OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

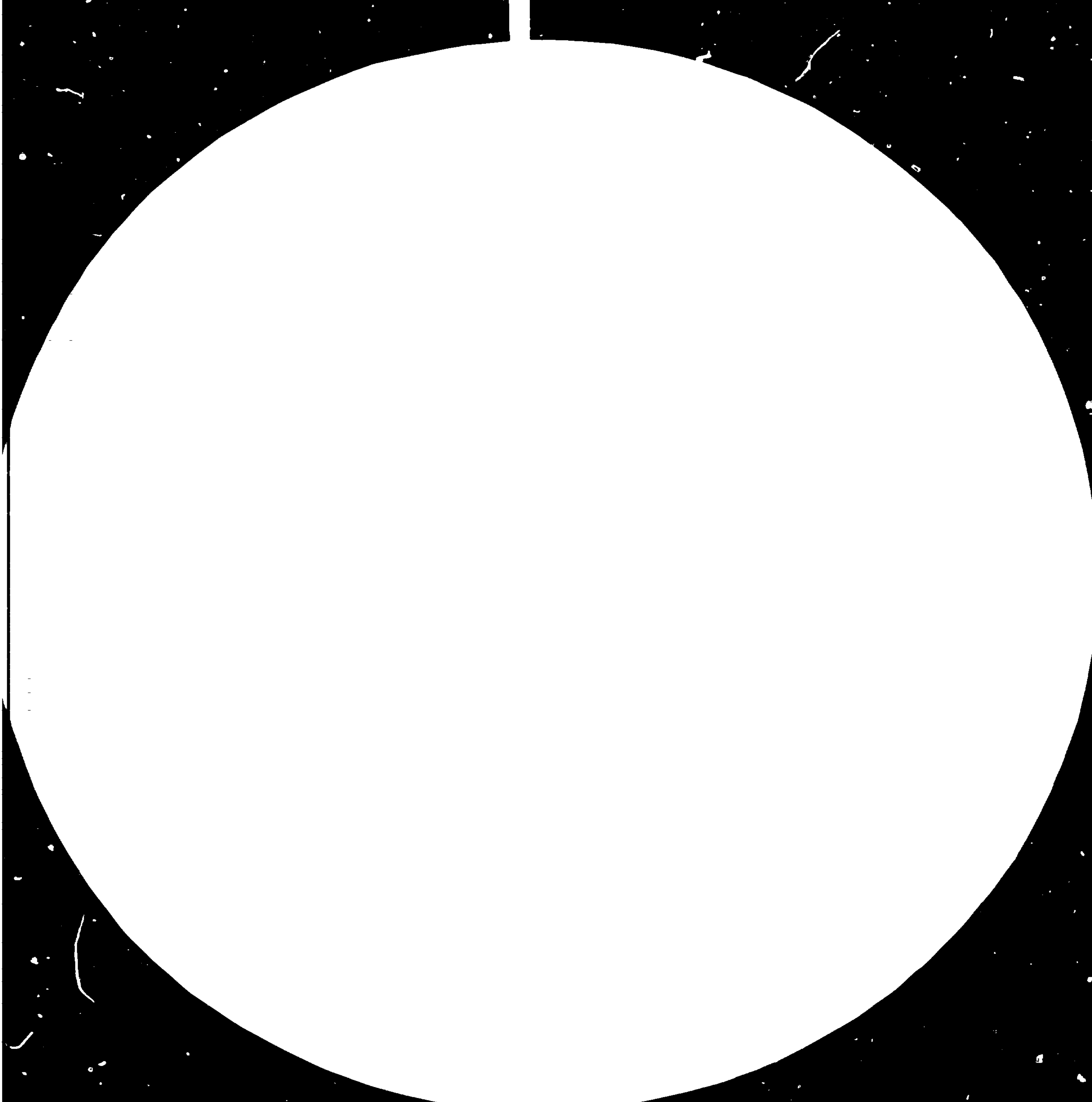
FAIR USE POLICY

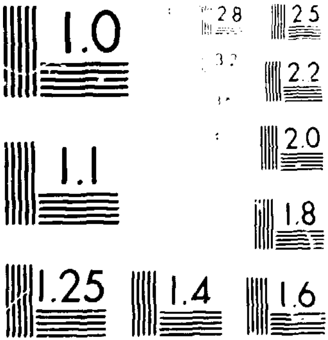
CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org




1.0
2.8
2.5
2.2
2.0
1.1
1.8
1.25
1.4
1.6

1C34C

Distr.
LIMITED

ID/WG.323/18
31 December 1980

ENGLISH

United Nations Industrial Development Organization

Seminar on Furniture and Joinery Industries
Lahti, Finland, 3 - 25 August 1980

THE FOREST ECONOMY OF THAILAND *

by

P. Kanparnich **

000037

* The views expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

** Official in Charge, F.I.O. Bondwood Factory.

80-47153

1. <u>General information</u>

<u>Country data</u>

1 rai	=	0.16 ha
1 ha	=	6.25 rai
Baht 1	=	US$ 0.05
US$ 1	=	Bahts 20 (฿)

Area: 514,000 km^2

Population: 44,1 million (mid 1977)
Rate of growth: 2,5 percent

Density: 86 per km^2, 185 per km^2 of agricultural land

Income distribution (1976 est.):
Percentage of income, lowest quintile: 7,6
Percentage of income, highest quintile: 42,2

Distribution of land ownership (1974 est.)
Percentage of holdings of less than 2,4 ha: 30
Percentage of holdings of 9,6 ha or more: 12

Education (1975):
Adult literacy rate (percentage): 84
Primary school enrollment (percentage): 86

GNP per capita in 1977: US$ 410

Gross national product in 1977:

	(US$ million)	(percentage)
-GNP at market prices	18,085	100.0
-Gross domestic investment	4,737	26.2
-Gross national saving	3,730	20.6
-Current account balance	- 1,088	- 6.0
-Exports of goods	4,027	22.2
-Imports of goods	5,088	28.0

Annual rate of growth (percentage of constant prices):

	(1960/65)	(1965/70)	(1970/77)
- GNP at market prices	7.5	8.5	6.8
- Gross domestic investment	14.4	13.5	5.0
- Gross national saving	11.8	11.3	5.6
- Current account balance	--	--	-
- Export of goods	9.9	6.7	7.0
- Imports of goods	11.3	12.6	5.2

Output in 1977:

	(US$ million)	(percentage)
- Agriculture	5,169	28.5
- Industry	5,125	28.2
- Services	7,865	43.3
Total	18,159	100.0

Labour force in 1977:

	(Million)	(percent)
Agriculture	13.4	71.4
Industry	2.0	10.7
Services	3.4	17.9
Total	18.8	100.0

Productivity in 1977: (Average value added per worker):

	(US$)	(percent of average)
- Agriculture	386	39.9
- Industry	2,562	265.3
- Services	2,313	239.5
Average	966	

2. <u>Forest situation:</u>

The forest area in Thailand is declining at a very rapid rate due to increased shifting cultivation practice and clear cutting of forest for households and industrial use. While the high population growth, 2,5 percent per annum, is boosting demand for agricultural land and for wood and wood products, current re-afforestation programmes are far below requirements. Between the period 1973 and 1977 the productive forest area dropped by about 68,500 km^2 or 8,5 percent per year decreasing from 38.6 percent to 25.4 percent of the country's total area. Should this trend continue, all forests in Thailand would disappear within the next two decades.

At present, annual production of wood, including natural forest, plantations and rubber is estimated to be 16 million m^3 against a consumption level of 28 million m^3 of which 90 percent is fuelwood. The gap between consumption and incremental production is filled primarily from mining the country's forest resources supplemented by some imports (1.5 million m^3 in 1978). Domestic demand for 19·5 is estimated to reach 33 million m^3.

Aware of the seriousness of the continuing forest destruction, the Royal Thai Government has given high priority to forest protection and reafforestation. The Fourth Five-year Plan, 1977-1981, calls for an accelerated reafforestation at a rate of 0.5 million rai per year. More recently, this target has been doubled. For the year 1979, the Government has approved the re-afforestation of 1 million rai which is three times more than what was achieved in 1978. Although such a target is too ambitious and will hardly be attained with the present budget allocation and staff availability, it clearly underlines the Government's concern over forestry development.

A sound forest restoration programme, however, would need to tackle forest protection along with a reafforestation programme especially in those areas where forest destruction is high as a result of shifting cultivation such as the North-Eastern and Northern regions. The forest village system which is already introduced in the country by the Royal Forest Department (RFD) and the Forest Industry Organization (FIO) is appropriate for forest restoration since it could tackle simultaneously re-afforestation and forest protection. Under this system shifting cultivators are provided with some land to build their house and to farm, with work opportunities in the plantation and with facilities such as schools, health centres, water supply and electricity thus having less motivation to practise shifting cultivation. In areas where forest destruction is less, the present practice of straight afforestation by RFD and private sector would positively contribute to the forest development programmes.

Forest replanting programmes in Thailand have been geared towards teak, and, to a lesser extent, towards pine. Little has been done about species which would be more suitable in meeting the demand for wood given the present consumption pattern. In recognition of this fact, the Government's replanting policy has recently been geared towards the fast-growing species and it is expected that these species would dominate future forest replanting programmes.

In spite of the increased efforts by the Government, accelerated re-afforestation has been constrained by lack of funds and lack of experience and research on fast-growing species. Results are only available for pines and, to a lesser extent, for Casuarina and some Eucalyptus. While replanting fast-growing species at the initial stage should be based on those for which some experience is gained and research results are available, there is the need for stepping up research on a wider range of fast-growing species for future re-afforestation programmes.

Given the deficit in fuelwood production in the country, the re-afforestation programme should be geared towards producing wood for domestic needs through the replanting of fast-growing species. In the Northern Region, to a lesser extent in the North-Eastern region, this should be done through the establishment of forest villages in order to prevent forest destruction and to increase wood production whith, under forest villages, is ten times higher than under natural forest. The RFD and FIO have acquired experience in establishing forest villages and could easily increase their present annual planting programmes provided additional funds were made available to them.

Considering that the present gap between the Annual Allowable Cut and the demand is around 17 million m^3 and assuming an annual incremental growth of 2 m^3 per rai with fast-growing species, the total acrage of plantation needed in the country is theoretically 8.5 million rai if no further degradation of present natural forest takes place.

Plantation of trees for purposes other than fuelwood should also be stepped up under a first phase development programme. Present pine plantation development by RFD for pulp and timber, and of Casuarina by small farmers for the use of construction poles, should be further developed. Plantation activities should concentrate as far as possible on highly populated areas and close to markets. Private small farmers' plantations of Casuarina or Eucalyptus should be concentrated in the north-eastern region.

3. Wood based industries:

1. Sawmills

In 1976 there were approximately 475 static sawmills in Thailand most of them steam-drying plants of medium size, not exceeding 250 hp capacity. These sawmills are equipped with circular saws, multi-blade alternative saws and some band saws. Although correct saw maintenance was noted, there is room for saw doctoring improvement. The simple steam engine power using the mills' wood wastes should be supported in view of the increasing cost of electricity and imported fuel.

Since 1972 the country's sawnwood production has been estimated at 1.9 million m^3 out of which only 0.1 million m^3 is teak. A large number of sawmills are reported to operate well below capacity and teak mills are facing an increasingly difficult supply situation.

2. Veneer and plywood:

There are eight veneer plants and two plywood mills in the country. Veneer and plywood output in 1974 was 17,000 m^3 and 60,000 m^3 respectively.

3. Fibrefoard and particle board:

There are two particle board plants and two fibreboard mills operating in Thailand. Annual production since 1971 has averaged around 30,000 m^3 for fibreboard and 10,000 m^3 for particle board.

4. Pulp and paper industries:

The domestic production of paper and paper board is based almost exclusively on imported pulp and waste paper. The 40 production units (three of which are pulp mills, the other being paper mill), are small and are concentrated around Bangkok and in the Central Region. In 1978 the country's consumption of cultural paper and industrial paper reached 257,000 tons for which some 100,000 tons of various types of pulp were imported as well as 88,800 tons of waste paper. In 1977, the CIF value of imported paper was valued at US$ 72.2 million. The estimated forecast consumption for 1990 is around 1 million tons for paper and paper board.

4. Total domestic demand:

For 1985, the forecast domestic demand for forest products, except for paper and paper board, can be estimated as follows: (expressed in '000 m^3 per annum of industrial round wood equivalent).

- sawnwood	4,200	
- wood based panel products	142	
- building and other poles	1,400	(23.3 million poles)
- fuelwood	28,000	(6,5 million tons of charcoal)
Total	33,742	

The above figures are based on the following per capita/annum consumption used by the Royal Forest Department:

- sawnwood	0.076 (m^3)
- building poles	0.025 (m^3)
- fuelwood	0.510 (m^3)

Two institutions play important roles in the management, control and re-forestation of Thailand's forestry and forest industries: the Royal Forest Department (RFD) and the Forest Industry Organization (FIO). Other agencies, through their integrated development approach, also deal marginally with forestation.1/.

5. Design and marketing

The design of Thai furniture has been characterized by graceful motif features carved by hand. Its price is expensive.

In more recent years, Thailand's furniture design trends have turned towards simplicity and economy in the use of raw material and labour.

The need for mechanization is emphasized.

The progress in the direction mentioned is more or less governed by the requirement of large capital expenditure for new machines, by existing regulations and a difficult or uncertain raw material supply situation. The cited factors, individually and in combination, tend to hinder and slow down the rate of development or improvement.

1/ 1 through 4 are excerpts from the report of the Thailand Forestry Project, Final Preparatory Mission, FAO/World Bank Co-operative Programme Investment Centre, dated 12 June 1980.

6. Industrial infrastructure

The agencies entrusted with the task to assist forest-based industries are:

The government sector:

- Ministry of Industry
- Ministry of Commerce
- Applied Scientific Research Corporation of Thailand
- Royal Forest Department
- Forest Industry Organization

The private sector:

- The Sawmills Association
- The Forest Industry Association of Thailand
- The Association of Thai Industries.