capital/supplier's credit
☒ Machinery and equipment
☒ Turnkey contract **(Technology and technical responsibility)**
☒ Processing technology, ☐ licensing, ☐ Patents, ☐ Trade marks
☒ Management: ☒ technical, ☐ commercial **for a period**
☐ Marketing: ☐ export, ☐ domestic
☐ Other, please specify _____

IX. INCENTIVES

9.1 Do your government's plans ascribe any special priority to your proposed project?

☐ Yes ☐ No

If yes, please explain briefly:

_____

_____

9.2 For machinery and equipment imported, check and complete whichever is applicable:

☒ There is no difficulty in obtaining import licence.

☐ Issue of import licence is restricted under particular conditions which are:

_____

_____

_____

☒ Import duty is entirely exempted.

☐ Import duty is charged and its rate is _____ per cent ad valorem.

9.3 For the proposed company: (check and complete whichever is applicable)

☐ Tax on company's profit is entirely exempted for _____ years.

☒ Partially exempted (according to the initial investment) for _____ years.

☐ Tax on the company's profit is not exempted. If so, state rate of income tax on net profits _____ per cent.

9.4 For the transfer of dividends, licence fee and salaries of foreign personnel, and for the repatriation of capital, (check and complete whichever is applicable among the following):

☐ Remittance of dividend is permitted without any restrictions,

or

☐ restricted under certain conditions. If so, specify:

_____

_____

☐ Remittance of licence fee is permitted without any restrictions

or

☐ restricted under certain conditions. If so, specify:

_____

_____

☐ Remittance of salary of foreign personnel is permitted without any restrictions

or

☐ restricted under certain conditions. If so, specify:

_____

_____

9.4 (cont'd)

☐ Repatriation of foreign capital is permitted without any restrictions

or

☒ repatriation of foreign capital is restricted under certain conditions. If so, specify:

Depending on financing agreements

9.5 For imports of raw or other manufacturing materials. Check and specify whichever is applicable among the following:

☐ Import duty is totally exempted.

☐ Import duty is refunded if the products are re-exported.

☐ Import duty is charged at an average of ____ per cent ad valorem.

9.6 Please indicate briefly special protective measures. if any, on the proposed products from competitive imports (such as import quotas, tarrif barricades etc.)

No import of furniture is allowed

9.7 Please indicate special export incentives (such as bonus voucher, tax relief, etc.)

tax relief

9.8 Please describe any special incentives for new industrial enterprises or for expansions of existing industrial units given by your Government.

1. Partial tax exemption

2. Import duty reduction on imported capital goods

X. OTHER INFORMATION

10.1 If you intend to form a new company for the project, what will be the proposed legal structure?

☒ Sole proprietorship

☐ Partnership

☐ Private limited company

☐ Public limited company

10.2 Have you conducted any studies to ascertain the techno-economic viability of the project?

☒ Yes ☐ No

If yes, please attach a copy of the study.

10.3 Have you previously been in contact with potential foreign collaborators for your project?

☐ Yes ☒ No

If yes, it would be useful if you provide names and dates of contacts and describe briefly the status of your negotiations.

_____

_____

_____

_____

10.4 Has your firm had or does it now have any collaboration agreement with foreign parties? If so, please state name of the collaborator, duration and brief nature of the collaboration.

_____

_____

_____

_____

10.5 Does your country require you to have an industrial licence to establish your enterprise? If yes, please attach a copy of the licence issued.

☐ Yes ☒ No

10.6 If you wish to stress certain matters concerning the project which would be interesting to foreign investors, please state briefly below.

_____

_____

_____

_____

PART B

To be completed (in addition to Part A) in case involving the expansion, modernization or diversification of an existing industrial unit.

1. Please briefly describe the reasons why the ~~expansion/modernization/~~ diversification is ~~necessary~~ planned.

In both places governmental wood industries are already operated (saw milling, plywood, particle board production). Therefore the furniture factories shall be added and integrated.

2. Is the fore-mentioned plan to be accomplished by the establishment of a separate unit of production or by modifying and/or adding to your existing production line? (Check whichever is applicable):

☒ establishing separate unit

☐ modifying and/or adding to existing unit

3. Is the existing capacity being fully utilized?

☐ Yes ☐ No

If no, specify in percentage present operational capacity against full rated capacity:

Approximately _____ per cent.

Explain why you are unable to achieve full rated capacity.

_____

_____

_____

_____

4. Specify precisely each product currently being manufactured and the respective annual production.

	Name of product	Quantity	Unit (board ft. etc.)
(a)	_____	_____	_____ p.a.
(b)	_____	_____	_____ p.a.
(c)	_____	_____	_____ p.a.
(d)	_____	_____	_____ p.a.

5. State quantities of each product sold to the domestic market and to foreign market during 1975 giving names of the countries of destimation:

Name of product	Domestic quantity	Exports	
		country	quantity
(a)			
(b)			
(c)			
(d)			

6. Is space available in the existing factory building to accommodate required new lines or proposed modification?

☐ Yes ☒ No

7. Please attach audited Statement of Accounts of your company for the past three years.

8. If the resources sought include share capital participation, please explain your proposals for the redistribution of the share holding.

_____

_____

_____

PIECES ET SYMBOLS	MATIERE	DIMENSIONS ET NOMBRE	ELEMENTS DE CALCUL POUR L'EVALUATION DU NOMBRE DE MACHINES										
			Volume en m3 par pièce	Volume en m3 pour la production annuelle	Surface en m2 par pièce	Surface en m2 pour la production annuelle	Périmètre en m/l par pièce	Périmètre en m/l pour la production annuelle	Longueur en m l	Perçage en nombre d'opérations	Mortaisage en nombre d'opération	Tenonnage en nombre d'opération	T = Tournage C = Cadrage Co= Couture R = Rainurage
I - Salon													
Fauteuil: Production annuelle 6.000													
Manchette													
Traverse haute (1)	Hêtre	630x60x 30(2)	0,00113	81	0,113	8.164			45.330	72.000 (1)		72.000 (2)	
Traverse basse (2)	Hêtre	630x70x 30(2)	0,00132	95	0,126	9.072			45.330	72.000 (2)		72.000 (2)	C = 72.000
Pied (3)	Hêtre	560x40x 40(4)	0,00089	128	0,089	12.902			80.640		288.000(2+1)		T =144.000
Dossier													
Traverse (4)	Hêtre	520x50x 30(2)	0,00078	56	0,0832	5.990			37.440		72.000(3)	72.000 (2)	
Montant (5)	Hêtre	520x50x 30(2)	0,00078	56	0,0832	5.990			37.440	72.000 (2)	72.000(2)		
Barre (6)	Hêtre	520x40x 16(3)	0,00033	36	0,0582	6.289			55.160			108.000 (2)	C = 36.000
Fond											144.000(2+4)		
Traverse (7)	Hêtre	520x50x 30(2)	0,00078	56	0,0832	5.990			37.440			72.000 (2)	
Montant (8)	Hêtre	550x50x 30(2)	0,00082	59	0,0880	6.335			39.600	72.000 (2)		144.000 (2)	C = 36.000
Barre (9)	Hêtre	450x40x 16(4)	0,00002	40	0,0504	7.258			64.800				
Canapé: Production 6.000													C = 36.000
Planche de sommier	Hêtre	500x100x20(40)	0,00100	240					120.000				
Traverse de sommier	Hêtre	2000x100x30(4)	0,00600	144					48.000				Co=753.440
Coussins	Mousse	520x520x100(2)		1946	0,6448	46.425							
Grande table (GT) et petite table (PT) de salon:			Production annuelle 6.000 GT plus 12.000 PT										T = 72.000
Pieds	Hêtre	400x40x 40(4)	0,00064	46	0,064	4.608			28.800		144.000(1+1)		
Gde travers GT	Hêtre	300x40x 30(2)	0,00096	11,5	0,112	1.344			9.600			12.000 (2)	
Gde travers PT	Hêtre	400x40x 30(2)	0,00083	11,5	0,058	1.344			9.600			24.000 (2)	
Dessus GT	P.de particule	1000 x500x19(1)	0,00950	57	0,500	3.000		18.000					
Dessus PT	P.de particule	500x500x19(1)	0,00475	57	0,250	3.000		24.000					
Petit travers GT	Hêtre	400x40x 30(2)	0,00048	5,7	0,056	672			4.800			12.000 (2)	
Petit travers PT	Hêtre	400x40x 30(2)	0,00048	11,5	0,056	1.344			9.600			24.000 (2)	
II - Salle à manger													
Corps du haut: Production annuelle 6.000													
Côté (1)	P.de particule	1300x300x19(2)	0,00741	89	0,39	4.680	3.20	38.400		12.000			
Séparation (2)	P.de particule	1260x300x19(2)	0,00718	86	0,37	4.536	3.12	37.440		12.000			
Etagère (3)	P.de particule	690x300x19(8)	0,00393	188	0,20	9.936	1.98	95.040					
Dessus (4)	P.de particule	2.110x300x19(1)	0,01200	72	0,63	3.798	4.82	28.920					
Dessous (5)	P.de particule	2.110x300x19(1)	0,01200	72	0,63	3.798	4.82	28.920					
Fond (6)	P.de fibre	2.150x1300x3(1)	0,01400	84	2,79	16.770							
Porte de bar (7)	P.de particule	690x500x19(2)	0,00690	78	0,34	4.140	2.38	28.560					
Etagère (8)	P.de particule	400x280x19(2)	0,00210	25	0,11	1.344	1.36	16.320					
Séparation (9)	P.de particule	500x280x19(1)	0,00260	16	0,14	840	1.56	9.360		6.000			

PIECES ET SYMBOLE		MATIERE	DIMENSIONS ET NOMBRE	ELEMENTS DE CALCUL POUR L'EVALUATION DU NOMBRE DE MACHINES										
				Volume en m3 par pièce	Volume en m3 pour la production annuelle	Surface en m2 par pièce	Surface en m2 pour la production annuelle	Périmètre en m l par pièce	Périmètre en m l pour la production annuelle	Longueur en m/l	Perçage en nombre d'opérations	Mortaisage en nombre d'opérations	Tenonnage en nombre d'opérations	T = Tournage C = Cadrage Co = Couture R = Rainurage
Corps du lit: Production annuelle 6.000														
Côté	(1)	P.de particule	560x430x19 (2)	0,0045	54	0,24	2.880	1,98	23.760		12.000			
Séparation	(2)	P.de particule	520x430x19 (2)	0,0042	51	0,22	2.683	1,90	22.800		12.000			
Etagère	(3)	P.de particule	590x410x19 (3)	0,0053	96	0,28	5.081	2,20	39.600					
Dessus	(4)	P.de particule	2110x430x19 (1)	0,0172	103	0,90	5.443	5,08	30.430					
Dessous	(5)	P.de particule	2110x430x19 (1)	0,0172	103	0,90	5.443	5,08	30.480					
Fond	(6)	P.de fibre	2150x560x5 (1)	0,0060	36									
Gde traverse	(7)	P.de particule	2150x100x19 (2)	0,0040	49	0,21	2.520	4,50	54.000		12.000 (2)			
Pte traverse	(8)	P.de particule	350x100x19 (2)	0,0006	8	0,07	420	0,90	10.800		12.000 (2)			
Table: Production annuelle 6.000														
Dessu	(1)	P.de particule	1300x800x19 (1)	0,0190	118	1,04	6.240	4,20	25.200					
Gde traverse	(2)	Hêtre	1000x 60x30 (2)	0,0024	29					12.000			12.000	C = 6.000
Pte traverse	(3)	Hêtre	600x30 x30 (2)	0,0014	17					7.200			12.000	
Pieds	(4)	Hêtre	750x 70x70 (4)	0,0036	88					18.000		48.000(1+1)		T = 24.000
Rallonge	(5)	P.de particule	800x400x19 (2)	0,0060	73	0,32	3.840	2,40	28.800					
Bras de rallonge	(6)	Hêtre	1000x 40x30 (4)	0,0012	29					24.000	24.000 (2)			
Chaise: Production annuelle 40.000														
Montant D	(1)	Hêtre	450x 40x40 (2)	0,0007	57	0,07	5.760			36.000		160.000(2+1)		
Montant AR	(2)	Hêtre	900x 40x40 (2)	0,0014	114	0,14	11.520			72.000		160.000(2+2)		
Traverse H	(3)	Hêtre	350x 30x30 (2)	0,0003	25	0,04	3.360			28.000			80.000 (2)	
Traverse B	(4)	Hêtre	350x 30x30 (2)	0,0003	25	0,04	3.360			28.000			80.000 (2)	
Traverse Dav	(5)	Hêtre	400x 40x30 (1)	0,0004	19	0,05	2.240			16.000			40.000 (2)	
Traverse Der	(6)	Hêtre	400x 40x30 (1)	0,0004	19	0,05	2.240			16.000			40.000 (2)	
Traverse Dos	(7)	Hêtre	400x120x20 (1)	0,0009	38	0,11	4.480			16.000			40.000 (2)	
Fond	(8)	Contreplaqué	450x 380x5 (1)	0,0008	34	0,17	6.840							
Coin	(9)	Hêtre	100x120x20 (4)	0,0002	19					9.600	160.000 (2)			C = 40.000
Mousse		Mousse	450x380x50	0,0085	342	0,21	8.400							
Tissu		Tissu												
III Chambre à Coucher														
Armoire: Production annuelle 8.000														
Dessus	(1)	P. particule	1060x550x19(1)	0,0110	88	0,58	4.664	3,22	25.760					
Dessous	(2)	P. particule	1060x550x19(1)	0,0110	88	0,58	4.664	3,22	25.760		8.000(10)			
Côté	(3)	P. particule	1810x530x19(2)	0,0182	291	0,95	15.348	4,68	74.880		16.000 (8)			
Porte	(4)	P. particule	1810x530x19(2)	0,0182	291	0,95	15.348	4,68	74.880		16.000 (2)			
Gde étagère	(5)	P. particule	1020x450x19(1)	0,0087	69	0,45	3.672	2,94	23.520		8.000 (4)			
Pte étagère	(6)	P. particule	1020x360x19(1)	0,0069	56	0,36	2.937	2,76	22.080		8.000			
Séparation	(7)	P. particule	1390x430x19(1)	0,0126	101	0,66	5.337	3,74	29.920					
Etagère	(8)	P. particule	430x360x19(4)	0,0032	105	0,17	5.529	1,68	53.760					
Pte traverse S	(9)	P. particule	480x 80x22(2)	0,0008	13	0,03	614	1,12	17.920		16.000 (2)			
Gde traverse	(10)	P. particule	1000x 80x22(2)	0,0017	28	0,08	1.280	2,16	34.560		16.000 (4)			
Fond	(11)	P. fibre	1060x1860x5(1)	0,0098	78									C = 8.000

MEUBLES MEUBLANTS (suite)

Tableau 3-2

PIECES ET SYMBOLE	MATIERE	DIMENSIONS ET NOMBRE	ELEMENTS DE CALCUL POUR L'EVALUATION DU NOMBRE DE MACHINES									
			Volume en m3 par pièce	Volume en m3 pour la production annuelle	Surface en m2 par pièce	Surface en m2 pour la production annuelle	Périmètre en m/l par pièce	Périmètre en m/l pour la production annuelle	Longueur en m l	Perçage en nombre d'opérations	Mortaisage en nombre d'opérations	Tenonnage en nombre d'opérations	T = Tournage C = Cadrage Co = Couture P = Palmurage
Table de nuit: Production annuelle 16.000													
Dessus (1)	P.particule	430x350x15(1)	0,0023	38	0,154	2.464	1,53	25.280		16.000 (2)			
Côté (2)	P. particule	550x350x15(2)	0,0027	90	0,192	6.144	1,20	57.600		32.000 (10)			
Côté tiroir (3)	Bois blanc	300x 95x12(2)	0,0007	11					9.600				
Devant (4)	Bois blanc	440x 95x12(1)	0,0005	8					7.040				P = 16.000 (2)
Façade (5)	P. particule	440x190x19(1)	0,0006	10	0,044	704	1,08	17.280					P = 16.000 (2)
Fond (6)	P. fibre	400x300x 3(1)	0,0003	6									
Derrière (7)	Bois blanc	400x 95x12(1)	0,0004	7					6.400				
Etagère (8)	P. particule	440x310x19(2)	0,0025	83	0,136	4.364	1,50	48.000					
Dessous (9)	P. particule	440x350x19(1)	0,0029	47	0,154	2.464	1,59	25.280		16.000 (4)			
Porte (10)	P. particule	440x300x19(1)	0,0028	46	0,152	2.432	1,56	24.960		16.000 (2)			
Lit: Production annuelle 8.000													
Gd dossier (1)	P. particule	1500x450x19(1)	0,0128	102	0,675	5.400	3,90	31.200					
Pt dossier (2)	P. particule	1500x320x19(1)	0,0090	72	0,480	3.840	3,64	29.120Tr					
Traverse (3)	Bois blanc	1920x150x32(2)	0,0060	101			4,14	66.240	30.720				
Sommier (4)	P. particule	1920x1400x25(1)	0,0670	541									
Montant de som.(5)	Bois blanc	1920x 25x25(2)	0,0010	19					30.720				
Traverse de sommier (6)	Bois blanc	1350x 25x25(2)	0,0008	13					21.760				
Traverse de p. (7)	Bois blanc	1350x 50x25(2)	0,0027	43					21.760				
Pouf: Production annuelle 8.000													
Dessus (1)	P. particule	400x400x19(1)	0,0027	21	0,144	1.152	1,52	12.160		8.000			
Dessous (2)	P. particule	400x400x19(1)	0,0030	24	0,160	1.280	1,60	12.800		8.000(3)			
Gd côté (3)	P. particule	400x400x19(2)	0,0030	48	0,160	2.560	1,60	25.600		8.000(6)			
Pt côté (4)	P. particule	350x350x19(2)	0,0020	41	0,144	2.307	1,52	24.320		8.000(6)			C = 8.000
Coussin (5)	Volume tissu	360x360x100(2)	0,0129	103	0,250	2.000							Co= 76.800

TABLEAU RECAPITULATIF POUR LA PRODUCTION ANNUELLE

Tableau No. 4

MATIERES	MEUBLES	ENSEMBLES	NOMBRE D'ELEMENTS	VOLUME en m3	SURFACE en m2	PERIMETRE en m l	LONGUEUR en m l	NOMBRE D'OPERATIONS			
								PERCAGE	MORTAISAGE	TENONNAGE	TOURNAGE - CADRAGE COUTURE - RAINURAGE
Bois	Fauteuil	Traverse H.	72.000	81	8.164		45.330	72.000 (1)		72.000 (2)	
		Traverse B.	72.000	95	9.072		45.330	72.000 (2)		72.000 (2)	C = 72.000
		Pieds	144.000	128	12.902		80.640		288.000(2+1)		T = 144.000
		Traverse D.	72.000	56	5.990		37.440		72.000(3)	72.000 (2)	
		Montant D.	72.000	56	5.990		37.440	72.000 (2)	72.000(2)		
		Barre D.	108.000	36	6.289		56.160			108.000 (2)	C = 36.000
		Traverse F.	72.000	56	5.990		37.440		144.000(2+4)		
		Montant F.	72.000	59	6.336		39.600	72.000 (2)		72.000 (2)	
		Barre F.	144.000	40	7.258		64.800			144.000 (2)	C = 36.000
		Planche de S.	240.000	240			120.000				C = 6.000
		Traverse de S.	24.000	144			48.000				
	Table de salon	Pieds	72.000	46	4.606		28.000		144.000(1+1)		T = 72.000
		Gde traverse GT	12.000	11	1.344		9.600			12.000 (2)	
		Gde traverse PT	24.000	11	1.344		9.600			24.000 (2)	
		Pte traverse GT	12.000	5	672		4.800			12.000 (2)	
		Pte traverse PT	24.000	11	1.344		9.600			24.000 (2)	C = 18.000
	Table de salle	Gde traverse	12.000	29			12.000			12.000 (2)	
	à manger	Pte traverse	12.000	17			7.200			12.000 (2)	C = 6.000
		Pieds	24.000	88			18.000		48.000(1+1)		T = 24.000
		Bras de ral.	24.000	29			24.000	24.000			
	Chaise	Montant D.	80.000	57	5.760		26.000		160.000(2+1)		
		Montant AR.	80.000	114	11.520		72.000		160.000(2+2)		
		Traverse H.	80.000	25	3.360		28.000			80.000(2)	
		Traverse B.	80.000	25	3.360		28.000			80.000(2)	
		Traverse dev.	40.000	19	2.240		16.000			40.000(2)	
		Traverse der.	40.000	19	2.240		16.000			40.000(2)	
		Traverse dos.	40.000	38	4.480		16.000			40.000(2)	C = 40.000
		Coin	160.000	19			9.600	160.000			
	Tiroir	Côté de tiroir	32.000	11			9.600				R = 16.000
		Devant	16.000	8			7.040				P = 16.000
		Derrière	16.000	7			6.400				
	Lit	Traverse	16.000	101		66.240	30.720				
		Montant de S.	16.000	19			30.720				
		Traverse de S.	16.000	13			21.760				
		Traverse de P.	16.000	43			21.760				
				1.757	110.263		976.568	472.000	1.068.000	916.000	485.000
Panneau de particule	Corps du haut	Côté	12.000	88	4.680	38.400		12.000			
		Séparation	12.000	86	4.536	37.440		12.000			
		Etagère	48.000	188	9.936	95.040					
		Dessus	6.000	72	3.798	28.920					
		Dessous	6.000	72	3.798	28.920					
		Porte de bar	12.000	78	4.140	28.560					
		Etagère	12.000	25	1.344	16.320					
		Séparation	6.000	16	840	9.360		6.000(4)			
	Corps du bas	Côté	12.000	54	2.880	23.760		12.000(8)			
		Séparation	12.000	51	2.685	22.800		12.000(8)			
		Etagère	18.000	96	5.081	39.600					
		Dessus	6.000	103	5.443	30.480					
		Dessous	6.000	103	5.443	30.480					
		Gde traverse	12.000	49	2.520	54.000		12.000(2)			
		Pte traverse	12.000	8	420	10.000		12.000(2)			

TABLEAU RECAPITULATIF POUR LA PRODUCTION ANNUELLE (suite)

MATIERES	MEUBLES	ENSEMBLES	NOMBRE D'ELEMENTS	VOLUME en m3	SURFACE en m2	PERIMETRE en m l	LONGUEUR en m l	NOMBRE D'OPERATIONS			
								PERCAGE	MORTAISAGE	TENONNAGE	TOURNAGE - CADRANE COUTURE - RAINURAGE
Panneau de particule	Table	Dessus	6.000	118	6.240	25.200					
		Rallonge	12.000	73	3.840	29.800					
	Chambre	Dessus (1)	8.000	88	4.664	25.760					
		Dessous (1)	8.000	88	4.664	25.760		8.000			
		C3té (2)	16.000	291	15.342	74.880		16.000			
		Porte (2)	16.000	291	15.349	74.880		16.000			
		Cde étagère(1)	8.000	69	3.672	23.520		8.000			
		Pte chambre	8.000	55	2.937	22.080		8.000(4)			
		Séparation	8.000	101	5.337	29.920					
		Etagère	32.000	105	5.5..	53.760					
		Pte traverse	16.000	13	714	17.920		16.000(2)			
		Gde traverse	16.000	23	1.220	34.560		16.000(4)			C = 8.000
	Table de nuit	Dessus	16.000	36	2.464	35.200		16.000(2)			
		C3té	32.000	92	6.163	57.600		32.000(10)			
		Façade	16.000	10	704	17.280					
		Etagère	32.000	83	4.384	46.080					
		Dessous	16.000	47	2.464	25.920		16.000(4)			
		Porte	16.000	46	2.432	24.960		16.000(2)			
	Lit	Gd dossier	8.000	102	5.400	31.200					
		Pt dossier	8.000	72	3.840	29.120					
		Sommier	8.000	541							
	Pouf	Dessus	8.000	21	1.152	12.160		8.000(2)			
		Dessous	8.000	24	1.280	12.800		8.000(5)			
		Gd côté	16.000	48	2.560	25.600		8.000(5)			Cc= 76.200
		Pt côté	16.000	43	2.307	24.320		8.000(5)			C = 8.000
	Table (salon)	Dessus G.T.	6.000	57	3.000						
		Dessus P.T.	12.000	57	3.000						
				3.689	186.718	1.205.520		266.000			92.200
Panneau de fibre ou contreplaqué	Chambre	Fond	8.000	78							
	Table de nuit	Fond	16.000	6							
		Corps du haut	6.000	84							
		Corps du bas	6.000	36							
	Salle à manger	Fond	6.000	84							
				293							
Mousse	Fauteuil	Coussin	72.000	1.946							
	Chaise	Fond	40.000	342							
	Pouf	Coussin	8.000	103							
				2.391							
Tissus	Fauteuil	Coussin	72.000		46.800						
	Chaise	Fond	40.000		10.000						
	Pouf	Coussin	8.000		2.000						
					58.800						

PIECES T SYMBOLE	MATIERE	DIMENSIONS ET NOMBRE	ELEMENTS DE CALCUL POUR L'EVALUATION DU NOMBRE DE MACHINES										
			Nombre de planches	Volume par pièce	en m3 pour 50.000	Surface par pièce	en m2 pour 50.000 *	Périmètre par pièce	en m l pour 50.000 *	Longueur en m l pour 50.000*	Rainurage Nombre d'op.	Tronçonnage Nombre d'op.	Perçage	Soudage Nombre d'op.
I - TABLE DE L'ELEVE : 50.000														
Dessus (1)	Hêtre	1200x380x22(1)**	150.000	0,0100	501	0,456	22.800	3,16	158.000	180.000	50.000(2)***		***	
Etagère (2)	Hêtre	1040x270x22(1)	100.000	0,0061	308	0,280	14.040	2,62	131.000	104.000			50.000(4)	
Fond (3)	Hêtre	990x 70x22(1)	50.000	0,0015	76	0,069	3.465	2.12	106.000	49.500				
Barre (4)	Hêtre	350x 50x40(2)		0,0007	70					35.000			100.000(2)	
Montant de p.(5)	Métal	650x 30x30(4)				0,312	15.600			130.000		200.000		
Traverse (6)	Métal	270x 30x30(4)				0,129	6.480			54.000		200.000	100.000(2)	
Cornière(7)	Métal	270x 30x30(2)				0,664	3.240			27.000		100.000	100.000(2)	100.000(4)
Traverse B(8)	Métal	990x 30x30(1)				0,118	5.940			49.500		50.000		100.000(2)
II - BANC DE L'ELEVE : 50.000														
Fond (1)	Hêtre	1200x250x22(1)	100.000	0,0066	330	0,300	15.000	2.90	145.000	120.000	50.000(2)			
Dossier (2)	Hêtre	1200x130x22(1)	50.000	0,0034	171	0,156	7.800	2,56	133.000	60.000			50.000(4)	
Barre (3)	Hêtre	200x 50x40(2)		0,0004	40					20.000			100.000(2)	
Gd montant (4)	Métal	640x 30x30(2)				0,153	7.680			64.000		100.000	100.000(2)	
Pt montant (5)	Métal	350x 30x30(2)				0,084	4.200			35.000		100.000		
Traverse H(6)	Métal	260x 30x30(2)				0,062	3.120			26.000		100.000	100.000(2)	
Traverse B(7)	Métal	260x 30x30(2)				0,062	3.120			26.000		100.000		100.000(4)
Traverse I(8)	Métal	990x 30x30(1)				0,118	5.940			49.500		50.000		100.000(2)
III - ARMOIRE DU PROFESSEUR : 2.000														
Dessus (1)	P.lamifié	1140x410x19(1)		0,0088	17	0,467	934	3,1	6.200		2.000(1)		2.000(3x3)	
Dessous(2)	P.particule	1140x410x19(1)		0,0088	17	0,467	934	3,1	6.200		2.000(1)		2.000(3x3)	
													+2.000(14)	
Côté (3)	P.particule	760x410x19(2)		0,0118	23	0,623	1.246	4,68	9.360		4.000(1)		4.000(3x2)	
Cloison(4)	P.particule	760x410x19(1)		0,0059	11	0,316	623	2,34	4.680				2.000(3x2)	
Porte (5)	P.particule	750x570x19(2)		0,0164	32	0,866	1.732	5,32	10.640					
Fond (6)	P.fibre	1130x790x5 (1)		0,0044	9	0,890	1.785	3,84	7.680					
Montant P(7)	Métal	200x 30x30(4)				0,096	192			1.600		8.000		
Pte traverse (8)	Métal	350x 30x30(2)				0,034	168			1.400		4.000	4.000(3)	
Cde traverse(9)	Métal	1080x 30x30(2)				0,260	520			4.320		4.000	4.000(4)	2.000(4)
Etagère (10)	P.particule	540x395x19(2)		0,0081	16	0,425	853	3,74	7.480					

* ou 2.000 armoires

** Le nombre entre parenthèse indique le nombre de pièces

*** Le nombre entre parenthèse indique le nombre d'usinage à effectuer par opération

Tableau no.2

TABLEAU RECAPITULATIF POUR LA PRODUCTION ANNUELLE

MATIERES	MEUBLES	ENSEMBLES	NOMBRE D'ELEMENTS	VOLUME en m3 (1 face)	SURFACE en m2	PERIMETRE en m 1	LONGUEUR en m 1	NOMBRE D'OPERATIONS: PERCAGE	RAINURAGE	TRONCONNAGE	SOUDAGE
BOIS Planches de 14 cm environ	TABLE de l'ELEVE	Dessus	150.000	501	/	/	130.000				
		Etagère	100.000	308	/	/	104.000	50.000			
		F.d'étagère	50.000	76	/	/	49.500				
		Barre d'as.	100.000	70	/	/	35.000	100.000			
				955			363.500				
	BANC de l'ELEVE	Fond	100.000	330	/	/	120.000				
		Dossier	50.000	171	/	/	60.000	50.000			
		Barre	100.000	40	/	/	20.000	100.000			
				541			200.000	300.000			
TOTAL				1.496			563.500				
PANNEAUX DE BOIS MASSIF	TABLE de l'ELEVE	Dessus	50.000		22.800	158.000			50.000		
		Etagère	50.000		14.040	131.000					
		F.d'étagère	50.000		3.465	106.000					
					40.305	395.000					
	BANC de l'ELEVE	Fond	50.000		15.000	145.000			50.000		
		Dossier	50.000		7.300	133.000					
					22.300	273.000			100.000		
TOTAL					63.205	673.000					
PROFILES METALLIQUES	TABLE de l'ELEVE	Montant de p.	200.000	/	15.600	/	130.000			200.000	
		Traverse de p.	200.000		6.480		54.000	100.000		200.000	
		Cornière de p.	100.000		3.240		27.000	100.000		100.000	
		Traverse int.	50.000		5.940		49.500			50.000	100.000 (5)
					31.260		260.500				50.000 (2)
	BANC de l'ELEVE	Gd montant	100.000		7.680	/	64.000	100.000		100.000	
		Pt montant	100.000		4.200		35.000			100.000	
		Traverse H.	100.000		3.120		26.000	100.000		100.000	
		Travers B.	100.000		3.120		26.000			100.000	100.000 (4)
		Traverse int.	50.000		5.940		49.500			50.000	50.000 (2)
					24.060		200.500	400.000		1,000.000	
	ARMOIRE du PROFESSEUR	Montant de p.	8.000		192		1.600			8.000	
		Traverse de p.	4.000		168		1.400	4.000		4.000	
		Gd Traverse de p.	4.000		520		4.320	4.000		4.000	
					880		7.320	8.000		16.000	2.000 (4)
TOTAL					56.200		468.320	408.000		1,016.000	

TABLEAU RECAPITULATIF POUR LA PRODUCTION ANNUELLE (suite).

MATIERES	MEUBLES	ENSEMBLES	NOMBRE D'ELEMENTS	VOLUME en m3	SURFACE en m2 (1 face)	PERIMETRE en m l	LONGUEUR en m l	NOMBRE D'OPERATIONS			
								PERCAGE	RAINURAGE	TRONCONNAGE	SCUDAGE
PANNEAUX de PARTICULES	ARMOIRE DU PROFESSEUR	Dessous	2.000	17	934	6.200		4.000	2.000		
		Côté	4.000	23	1.246	9.360		4.000	4.000		
		Cloison	2.000	11	623	4.680		2.000	/		
		Porte	4.000	32	1.732	10.640		/	/		
		Etagère	4.000	16	853	7.480		/	/		
TOTAL				99	5.388	38.360		10.000	6.000		
PANNEAUX LAMIFIES	ARMOIRE du PROFESSEUR	Dessus	2.000	17	934	6.200		2.000	2.000		
TOTAL				17	934	6.200		2.000	2.000		
PANNEAUX DE FIBRE	ARMOIRE du PROFESSEUR	Fond	2.000	9	1.785	7.680		/	/		
TOTAL				9	1.785	7.680					
PLACARD	ARMOIRE du PROFESSEUR	Dessous	4.000	/	1.870						
		Côté	8.000		2.492						
		Cloison	4.000		1.246						
		Porte	8.000		3.464						
		Etagère	8.000		1.706						
TOTAL					10.778						

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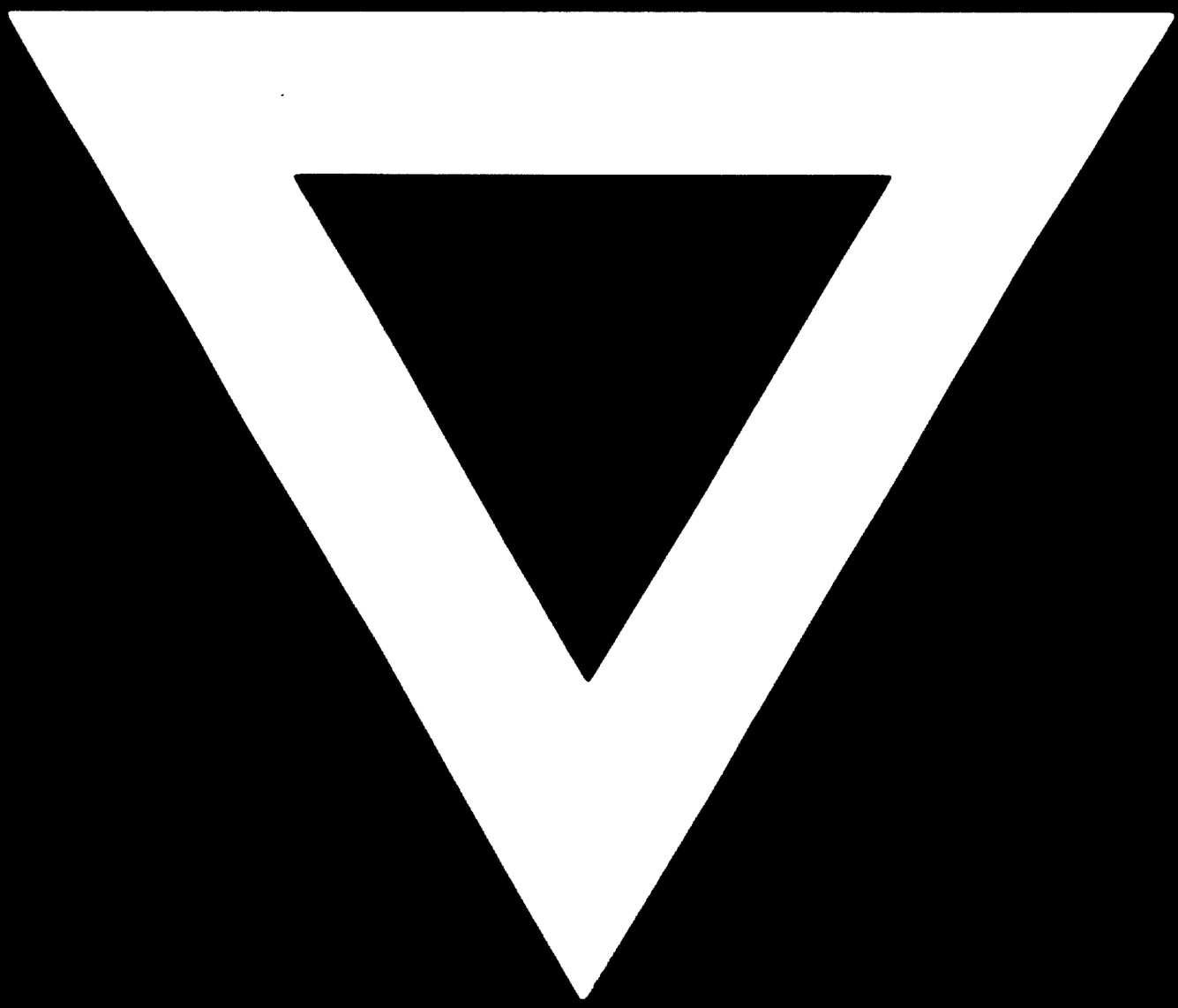

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