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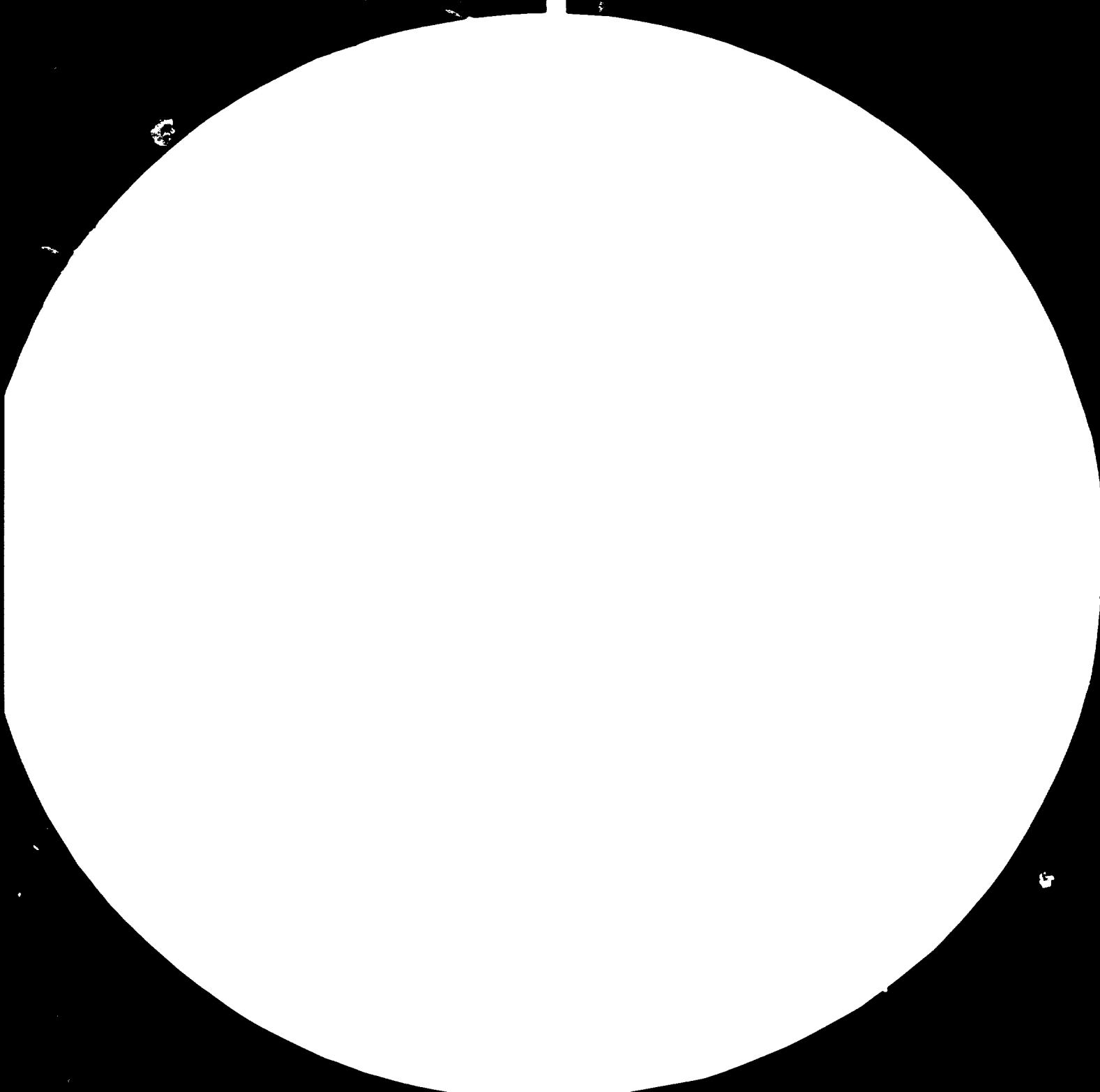

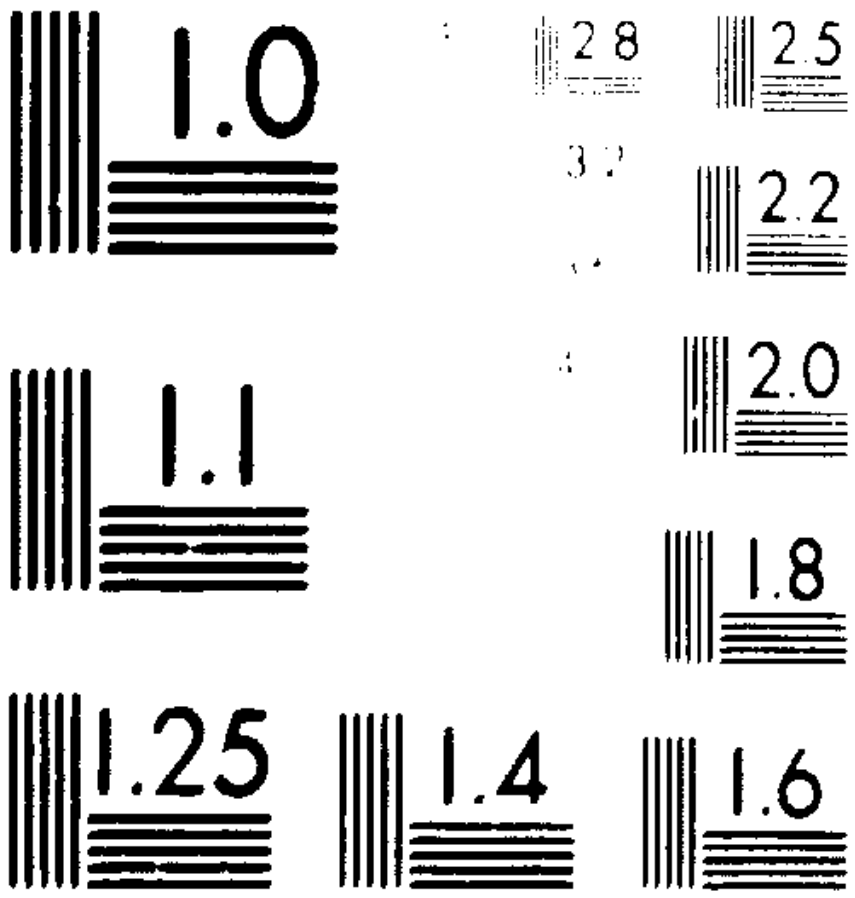

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15 April 1983

English

ASSISTANCE IN PROMOTION OF FLOWS OF TECHNOLOGY AND INVESTMENT IN THAILAND

SI/THA/82/803

THAILAND

Terminal report*

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

Based on the work of J. M. Caldas-Lima
Expert in technical transfer and investment

United Nations Industrial Development Organization

Vienna

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DP/ID/SER.B/388/Corr.1
9 May 1983
English

ASSISTANCE IN PROMOTION OF FLOWS OF TECHNOLOGY
AND INVESTMENT IN THAILAND

SI/THA/82/303
THAILAND

Terminal report

Corrigendum

Document DP/ID/SER.388, dated 16 April 1983, should bear the symbol DP/ID/SER.B/388.

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1. INTRODUCTION

The Fifth National Economic and Social Development Plan for Thailand 1982-1986, among other policy goals includes the need to establish direct Government role in inflows of technology, taking into account the present country needs, industrial development and its competitive position vis-a-vis other members of ASEAN.

The government in this connection, required high level expertise to be provided for the purpose of assisting in laying ground work for establishment of national technology transfer framework, both legal and administrative.

Such expertise was provided in two split missions of 6 weeks each. The first one was performed by Mr. J.J. Guimarães Pestana between the 9th. August, 1982 and the 17th. September, 1982.

The second one was performed by the undersigned Mr. J.M.Caldas Lima between the 7th. November, 1982 and the 17th. December 1982.

Both experts are since years directors in the Portuguese Foreign Investment Institute, and heads of departments empowered with negotiation, approval and monitoring of transfer of technology agreements.

It was expected that the experts should carry out the following main duties:

(i) assess present situation of Thailand in imports of technology;

(ii) survey current Government set up vis-a-vis location of envisaged Government administrative set-up;

(iii) prepare suggestions on institutional frame - work, its scope, functions and organization

(iv) survey existing legislative and administrative framework for establishment of a national promotional and regulatory framework;

(v) carry out consultation programmes for the Government officials who will be involved with regulatory measures and provide extensive briefing on regulatory systems in other developing countries.

The project schedule was discussed by Mr. Pestana with Khun Samnao Chulkarat and with Khun Sivavong Chankasiri who were, by the time, respectively Director of Industrial Economic and Planning Division, Ministry of Industry, and Deputy Under Secretary of State for Industry.

It was then agreed to respect the above mentioned assign - ment, and explained that the main objectives of Thailand Government in respect to the inflows of technology might be summarized as follows:

SHORT TERM:

- to reduce payments abroad, arising from transfer of technology agreements;
- to promote and regulate the inflows of foreign technology.

MEDIUM TERM:

- create conditions to develop domestic technological capabilities.

During the first split mission, and as per the Preliminary Report, (1) Mr. Pestana contacted the main responsible agencies,

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(1) *Assistance in Promotion of Flows of Technology and Investment in Thailand - Preliminary Report by J.J. Guimarães Pestana.*

visited several industries and could establish a cooperation scheme between the Ministry of Industry and the Joint CTC / /ESCAP Unit for the analysis of transfer of technology agreements for the purpose of the present project.
Concerning the design of analytical framework for such analysis, for application into computer software, Mr. Pestana prepared instructions to be used by MOI staff assigned to the job (Annex 1).

Such work and the resulting preliminary findings and conclusions, as well as the opportunity of personal exchange of views with Mr. Pestana, were a valuable contribution for the performance of the second split mission concerned mainly with:

- studying in depth the present situation of the inflows of technology in Thailand, as well as identifying the existing legislation and administrative set-up;
- providing consultation programmes and intensive briefings for government officials and the business community on promotional/regulatory measures in other developing countries;
- prepare a final report setting out the findings of the mission and recommendations to the Government on further action which might be taken.

For the fulfillement of the above tasks, the mission was provided with all necessary facilities by Khum Manu Leopairote, Director of the Economic and Planning Division, Ministry of Industry. The mission had the permanent assistance of Mr. Winai Khaosamang, from the same Division, and also a full cooperation of Mr. William Millager, Senior Industrial Development Field Advisor, who gave all necessary and requested support; final discussions with Government officials, during the last week of the mission were carried out jointly with Dr.Janiszewski, UNIDO's Industrial Development Officer from Development and Transfer of Technology Branch.

2. FACTS AND FIGURES ABOUT THAILAND

Bordered by Malaysia to the South, Burma to the West, Laos to the North and Northeast and Cambodja to the East, Thailand is approximately the size of France. The two countries can be compared as per table 2.1.

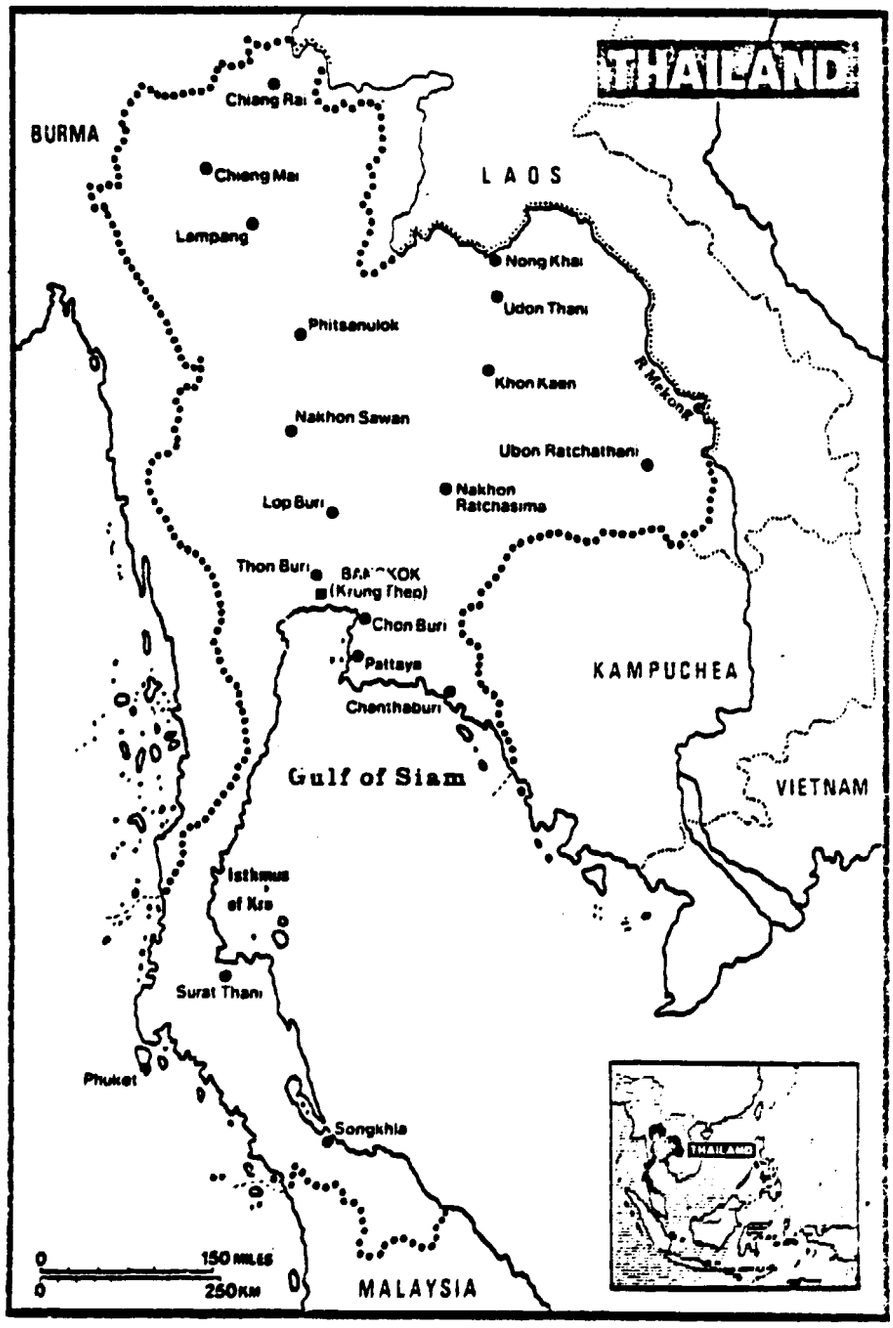
Table 2.1. - Thailand and France: comparative figures

1981	THAILAND	FRANCE
Population	48,600,000 hb	53,900,000 hb
Area	514,000 km^2	547,026 km^2
Capital	4,742,000 hb	9,900,000 hb
Cultivated Area	35%	35%
Crops av. yield	1,958 Kg/ha	4,833 kg/ha
Pop. growth rate	2.8%	1.4%
Per capita GNP	750 USD	10470 USD

Source: ATLASECO-Atlas Economic Mondial 1982

Thailand is basically an agrarian country employing in agriculture about 70% of its total labour force (table 2.2).

The country is divided into four regions: the mountainous North, where temperatures in the winter are cool enough to permit cultivation of temperate fruits; the Northeast, a rolling, semi-arid plateau which was once the centre of Thai agriculture; the Central region, one of the most fertile rice-growing areas on earth; and the isthmus of the South, whose heterogeneous topography encompasses hilly rubber plantations and fruit orchards, and rugged terrain from which high-grade tin ore has been extracted for centuries.


THAILAND
BURMA
LAOS
KAMPUCHEA
VIETNAM
MALAYSIA
Gulf of Siam
Chiang Rai
Chiang Mai
Lampang
Nong Khai
Udon Thani
Phitsanulok
Khon Kaen
R. Mekong
Nakhon Sawan
Ubon Ratchathani
Nakhon Ratchasima
Lop Buri
Thon Buri
BANGKOK
(Krung Thep)
Chon Buri
Pattaya
Chanthaburi
Isthmus of Kra
Surat Thani
Phuket
Songkhla
0 150 MILES
0 250KM

2.2. Distribution of employed persons by economic sector (Jul/Sep 80)

SECTOR	1,000 persons	%
Agriculture	15,942.7	70.78
Manufacturing and Mining	1,825.5	8.10
Construction	435.9	1.94
Commerce	1,915.9	8.51
Transport and Communications	455.9	2.02
Electricity and Water Supply	59.9	.27
Services	1,886.8	8.38
Others	.5	.00
TOTAL	22,523.1	100.00

Source: NESBD

The main crops, respective productions in 1980 and the position of Thailand as a world producer are as follows:

Cassava	13,500	thousand	tons,	2nd	world	producer
Rubber	510	"	"	3rd	"	"
Rice	18,000	"	"	5th	"	"
Corn	21,500	"	"	12th	"	"
Sugar Cane	12,600	"	"	14th	"	"

It is to be noted that the agriculture trade balance is strongly positive, with a surplus of 2.9 billion USD in 1980, equivalent to 9,5% of GNP.

On the other hand, although agriculture still dominates the economy, its share of GNP declined steadily from 40% in 1960 to 26% in 1980, while manufacturing increased from 13% to 21%, with an annual growth rate of about 10% since 1960.

Food processing represents one-fourth of all manufacturing activity. Beverages, tobacco products, textiles, garments, chemical products, petroleum products and non-metallic mineral products are the major industries. Printing and publishing, cement, footwear, transport equipment, television sets, integrated circuits watch parts, light machinery and equipment, iron and steel, wood products, furniture, electrical products and paper products are also among the main manufactured products.

As for the natural resources the most important products are:

- Tin: with a production of 46,000 tons of concentrates (around 73% metal) in 1979, Thailand is the second world producer of this metal which accounts for 1.8% of the country's GNP;
- Natural gas: discovered in recent years in the Gulf of Thailand, it will certainly contribute to reduce the imbalance in trade and payments caused by importing oil, and lay the foundations for major new industrial developents namely in the petrochemical industry.
- Other natural products and respective outputs in 1979 are:

Lignite	1.4 million tons
Iron Ore	103000 tons, approx. 55% metal
Lead	205000 tons of concentrates, approx. 43% metal
Manganese	35000 tons ore

During the past two decades the Thai economy has grown at a very fast rate. Consistent real growth of 7 per cent a year has pusned per capita income to 17,833 baht (almost USD 800) which puts Thailand among the middle earners, not as well off as South Corea with its massive export-dominated growth or Malaysia with its considerable natural resources including oil and gas reserves, but a long way ahead of the

poor high-population countries of the Indian subcontinent.

Thailand's GNP in now 14 times of that of 20 years ago, having risen from 60,000 million bath in 1961 to 817,000 million baht in 1931. Export value has grown 16 fold from 9900 million baht to 163000 million baht and per capita income is now eight times what it was in the year 1961.

Despite this very visible growth, the Thai economy has been severely buffeted by the present world events, in particu - lar the increasing cost of energy the world monetary crisis and inflation as well as recession in the industrialized countries.

As a matter of fact, the biggest problems the country has faced are:

- the rising oil prices and the dependance on imported oil for 75 per cent of the domestic energy supplies;
- the collapse of commodity prices, affecting the exports value, mainly based on primary products (table 2.3).

Table 2.3 - Thailand's main exports (1980)

COMMODITY	QUANTITY (Tons)	VALUE (Millions of Baht)
1. Rice	2,798,930	19,505
2. Tapioca products	5,041,538	14,837
3. Rubber	454,866	12,389
4. Tin	33,555	11,347
5. Textile products	-	9,593
6. Maize	2,172,698	7,292
7. Integrated Circuit	619,237 (1,000 units)	6,147
8. Precious stones	-	3,232
9. Sugar	451,701	2,975
10. Shrimp	17,900	1,958

Source: Board of Investment

3. GUIDELINES OF INDUSTRIAL POLICY

As seen, Thailand's economy is facing problems which have given rise to a deteriorating external financial position, with a trade deficit of 124 billion baht or 9 per cent of GNP, and a current account deficit of 120 billion baht. Another source of concern is a week industrial structure which has developed under strong protection measures and lacked the stimulation of competition to become more efficient.

Moreover,

- much of Thailand's recent industrial investment has been in heavy industry which has not provided sufficient jobs for the increasing numbers entering the labour market;
- The structures of most industries are highly dependent on imported raw materials, capital goods and machineries, and energy, thus contributing to a continuously rising trade deficit.

The Fifth-year Plan 1982-86 represents an attempt to put the country back on a more balanced course envisaging, among other measures:

- to control spending and to lift domestic savings;
- to reduce annual growth rates of energy consumption and oil import;
- to move to a more competitive and market-based economy.

One of the specific targets of the Plan is to restructure the industrial sector with special emphasis on exports in order to lower trade deficit, and to decentralize manufacturing activities from Bangkok to provintial areas.

The major thrust to the Government's policy has been the adoption of a programme of positive promotion of investment

in the private sector, both domestic and foreign, by establishing a system of incentives for priority activities, setting up financial institutions to provide capital and loan assistance, establishing industrial estates and reducing or eliminating difficulties and obstacles by a number of legal, administrative and inter-governmental measures.

Incentives are available for both new industrial projects and the expansion of existing operations provided that they satisfy one or more of the following criteria:

- provide a high value-added
- have a high export potential
- provide a new use or outlet for domestic resources
- involve the development of domestic resources
- involve the processing of domestic agricultural resources
- contribute with new technologies to the nation
- represent labour intensive processes etc.

Under the present policy, highest priority is given to projects with high export potential, to agro-industrial projects and to those which agree to settle in promotional zones outside the greater Bangkok area.

But it is believed that to achieve the targets of the Plan, active promotion is still lacking and encounters finantial problems, operational problems, and marketing problems, and the government envisages to implement policies and measures designed to cover namely the following areas:

- restructuring of specific industries, enabling them to be competitive in foreign markets and in the domestic market by emphasizing efficiency improvement to lower production cost and the determination of fair prices for producers and consumers.
- industrial export promotion measures by provid

ing incentives and facilities as well as eradicating various obstacles to exports;

- the promotion of small scale industry and industrial development in provintial ares in order to disperse economic activities and the use of local natural resources;
- the promotion of industrial employment, by stimulating employment creation, particulary in export industry, labour intensive industry and technology, and provide training to increase skill and quality of the labour force for both the public and private sectors;
- energy conservation in industrial Sector, by encouraging the conservation of all forms of energy in industrial production, particularly petroleum products. Moreover, the government will adjust the energy pricing structure to reflet the real economic cost in order to promote efficiency and conservation of energy utilization in industrial sector;
- development of basic industry, by formulating a system and strategies for the development of major basic industries in the country, particularly the development plan for the iron and steel industry including the determination of location and provision of infrastructural services, and the formulation of strategies for the development of basic industries especially gas related industries in the Eastern Seaboard area.

In connection with the industrial development,special reference is made in the Plan to science and technology as an important factor in the production process and it is recognized that it is essencial to acelerate the use of science and technology in the improvement of efficiency throughout the spectrum of production and utilization of natural resources in order to raise productivity in the agricultural, industrial

and energy sectors.

Reference is also made to the role of foreign investment intended to be promoted to the maximum benefit of the country's industrial restructuring program.

It is recognized that:

- during the period of past national development plans, the use of science and technology in the development process was still limited and that the country's scientific and technological personnel is limited and of inadequate quality;
- most of the technology used in the manufacturing sector is imported from abroad and usually does not have the highest efficiency because it is treated by the suppliers as business secret, which means that know how is not fully disclosed by the suppliers in order to prevent importing countries from competing;
- the imported technology has not been sufficiently screened, is highly expensive and has many restrictive conditions creating economical disadvantages;
- the technology received is also not so efficient it should be, mainly because industrialists have received high protection against imported products and did not care about raising production efficiency.

In this regard the Plan mentions the intention of the Government to create an agency for the promotion, selection and supervision of investment, trade, technology transfer and registration of all foreign investment.

4. THE SITUATION IN RESPECT TO IMPORTED TECHNOLOGY

4.1. Direct cost

As mentioned, the transfer of technology is considered a key issue for the development of Thailand, and so it has been for other developing countries.

The Joint UNCTC/ESCAP Unit carried out several studies pertaining to the negotiation of the transfer of technology through TNC's in the region of the Economic and Social Commision for Asia and the Pacific.

The case study for Thailand examines the three elements constituting the total cost of technology sought through a contractual agreement with a TNC, namely the financial fee, the duration of the contract and the extent of restrictive practices.

As agreed during the first split mission the results of the Joint Unit study[1] were made available for the purpose of the present work and represented a very important contribution to a complete knowledge and understanding of the tuation regarding the inflows of technology in Thai

Luring the last two decades there has been a rapid growth of technology exchange between enterprises in different countries and an emergence of industrial technology as a highly marketable comodity.

Trade in technology rose from approximately

US$ 2.7 billion in 1965

to over

US$ 11 billion in 1975

---

(1) *Cost of Technology and Restrictive Business Practices: A Case Study of Thailand*

UNIDO has estimated that the trade in technology by developing countries, in terms of fees, royalties and other payments for technical know-how and specialized services, could increase from approximately

US$ 1 billion in 1975
to over
US$ 6 billion in 1985

The above figures mean that the payments made by the developing countries for transactions of technology represent approximately 15% of the total world trade of technology and has been increasing at an approximately 5 to 6 fold rate every ten years.

In Thailand, the payments for technology has increased

from
US$ 6.79 million in 1972
to
US$ 57.86 million in 1981

or

from
Baht 142 million in 1972
to
Baht 1330.7 million in 1982

Table 4.1. compares payments for technology in selected countries, namely Philippines, Thailand and Republic of Korea.

We can easily ascertain that payments for technology made by Thai firms to foreign suppliers have grown ninefold in a ten year period, which represents a much higher rate than the average in other developing countries.

This may have resulted mainly from:

- either that there has been an exceptionally fast growing inputs of foreign technology for the de-

TABLE 4.1.

COST OF TECHNOLOGY: SELECTED COUNTRIES

(US$ million)

COUNTRY \ YEAR	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	TOTAL
A. Payments for technology fees											
Philippines	16.76	23.56	34.01	55.73	60.00	63.14	62.20	63.63	72.91	-	451.94
Thailand	6.79	9.83	11.12	14.55	17.75	24.74	26.71	35.11	45.42	57.86	249.88
Republic of Korea	←		96.51		→	58.06	85.07	93.93	107.23	107.10	547.90
B. Imports of machinery											
Philippines	293.9	366.8	529.3	811.8	812.4	726.9	940.5	1163.9	1327.2	-	6972.7
Thailand	301.0	403.1	664.9	720.7	635.4	791.5	1066.1	1273.0	1529.6	-	7385.3
Republic of Korea	761.7	1156.7	1848.6	1926.4	2426.6	2951.9	4994.8	5152.8	4998.7	-	27218.2

SOURCE: Joint CTC/ESCAP Unit Study

velopment process of the country;

- or that Thai firms are paying for foreign technology higher prices than normal in other developing countries where technology inflows have been monitored for years.

The evidence seems to favour the second conclusion.

As a matter of fact, and as already mentioned, the Government recognizes that the imported technology, beyond being inefficient is highly expensive, and the study carried out by Joint CTC/ESCAP Unit has shown, as it can be clearly seen in tables 4.2 and 4.3 that:

- the largest payers are found in the non-promoted sector;
- a large proportion of payments is concentrated in simple industries such as pharmaceuticals and cosmetics which involve mainly mixing operations, i.e., situations where no transfer of technology per se takes place.

We can also come to interesting conclusions about infows of technology in Thailand through the ratio of Payments for technology Gross National Product, which has proved to be a relevant indicator to compare the relative costs of technology in different countries.

A recent study on this subject[1] and elaboration on data from Joint Unit Study, permited to establish the table 4.4. for a selected number of countries. It is to be noted that the ratios were calculated taking the payments for technology of year n and GNP in year n-1 and this because payments of royalties are usually made in an yearly basis and in the year after the corresponding output has been generated.

---

(1) *Import of Technology and Technological Policy, by VICTRO CORADO SIMÕES*

TABLE 4.2

TOTAL REMITTANCES OF TECHNOLOGY FEES
CLASSIFIED BY INDUSTRY

Industry	1980		1981	
	Bath	%	Bath	%
Chemical and chemical products	22,628,832.14	2.4	27,512,033.-	2.1
Electrical appliances	59,116,609.99	6.3	85,620,654.80	6.4
Cosmetic	102,462,928.83	10.9	137,394,311.45	10.3
Petroleum products	23,657,189.41	2.5	148,023,356.94	11.1
Batteries	4,851,303.09	0.5	6,258,009.99	0.5
Pharmaceuticals	79,646,988.06	8.5	95,644,448.26	7.2
Rubber products	61,311,708.39	6.6	74,392,246.70	5.6
Transport equipment	127,643,595.11	13.6	166,842,632.23	12.5
Paints	10,885,028.14	1.2	9,953,161.70	0.7
Textiles	55,032,733.90	5.9	87,509,668.50	6.6
Food and beverages	110,838,129.19	11.8	164,322,091.32	12.4
Others	278,882,976.50	29.8	327,265,799.99	24.6
TOTAL	936,958,022.75	100.0	1,330,738,414.77	100.0

SOURCE: Joint CTC/ESCAP Unit Study

TABLE 4.3

TOTAL REMITTANCES OF TECHNOLOGY FEES CLASSIFIED BY INDUSTRY AND PROMOTION STATUS (1981) *

Industrial Code		Promotion Status					
		Promoted Sector			Non-Promoted Sector		
		No. of Contracts	Remittances Bath	%	No. of Contracts	Remittances Bath	%
311-1	Food	23	74,932,682.54	10.42	17	89,360,193.98	15.17
313	Beverages	-	-	-	5	16,526,558.76	2.80
314	Tobacco	2	2,250,542.97	0.31	-	-	-
321	Textiles	24	64,320,557.25	8.95	8	12,286,833.76	2.09
322	Weaving Apparel	1	1,984,500.00	0.28	17	20,253,783.50	3.44
324	Footwear	-	-	-	2	6,575,545.32	1.12
341	Paper and Paper Products	6	22,142,445.79	3.08	-	-	-
342	Printing, Publishing	-	-	-	9	3,147,533.54	0.53
351	Industrial Chemicals	22	63,566,678.24	8.84	8	6,490,032.66	1.10
2	Other Chemical Products	24	64,661,694.66	8.99	57	171,510,997.90	29.11
4	roleum Refineries and Products	7	21,479,212.80	2.99	3	124,733,192.73	21.17
	er Products	4	74,027,074.70	10.29	3	2,498,174.50	0.42
	la: t c Products	2	919,300.68	0.13	1	456,399.80	0.08
	tery, China and Earthware	2	1,738,142.36	0.24	-	-	-
	ss and Glass Products	6	16,500,882.31	2.29	1	11,457,419.59	1.94
	Metallic Mineral Products	4	6,499,708.66	0.90	-	-	-
	and Steel	6	6,367,037.50	0.89	-	-	-
	n-Ferrous Metal	3	14,796,707.16	2.06	-	-	-
38	Metal Products	1	242,365.45	0.03	2	5,050,979.63	0.86
382	Machinery Except Electrical	20	63,024,014.38	8.76	3	2,218,567.24	0.38
383	Electrical Machinery and Appliances	15	51,841,874.62	7.21	21	44,005,329.28	7.47
384	Transport Equipment	27	151,197,527.16	21.03	10	12,566,674.83	2.13
385	Other Machinery	-	-	-	1	8,262,000.71	1.40
	Non Manufacturing	2	15,789,653.64	2.20	36	49,523,808.99	8.41
	Unidentified	1	819,856.66	0.11	2	2,234,111.00	0.38
TOTAL		202	719,102,459.53	100	206	589,158,137.72	100

(*) Includes only firms remitting more than ฿ 500,000 in 1981

SOURCE: Joint CTC/ESCAP Unit Study

TABLE 4.4.

PAYMENTS FOR TECHNOLOGY VS GNP

(Figures are multiplied by 1,000)

Country	Payments 1979 / GNP 1978
United States	0.29
Japan	1.04
F.R.Germany	1.52
United Kingdom	1.93
France	1.99
Italy	2.00
Rep.of Korea	2.34 (1980/1979)
Sweden	2.37 (1978/1977)
Philippines	2.42 (1980/1979)
Spain	2.56 (1978/1977)
Portugal	2.58
Thailand	3.36 (1980/1979

The figures of the table 4.4 are almost self-explanatory:

- countries with lower indicator are those more advanced technologically;
- for countries where transfer of technology is regulated, namely Spain, Portugal, Philippines and Republic of Korea, the ratios are comparable;
- for Thailand, where transfer of technology has not been regulated so far, the ratio is significantly higher.

With the data available, we could establish table 4.5. which permits the following conclusions:

- for Republic of Korea the ratio is decreasing and this fact can be well understood when considering that the country has had a steady develop - ment growth rate and is becoming less dependent on foreign technology;
- for Thailand the ratio increased significantly from 1980 to 1981, which means that the impor - ted technology is becoming more and more expensive.

TABLE 4.5.

PAYMENTS FOR TECHNOLOGY VS GNP
SELECTED COUNTRIES

(Figures are multiplied by 1,000)

Country	Ratio Payments 1980 GNP 1979	Payments 1981 GNP 1980
Philippines	2.42	---
Thailand	3.36	3.72
Rep.of Korea	2.34	1.91

If we take into account the distribution of GNP by sectors (table 4.6) and establish the ratio of Payments for Techno logy vs Industrial Output, the figures are still more unfa vourable to Thailand, as per table 4.7 comparing such ratio for Philippines, Portugal, Republic of Korea and Thailand.

TABLE 4.6.

DISTRIBUTION OF GNP BY SECTORS
SELECTED COUNTRIES (%)

Sector / Country	Agriculture	Mining	Industry	Services
Philippines	36	3	30	31
Thailand	30	2	20	45
Rep.of Korea	20	3	35	42
Portugal	14	1	40	45

SOURCE: ATLASECO-Atlas Economic Mondial 1982

TABLE 4.7.

PAYMENTS FOR TECHNOLOGY VS
INDUSTRIAL OUTPUT

(Figures are multiplied for 1,000)

Country	Payments 1980 IO 1979
Philippines	8.0
Thailand	14.6
Rep.of Korea	6.7
Portugal	6.4

Figures of table 4.7 show that Thailand's industry is paying comparatively much higher prices than the industry of other countries where the transfer of technology is subject to regulation, namely Philippines and Republic of Korea.

Table 4.8 taken from Joint Unit Study, gives information about the ranges of running royalties found in several sectors. We can see in some fields royalty levels higher than 10% on the sales and even cases of royalties as high as 20% on gross sales and 28% on net sales.

TABLE 4.8.

RANGES OF RUNNING ROYALTIES

ISIC	Industry	Royalty Bases			
		Net Sales		Gross Sales	
		Range (%)	No. of Contracts	Range (%)	No. of Contracts
311-2	Food	1-7	21	2.5-14	4
321	Textiles	0.75-5	6	1.5-5	3
322	Weaving Apparel	3-8	6	2-5	6
324	Footwear	1.4-3.5	2	-	-
341	Paper and paper products	1-2	2	-	-
351	Industrial chemicals	1.1-3.5	11	0-5	7
352	Other chemical products	0.4-28	50	1-20	10
355	Rubber products	1.14-3.5	5	-	-
361	Pottery, China & earthwear	1-5	2	-	-
362	Class and glass products	0.25-5	6	-	-
382	Non-metallic mineral products	2.5-5	5	2-7	5
383	Electrical machinery & appliances	1-11	17	1.5-6	5
384	Transport machinery	2-6	18	1.2-2	2
TOTAL		0.25-28.0	151	0.0-20.0	42

NOTES: 1. Industries consisting of only one company are excluded

2. ISIC 342 is excluded as it involves printing royalties for printing rights

SOURCE: Joint CTC/ESCAP Unit Study

This helps to understand the comparative ratios of table 4.7 because in countries where recipients of technology have increased their negotiation capabilities, we rarely find royalty rates higher than 5% on the net sales.

REMARK: In order to establish the ratios as per tables 4.4, 4.5 and 4.7 we corrected the figures of Joint Unit Study taking into account the following:

. In countries where regulations exist, like in Republic of Korea, Philippines and Portugal, under the definition of transfer of technology agreements a wide range of situations are included, such as:

(a) The transfer, assignment or licensing of the use or exploitation of patents for inventions, improvements, industrial models, and drawings;

(b) the licensing of the use or exploitation of trademarks;

(c) the furnishing of technical know-how and information by plans, diagrams, models, instruction sheets, instruction formulae, specifications, and training of personnel;

(d) technical consultancy, services, and assistance in whatever form it may be furnished.

. In the case of Thailand, where there has been no legal control over imported technology through arrangements the data available on payments were collected in the Bank of Thailand and only refer practically to license agreements and management agreements, and do not include:

(a) construction agreements and engineering agreements and contracts which involve machinery erection;

(b) agreements which specify payments as a percentage of imported value of raw materials or components;

(c) other service agreements which, in countries where transfer of technology is monitored, are accounted for.

Furthermore, it is sure, according to information obtained from Joint Unit team that there is lack of information about other contracts, which stands for an underevaluated picture.

Another sound indication that there is an understatement of the situation is the fact that the Unit States are the largest foreign investors in Thailand and the remittances to the United States are unexpectedly low (table 4.9), possibly because a substancial part of technology from the United States is paid for informally, i.e., without a contractual agreement. Another possible interpretation is that there might be formal contracts, but fees are paid as markup raw materials and there is no need to make separate remittances for technology fees.

If we consider that the license agreements plus management agreements normally account for about 50/60% of the total payments for transfer of technology as defined above, and taking into account that the situation is undoubtedly underevaluated, it is reasonable and even strongly conservative to multiply by 2 the payments made by Thailand in order to compare with the figures related to Phillipines, Republic of Korea, and Portugal, and also to establish comparable ratios as those mentioned in table 4.4, 4.5 and 4.7.

TABLE 4.9

OUTWARD REMITTANCES OF MANAGEMENT, COPYRIGHTS AND PATENT ROYALTIES BY COUNTRY

(Percentage)

Country	1973	1974	1975	1976	1977	1978	1979	1980	TOTAL
Japan	40.9	41.4	50.5	41.7	38.1	41.6	33.7	42.1	40.5
U.S.	34.4	27.0	22.3	32.6	33.9	29.6	27.4	28.1	29.3
U.K.	6.7	14.9	11.3	7.1	5.1	5.9	4.8	3.6	6.4
Hong-Kong	1.5	2.6	2.7	1.6	2.6	2.0	2.5	5.3	2.9
Germany	2.4	-	1.7	3.6	1.9	3.0	3.2	2.7	2.5
Others	14.1	14.1	11.5	13.4	18.4	17.9	28.4	18.2	18.4
TOTAL	100	100	100	100	100	100	100	100	100

SOURCE: Joint CTC/ESCAP Unit Study

4.2. Indirect cost

Technology is costly not only on account of high direct payments. As pointed out in Joint Unit study and other materials, the technology fees should not be viewed neither apart from the duration of the contract, nor from restrictive or tie-in conditions which represent indirect costs, normally much higher than those represented by the running royalties.

Beyond a clear indication about type, form and amount of payments to be made by the recipient, a transfer of technology agreement should contain:

- a detailed description of the nature of the transfer and of the practical form it will take;
- an indication of the period for which the agreement is to remain in force.

When the agreement is connected with the licensing of patent rights, the obligations of the licensee terminate with the expiry of the patent, which means that royalty payments are only due for a limited period of time.

The same principle should apply for other kinds of transfer of technology agreements, i.e., the agreements should always establish a definite duration so that the royalties are only due along that period, after which the technology must be supposed to have been paid for.

When a balanced relationship exists between licensor and licensee, such period rarely exceeds 10 years.

In the case of Thailand, as it can be seen in table 4.10 about 50% of the existing agreements stipulate longer durations than 10 years, and only about 30% stipulate less than ten years of duration; but within this number there are many cases where the renewal is foreseen and the reci

TABLE 4.10

DURATION OF CONTRACTS CLASSIFIED BY INDUSTRY

(Number of contracts)

Industrial Code		Less than 5 yrs.	5 yrs.	More than 5 but less than 50 yrs.	10 yrs.	More than 10 yrs.	Open	Missing Date
311-2	Food	4	2	2	6	3	12	7
313	Beverage	-	-	-	1	2	1	-
314	Tobacco	-	-	-	-	-	2	-
321	Textiles	3	2	7	6	1	7	2
322	Weaving Apparel	2	3	1	4	1	5	-
324	Footwear	1	-	-	-	-	-	1
341	Paper and Paper Products	2	1	-	-	-	3	1
342	Printing Publishing	1	1	-	1	-	2	-
351	Industrial Chemical	2	1	4	4	4	14	1
352	Other Chemical Products	6	10	1	11	3	37	14
353	Petroleum Refineries and products	2	1	1	1	-	4	-
355	Rubber Products	-	2	-	-	1	2	1
356	Plastic Products	1	1	-	-	-	1	-
361	Pottery, China and Earthware	-	-	-	-	2	-	-
362	Glass and Glass Products	1	1	3	1	-	-	1
369	Non Metallic Mineral Products	-	-	-	3	2	1	-
371	Iron and Steel	1	2	-	-	-	2	-
372	Non-Ferrous Metal	-	1	-	-	-	2	-
381	Metal Products	1	2	-	-	1	1	1
382	Machinery Except Electrical	2	1	1	4	4	8	-
383	Electrical Machinery and Appliances	2	5	1	8	2	9	1
384	Transport Equipment	2	11	5	2	-	11	2
385	Other Machinery	-	-	-	-	-	1	-
	Non Manufacturing	10	5	4	2	6	13	8
TOTAL		43 (11.08)	52 (13.40)	30 (7.73)	54 (13.92)	32 (8.25)	138 (35.57)	39 (10.05)

SOURCE: Joint CTC/ESCAP Unit Study

pient is prohibited to use the know-how upon the expira - tion of the agreement; only in one agreement a provision exists allowing the recipient to use the know-how upon expiration date.

Other restrictive conditions are found in the agreements like export ban and tied purchases of machinery and raw materials, but so important and relevant as the restrictive conditions is the fact that there are agreements which do not clearly specify the technical assets being transfered nor do they specify the type of product and services rendered.

4.3. Foreign technology and foreign investment

It was found a strong relationship between foreign investment and foreign inflows of technology as clearly shown in table 4.10 relating a sample of 331 agreements that gave rise to payments in 1981 and the foreign share on the recipient's assets, as well as the promotion status of the projects associated to the agreements.

Table 4.11 was established taking into account the number of firms that made such payments.

It can be seen that:

- about 90% of the total payments are made by firms with foreign participation;
- more than 50% are made by firms on which the foreign participation is predominant;
- about 30% are made by firms which are 100% fo - reign owned.

TABLE 4.11

PAYMENTS ACCORDING TO FOREIGN PARTICIPATION
IN LICENSEE'S ASSETS

Foreign Share in Licensee's Assets (%)	Nr. of Agreements		(*) Total	Payments 1981		Total (000Bht.)
	Promoted	Non Promoted		Promoted (000 Bht.)	Non Promoted (000 Bht.)	
0	29	29	58	86,558	42,489	129,047
1 - 25	23	10	33	55,200	4,409	59,609
26 - 49	63	43	106	182,806	167,941	350,747
50	15	9	24	11,611	2,768	14,379
51 - 75	13	13	26	130,594	54,967	185,561
76 - 90	10	5	15	55,704	20,637	76,341
91 - 99	2	3	5	1,582	1,366	2,948
100	33	31	64	131,151	192,486	323,637
TOTAL	188	143	331	655,206	487,063	1,142,269

(*) The 331 agreements in the table are responsible for 86% of total remittances in 1981

SOURCE: Ministry of Industry, base on data from Bank of Thailand

TABLE 4.12

PAYMENTS ACCORDING TO FOREIGN PARTICIPATION
IN LICENSEE'S ASSETS

Foreign Share In Licensee's Assets (%)	Nr. of Firms		Total	Payments 1981		Total (000 Bht)
	Promoted	Promoted		Promoted (000Bht.)	Non Promoted (000 Bht.)	
0	20	20	40	86,558	42,489	129,047
1 - 25	15	6	21	55,200	4,409	59,609
26 - 49	48	28	76	182,806	167,941	350,747
50	8	2	10	11,611	2,768	14,379
51 - 75	11	9	20	130,594	54,967	185,561
76 - 90	7	5	12	55,704	20,637	76,341
91 - 99	1	2	3	1,582	1,366	2,948
100	18	24	42	131,151	192,486	323,637
TOTAL	128	96	224	655,206	487,063	1,142,269

SOURCE: Ministry of Industry, base on data from Bank of Thailand

TABLE 4.13

CONCENTRATION STRUCTURE
OF REMITTANCES IN 1981

Payments (Baht)	Nr.of Agreements			Nr.of Firms		
	P	NP	Total	P	NP	Total
1 - 10,000	-	1	1	-	1	1
10,001 - 50,000	2	13	15	2	12	14
50,001 - 100,000	3	12	15	3	12	15
100,001 - 500,000	32	51	83	31	48	79
500,001 - 1,000,000	32	43	75	30	42	72
1,000,001 - 10,000,000	83	61	144	77	58	135
10,000,001 - 50,000,000	15	10	25	15	10	25
50,000,001 - 100,000,000	-	2	2	-	2	2
100,000,000	-	1	1	-	1	1
	167	194	361	158	186	344

P - Promoted Sector
NP - Non Promoted Sector

SOURCE: Ministry of Industry, base on data from Bank of Thailand

Looking at those tables we also have the perception that the largest payers are found in the non promoted sector, as previously pointed out, and this can be confirmed through table 4.13 describing the concentration structure of remittances in 1981.

We can also see in table 4.14 that the total remittances of management fees, copyright and patent royalties has been increasing faster than the remittances of profits and dividends, and the respective ratio has a steady increase from 0.22 in 1976 to 0.46 in 1980.

TABLE 4.14

PAYMENTS FOR TECHNOLOGY VS REMITTANCES OF PROFITS AND DIVIDENDS

(million baht)

	1976	1977	1978	1979	1980
1. Total remittance of fees	360.20	504.72	544.70	717.17	936.95
2. Remittances of profits and dividends	1,612.70	1,635.30	1,660.70	1,971.70	2,049.10
3. Ratio 2/1	0.22	0.31	0.33	0.36	0.46

SOURCE: Joint CTC/ESCAP Unit Study

Although this is a matter requiring further investigation, the figures of table 5 may be an indication that foreign firms take advantage in overvaluation of transfer of technology agreements with Thai subsidiaries in order to remit profit abroad at a lower tax level.

This kind of tendency has also been detected in other countries, and even in free economy area as the European Common Market, the authorities are paying increasing attention to remittances for technology (normally subject to

lower taxes than profits) when equity relationship exists between supplier and recipient of technology, in order to avoid fiscal evasion this way.

4.4. The need of regulation

The situation of Thailand regarding the transfer of technology issues is not different from the one detected in other countries before regulations of the matter have been issued.

In Portugal, for instance, the analysis of about five hundred agreements concluded before the existing legislation came in force, showed that in most of the cases the conditions imposed by the licensors were unfair to the licensee and did not allow neither the absortion of knowledge nor the appropriate development of the domestic technological capabilities.

There too, most of the agreements were in force for more than 10 years which means that pratically no transfer effect had been achieved, and that was not on account of the complexity of technologies involved but resulted from the restricitve conditions designed to perpetuate the dependance of licencees from licensors.

Agreements were found where domestic companies were paying royalties for no longer valid patents; in other cases companies were still paying for more than 20 years and were intending to keep on paying for quite outdated technologies.

The common dominator for the majority of the licensing agreements can be summarized as follows:

- payments significantly higher than known as normal in other countries;
- indefinite duration, or definite duration but subjected to automatic renewal;

- compulsory use of licensor's trade mark;
- post-expiry restrictions prohibiting the use of know-how upon expiration of the contracts.

The analysis of those agreements and detailed discussion and exchange of views with the business comunity revealed that in some sectors the know-how was assimilated and the domestic companies were mastering the technology since a long time; however they were still paying royalties on account of contractual conditions as described above.

Other restrictive conditions were also usual in the agreements, such as:

- prohibition to export or the obligation of exporting trough channels controlled by the licensor. Such imposition not only forced the domestic companies to remain small-dimensioned and not competitive, but also hindered the development of vocation and capacity to face competition in foreign markets;
- tied purchase of raw materials and other intermediate goods from the licensor. In this way, licensees were normally charged higher prices than those prevailing in the international market, and prevented from deversifying the sources of supplies and achieving better conditions;
- grant back conditions, obliging the licensee to transmit free of charge to the licensor the improvements or inovations, the licensor being entitled to register the corresponding property rights in its own name and sub-license them in its exclusive benefit.

Similar conditions have been found in technological transactions involving recipients in developing countries, and

the situation for Thailand, as described above, is not all surprising.

The increasing consciousness that technology is a key factor for development, and that recipients of foreign technology have to deal with suppliers in strong bargaining positions, who have been able to impose a variety of limitations on access to know-how and to charge higher prices than reasonable, has led many developing countries to create legislation to regulate the inflow of technology.

It is normally believed that balance-of-payment difficulties were at the origin of attempts by a number of governments to regulate on tangible technology imports and this was clearly the case in Colombia, whose Royalties Committee was created in 1967 as a result of a very difficult financial situation. But intervention of governments in the market has proved to be an important tool to improve the terms and conditions attached to imports of technology and to promote and protect local technological development.

The more industrialized developing countries have established regulatory frameworks for technology transactions.

The pioneer example of India, which initiated such controls immediately after independence in 1947, has been followed in Asia by countries like the Republic of Korea, Philippines, Indonesia and Malaysia, although each has pursued its own distinct industrialization strategy. In Africa, Nigeria has recently established a similar system of control, while Latin America as a region has gone farthest in controlling transfer of technology transactions. Not only do Argentina, Mexico, Brazil and Andean Pact countries have a relatively long experience in regulating technology transfer but also western european countries like Portugal and Spain have created regulatory and monitoring agencies.

It is to be mentioned that it is not only in developing countries that the transfer of technology is subjected to government intervention.

Also in developed countries, namely in the United States, in Japan and in the European Common Market there are regulations, forbidding restrictive practices, abuse of dominant market position and unfair trade practices.

This statement is ilustrated in Annex 2 which summarizes the US antitrust regulations, the EEC rules of competition and the Fair Trade Commission guidelines in Japan.

Therefore, it seems legitimate and reasonable that practices wich are not legal in industrialized countries, are also considered illegal in developing countries and that government action is taken as a means of reduction costs, improve the conditions of importation, and take advantage of regulatory capabilities to subject the imported technology to the country's development needs.

Still in Annex 2 reference is made to the relevant aspects of the Portuguese legislation on transfer of technology.

Comparing this legislation with the other quoted rules, we can see that, it envisages the same purpose of providing for fair negotiation practices as those prevailing in developed countries, and for further illustration, table 4.15 shows the similarities in the interpretation of the most obvious restrictive business practices in several countries, both developed and developing ones.

TABLE 4.15.

Similarities of Interpretation of the Most Obvious Restrictive Business Practices

Type of restricive provisions	US	Colombia	Mexico	Philippines	Japan	India	Portugal	Spain	EEC
TIE - IN	illegal "per se"	illegal	illegal	illegal (exceptions possible)	illegal (acc. F TC guidelines)	illegal	illegal	illegal	illegal in princ.
Restriction on Licencee's right to deal in Competitor's Product (TIE - OUT)	illegal "per se"	illegal	illegal	illegal	illegal (with exceptions)	illegal	not mentioned specific.	illegal	illegal
Mandatory package licensing	illegal in princ.	not ment. specific.	not ment. specific.	not ment. specific.	not ment. specific.	not ment. specific.	not ment. specific.	not ment. specific.	illegal
Post expiration royalties (patent and licence)	illegal "per se"	illegal	illegal	illegal	not ment. specific.	illegal in princ.	not ment. specific.	not ment. specific.	illegal
Price fixing restricitions	virtually illegal "per se"	illegal	illegal	not ment. specific.	illegal	illegal in princ.	illegal	illegal	illegal
Quantity of volume restrictions	US Dept. Justice illegal "per se" Court decision varies	illegal	illegal	illegal	not ment. specific.	not ment. specific.	illegal	illegal	not ment. specific.
Territorial restrictions	determined by rule of reason	illegal	illegal (exceptions possible)	illegal (exceptions possible)	may be declared illegal	illegal in princ.	illegal	illegal in princ.	illegal

Source: National Legislation of Selected Developing Countries;
National Approaches for the Acquisistion of Technology - ID/187

Table reproduced from UNIDO document ID/WG.388/1 of 22.11.82 "Overview of Selected Problems of Technology Transfer to Developing Countries".

5. THE LEGAL AND INSTITUTIONAL INFRASTRUCTURE

5.1. GENERAL

In Thailand there is no consistent legislation about transfer of technology. The existing agreements were freely concluded and no special difficulty exists in respect to the remittances related to such agreements.

The need for regulation has been felt specially since the publication of the Fifth Plan and there is a number of organizations which have been stepping up intereste in studying the problems related to the inflows of technology and its contribution to the country's development.

Under the Cabinet there is a Technology Development Commitee with subcommittees for Technology and Laws and Regulation of Technology, but it seems that no significant work has been produced so far, neither any visible cooperation or coordination was detected among the several organizations represented in the Committee, namely the Board of Investment (BOI) , the Ministry of Industry (MOI), the Ministry of Science, Technology and Energy (MSTE) and the National Economic and Social Development Board (NESDB).

In the following sections reference will be made to the several bodies which are either connected with the technological transactions or with the development policy.

5.2. NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT BOARD

The NESDB consists of high level officials appointed by the Cabinet and is chaired by the Prime Minister. Its function is, to a large extent, delegated to the Executive Committee, which consists of members including the Secretary-General of NESDB. The Secretariat of NESDB is an agency within the Office of the Prime Minister.

Industrial planning is prepared by the Economic Projects Di-

vision of NESDB under the supervision of a sub-committee of industrial planning whose members comprise of the representatives of the Ministry of Industry, Board of Investment , Bank of Thailand, Universities, National Institute of Development Administration, Industrial Finance Corporation of Thailand, and private industries.

Basically, the NESDB is the economic and social development planning agency responsible for the preparation of the country's five-year development plans: This involves itself in annual and mid-term reviews to find periodic readjustments of development, policy objectives and plan targets.

5.3. BANK OF THAILAND

BOT is the Central Bank. Although its main purpose is to regulate the banking system through its rediscounting facilities, it has an important role in the industrial sector by offering special rediscounting rates in emergencies. For example, BOT stepped in to provide more discount facilities to hard pressed industries such as textile industries during the last three years. In this case, the Bank has extended discounting facilities for export industries to textile covering the import of raw material and extending the period of rediscounting up to two years. These measures coupled with import surcharge and production restriction have helped textile industries in thailand to weather succssfully the shrinking of the world market in textiles.

In connection with the transfer of technology agreements the BOT is not legally empowered to interfere in the respective conditions but, as a rule, asks for the agreements as an internal administrative measure with the purpose of confirming the compliance of remittances with the agreed conditions. Because of this, the Bank of Thailand has a substantial amount of information about the inflows of technology, but such information is not complete and does not cover much more than licensing ageements.

5.4. MINISTRY OF COMMERCE AND THE PATENT LAW

The Ministry of Commerce, through the Department of Commercial Registration, has a charge and control of the execution of Patent Act. B.E. 2522.

Although the transfer of technology involves a much wider range of matters than licensing of patents, it is also true that regulation on industrial property rights is a means of regulating the technological knowledge in different countries, and has been a matter of major concern in the discussions related to the Draft Code of Conduct for the Transfer of Technology.

As a matter of fact:

- patents, according to the normal international practices derived from Paris Convention, confer on the owner a monopoly of production and distribution of products in a specified territory for a given period of time;
- the overwhelming majority of patents are owned by individuals and companies in the industrial countries;
- of the 3.5 million patents in force in 1972, about 200,000 or 6 per cent were registered in developing countries;
- of these, only 6 per cent again were owned by the citizens of these countries, the rest were owned by foreigners;
- although the developing countries account for 75 per cent of the world's population, they possess much less than one per cent of the stock of patents.

The Patent Act B.E. 2522 enforced on September 12, 1979 is already, although in a very limited area of transfer of technology transactions, a piece of legislation to be taken into account in any future regulatory activity in this field.

The main relevant aspects of the Patent Act can be summed up

as follows:

1. The granting of a patent is subject to the satisfactions that:

   - the invention is new;
   - it involves an inventive step;
   - it is capable of industrial application;

2. A patent shall not be granted for several specified items, including food, beverages, pharmaceutical products and pharmaceutical ingredients.

3. An applicant for a patent must be a national of Thailand or a national of a country which allows persons of Thai nationality to apply for patents in that country.

4. A patent shall expire at the end of the fifteenth year from the date of filing of the application.

5. No other person except the patentee shall have the right to produce or apply the patented process, sell or have in possesion for sale the patented product or manufacture the product by the application of the patented process.

6. the patenteee may authorize any person, by granting a license, to exercise the rights conferred on him and may assign his patent to any other person.

7. In granting a license, the patentee shall not impose upon the licensee any condition or restriction of any royalty term which tends to damage or hinder the development of the industry, handicrafts, agriculture or commerce of the country. The patentee shall not require the licensee to pay royalties after the patent has expired.

8. The license contract and the assignment of a patent must be in writing and registered in compliance with the re - quirements and procedures prescribed by the Ministerial Regulations.

9. At any time after the expiration of three years from the grant of a patent, any person may apply to the Director-

-General for a compulsory licence if it appears that the patented product has not been produced or the patented process has not been applied in the country without any legitimate reason, or that no product is being sold but at unreasonably high prices or does not meet the public demand, without any legitimate reason.

10. Where a compulsory license is granted, the patentee shall be entitled to a royalty, and, if no agreement in this respect is reached by the parties, the Director General shall fix the royalty and prescribe the the conditions and restrictions as he deems appropriate.

11. In order to carry out any service for public consumption or which is of vital importance to the defense of the country or for a search for natural resources or the agricultural or industrial development or for any other public service, any ministry, bureau or department of the Government may exploit any invention under any patent by paying a royalty to the patentee.

5.5. MINISTRY OF INDUSTRY

According to the latest Royal Decree pertaining to the ministry's affairs issued on September 29, 1972, the Ministry of Industry has authority over all aspects of the nation's industrial activities and geological resources.

Therefore the Ministry of Industry is charged with the responsability of promoting and supporting Thailand's industrial development strategy which, as already mentioned, basically emphasizes the development of industries that are labour intensive, high value adding, with extensive utilization of local raw materials, export oriented and located preferably in areas spread through the country. The Ministry comprises five departments, namely Office of the Under-Secretary

of State, Department of Mineral Resources, Department of Industrial Promotion, Department of Industrial Works, Thai Industrial Standards Institute and five state enterprises. They are: Industrial Estate Authority of Thailand, Offshore Mining Organization, Petroleum Authority of Thailand, Mines Organization and Alum Organization, Petroleum Authority of Thailand, Mines Organization and Alum Organization.

- THE OFFICE OF THE UNDER-SECRETARY OF STATE is responsible for the general activities of the Ministry and ensuring that all agencies operate in accordance with the laws and regulations both in the central region and the provinces including state enterprises that came under the Ministry of Industry. It is encharged with evaluating industrial development plans submitted to the Ministry by various departments and has to give priority to them. Moreover it coordinates other activities that do not directly concern the Ministry but have bearing on the Ministry's overall policies.

Seven Divisions Constitute the Office of the Undersecretary of State (Central Administration):

. Central Division
. Finance Division
. Industrial Economics and Planning Division
. Petroleum Industry Division
. Sugar Institute
. Office of the National Committee for UNIDO
. Office of Basic Industry Development

Following are the duties and functions of the four other departments:

- THE DEPARTMENT OF MINERAL RESOURCES is responsible for surveying geological resources, making geological maps conducting surveys for mineral deposits, surveying for natural energy resources and availability of underground water; mapping min -

ing concession areas; and exercising control over mining operations throughout the country. The Department of Mineral Resources is also responsible for stabilizing the export prices of Thai minerals as well as surveying market conditions for them, both domestically an internationally. It makes suggestions on short and long term development plans for the mining industry, analyses various problems and recommends solutions to them to the Government as well as disseminates information concerning mining activities and new mining technologies to the public in general.

THE DEPARTMENT OF INDUSTRIAL WORKS has the responsability to inspect, control and give approvals for the establishment of new factories or the expansion of old ones as well as make transfers of ownership. It ensures that all waste matter released by factories are pre- treated in order to prevent pollution and preserve the environment. It inspects all factories to make sure that they operate in accordance with the regulations specified in the Royal Decree 2512 BE.

The discovery that some thousands of small factories in Bangkok were operating without permits, and taking account that closing all of them down would be detrimental to the country's economy, led to the establishment of the Industrial Service Center with the main aim to give advice on how to legalize their operations and also to relocate factories in a more suitable site where water, electricity, waste water disposal facilities and security service are available.

The Department of Industrial Works has under its control three paper factories and three sugar mills.

THE DEPARTMENT OF INDUSTRIAL PROMOTION has the responsibility to help the existing industries to increase production by advising on technical matters, introducing new techniques , giving training and advice on better management. It also helps to promote various products in the local markets. It gives fi -

nancial assistance for setting up new industries especially in the rural areas.

The Industrial Services Division provides technical extension services to small industries, including feasibility studies, factory establishment, workshop demonstration and supply of machinery on hire purchase terms.

THAI INDUSTRIAL STANDARDS INSTITUTE (TISI) is a Government agency that enjoys a status equivalent to that of a department and was established in 1968. The main aims are:

- to establish the quality standards for industrial products and to abrogate some of the existing ones that are obsolete;
- to issue the TISI standard mark;
- to inspect and control the use of the TISI mark.

5.6. BOARD OF INVESTMENT

In the past three decades, successive Thai governments have placed increasing emphasis on investment promotion. The nation's first steps towards promoting investment were taken in 1954 when a Board of Industrial Promotion, chaired by the Minister of Industry, was established to grant incentive for industrial projects which were deemed necessary for the country's economic development.

Along the years legislation on investment promotion has been amended or reformulated several times in order to increase incentives and to extend the Board's jurisdiction to projects in all sectors.

The actual powers and responsabilities of the Board of Investment were established with the enactement of the Investment Promotion Act of 1977. Under this Act, the Board assumed

its current form, with the Prime Minister as Chairman. This law also established the Investment Services Center to assist investors and prospective investors.

The Investment Promotion Act stipulates that the Office of the Board, is administered by the secretary general who, having a seat on the Board, is directly under the Prime Minister. He is assisted by one or more deputies and another assistant. The Act gives powers and duties to the Office as follows:

- to perform such functions as may be resolved or assigned to it by the Board;
- to publicise investment potentials and induce investments in those activities which are important and beneficial to economic and social development, and security of the country;
- to establish an Investment Services Center to assist prospective investors in obtaining permissions and services related to investment;
- to appraise, projects requesting promotion and to supervise, control and evaluation of promoted investment projects;
- to conduct studies and research in identifying investment opportunities, prepare feasibility reports and formulate an investment promotion programme;
- to study and compile data relating to investment in the kingdom;
- to perform other duties in the furtherance of the objectives of the Investment Promotion Act.

Furthermore, the Board maintain a list of activities eligible for promotion and will consider additional activities if a promising proposal is received.

The existing incentives under Investment Promotion Act can be summarized as follows:

GUARANTEES:

- against nationalization (Section 43);
- against competition of new state enterprises (Section 44);
- against state monopolization of the sale of products similar to those produced by promoted person (Section 45);
- against price controls (Section 46);
- permission to export (Section 47);
- against imports by government agencies or state enterpri - ses with taxes exempted (Section 48).

PROTECTION MEASURES:
(Subject to justifications and needs)

- imposition of surcharge on foreign products at a rate not exceeding 50% of CIF value for a period not more than one year at a time (Section 49);
- import ban on competitive products (Section 50);
- authority by the Chairman to order any assisting actions or tax relief measures for the benefit of promoted pro - jects (Sections 51 and 52).

PERMISSIONS:

- to bring in foreign nationals to undertake investment fea sibility studies (Section 24);
- to bring in foreign technicians and experts to work under promoted projects (Sections 25 and 26);
- to own land for carrying out promoted activities (Section 27);
- to take or remit abroad foreign currency (Section 37);

TAX INCENTIVES:

- exemption or 50% reductions of import duties and business

taxes on imported machinery (Sections 28 and 29);

- reduction of import duties and business taxes of up to 90% on imported raw materials and components (Section 30);
- exemption of corporate income taxes from 3 to 8 years with permission to carry forward losses and deduct them as expenses for up to 5 years (Sections 31 and 32);
- exemption of up to 5 years on withholding tax on goodwill, royalties or fees remitted abroad (Section 33);
- exclusion from taxable income of dividends derived from promoted enterprises during the income tax holliday (Section 34);

ADDITIONAL INCENTIVES

1. FOR ENTERPRISES IN THE INVESTMENT PROMOTION ZONES

- maximum reduction of 90% of business tax on the sales of products for a period up to 5 years (section 35);
- reduction of 50% of corporate income tax for 5 years after the termination of a normal income tax holliday or from the date of income earning (Section 35);
- allowance to double the cost of transportation, electricity and water supply for deduction from taxable corpo - rate income (Section 35);
- allowance to deduct from the taxable corporate income up to 25% of the investment in the costs of installing infrastructural facilities for 10 years from the date of income earning (Section 35);

2. FOR EXPORT ENTERPRISES

- exemption of import duties and business taxes on imported raw materials and components (section 36);
- exemption of import duties and business taxes on re-export items (Section 36);

- exemption of export duties and business taxes (Section 36);
- allowance to deduct from the taxable corporate income the amount equivalent to 5% of an increase in income derived from export over the previous years, excluding costs of insurance and transportation (Section 36).

Still according to the Investment Promotion Act, the Board of Investment has a substantial discritionary power in the granting of promotional investment privileges.

As a matter of fact, the Investment Promotion Act is not clear about the objective criteria to be used when granting incentives and, besides, gives the Board such powers as, but not limited to, the following examples:

- in the case where the Board is of the opinion that any activity announced to be eligible for promotion no longer requires to be promoted, it may announce a temporary or permanent cancellation of promotion for that activity;
- when granting permission to foreign nationals for entry into the Kingdom for purpose of studying investment opportunities or performing any other act benefiting investment, the Board may stipulate such conditions as deemed appropriate (Section 24);
- a promoted person shall be permitted to own land in order to carry on the promoted activity to such an extent as the Board deems appropriate, even in excess of the permissable limited under other laws (Section 27);
- the Board shall have the power to order the Department of Customs to release to the applicant who has confirmed the acceptance of promotion, or to the promoted person, as the case may be, all machinery, raw or essential materials ordered or imported into the kingdom and entitled to exemption or reduction of import duties and/or business taxes under this Act by treating a bank gua -

rantee issued by a commercial bank in the Kingdom as a cash deposit against the payment of import duties and / /or business taxes, (Section 38);

- in the case where it is necessary to protect the activity of the promoted person, the Board shall have the power to impose special fees for the import into the Kingdom of products or commodities of the same kind as those produced or assembled by the promoted person at the rates the Board considers appropriate but not exceeding fifty per cent of the prices of such imported products or commodities, inclusive of overseas insurance and freight charges (Section 49);
- in the case where the Board is of the opinion that the imposition of special fees under section 49 is inadequate for the protection of the activity of the promoted person, the Ministry of Commerce shall ban the import into the Kingdom of products or commodities of the same kind as those produces or assembled by the promoted person in accordance with the law on the control of export and import into the Kingdom of certain goods (Section 50).

It is also established in Section 33 that fees for good will, copyright or other rights from the promoted person according to the contract approved by the Board shall, in accordance with the rules and procedure prescribed by the Board, be exempted from computation of taxable income for a period of five years from the date the promoted person first derives income from the promoted activity.

5.7. MINISTRY OF SCIENCE, TECHNOLOGY AND ENERGY

The Ministry of Science, Technology and Energy was established in 1979 with the following functions:

1. to lay out the policy, plan, scheme and project related to science, technology, energy and environment.
2. to control, conduct, command and perform the works related to science, technology, energy and environment along the the police, plan, scheme and project for the efficient working and good coordination which will bring the most socio--economical benefit and the national stability.
3. to perform the working plan, follow up and evaluate the related to science, technology, energy and environment.
4. to improve the plan, scheme and project concerned to be always appropriate and modern;
5. to develop technology within the country towards the production and marketing;
6. to provide service and promote both the internal and external technology transfer;
7. to study, analyse, research and provide the significant data of science, technology, energy and environment.
8. to collect, compile and propagate the outcome of the research the development related to science, technology , energy and environment.

Within MSTE there is the Thailand Institute of Scientific and Technological Research (TISTR) which has been given the task of coordinating applied scientific research programmes among government agencies and institutions, foreign and international agencies, as well as in executing research contract between private industries. Such applied scientific research programs include agro-industries, environmental protection, feasibility studies, training of scientific researchers, central technical information services, testing and measurement services, etc.

It is also to be mentioned the Technology Transfer Center, aimed to perform such important functions as:

- collection and accumulation of foreign technical information on technology import;
- public relations and guidance services concerning technology import;
- negotiations on technology import for small and medium industries whenever requested;
- rackage import and distribution of similar technologies for the related technologies to prevent the repetition of such imported technologies;
- arrangement for resarch on imported technology to accelerate digestion, modification and adaptation.

However, the scientific and technological personnel of TTC is still very limited, and a recent feasibility study was devised with the purpose of improving TTC delivering capabilities.

The objectives of the study put special stress on the following:

- to acquire expert teams with knowledge, experience in operation of efficient technology transfer center to give advice and stepwise planning particularly for the long range operation of TTC.
- to carry out a study in conjunction with local consultants for the modification and effectiveness of TTC within the framework of sound organization structure;
- to develop and prioritize choice of the technology to be studied trough planned survey and finding to be undertaken in detail at the later date.

6. OPERATIONAL PROBLEMS RELATED TO THE TRANSFER OF TECHNOLOGY

The main problems of technological promotion in developing countries involve, on the one hand, the selection and management of foreign inputs, and on the other, the stimulation of indigenous supplies of technology. The first task requires the existence of a well developed capacity of selection and acquisition of foreign technology and its subsequent adaptation, absorption and diffusion; the second task is bound to an autonomous process of technological innovation and development, which requires the mobilization of the technology system.

A framework for action must include strategy terms of policies programmes and institutions.

Such formulation vary from country to country in accordance with conditions, requirements and priorities.

Policy instruments can take various forms. They include national laws and regulations for licensing of production capacity of industrial entreprises or the defining of new and necessary industries, controls over majority foreign equity holdings, employment of expatriates, controls over imports and import substitution, regulatory control over foreign technology, regulations for use of domestic consul - tancy agencies and technical services, various forms of financial assistance and incentives for small-scale and rural industries and the like. In most developing countries, several fiscal and regulatory instruments are utilized in combination with one onother.

Technology policy should be translated into programmes considering that it will not be possible to do everything at

once and there is thus a need for selective action.

The main elements of such and action programme could include:

a) the selection of a number of sectors or areas of production in which there is considerable scope for the production of frontier technologies that could be used to spearhead the process of industrial development;

b) making education and training more responsive to the needs of the country and using science and technology in the achievement of national goals;

c) developing technological service capabilities such as feasibility studies, engineering designs, project management and plant erection, commissioning, start-up and operation;

d) creating industrial extension services that could be used to resolve problems faced in manufacturing, to identify new areas for the adaptation and development of appropriate technologies, to train local professionals and to familiarize industries with development and improvements in related techniques;

e) Organizing an adequate information network to provide assistance in the identification of possible technological sources, both indegenous and external and for specific projects and enterprises.

Policies and programmes are formulated and implemented by institutions, and these normally include ministries of industry, ministries od science and technology, technology transfer centres, sectoral industry development centres, techno

logy regulation agencies, etc., each performing one or more technological functions. Clearly, the process of developing technological capabilities is far too complex to become the exclusive domain of a single institution and the development of appropriate infrastructure should include the recognition of the different types of institutional functions to be performed, and the establishment of appropriate cooperative network among the several responsible bodies so that they work together in the same direction.

When the national science and technology system is weak, as in Thailand, the development process is mainly dependant on inflows of foreign technology and such inflows happen mostly through foreign investment (which is a vehicle of technology and usually preditermines it) or through contractual arrangements between foreign suppliers and private domestic firms whose interests are not always coincidental with the government's objecfives.

Therefore a mechanism for screening technology contracts appears as an important policy instrument and, as mentioned above, many developing countries have created laws and regulations concerning the transfer of technology, as well as regulatory agencies empowered to monitor it.

Originally, the national regulatory agencies have been created in many countries as a purely defensive measure to protect the national economy and national industry against the negative effects of uncontrolled inflows of foreign technology; and it is true that in most such countries technology regulation has resulted in significant improvement in the terms and conditions of agreements.

But experience of functioning of such regulatory bodies, which are often called national registries for transfer of technology, have gradually shifted their main thrust from pure-

ly defensive into an offensive role particularly in the area of promotion of the local technological capabilities.

The overall objectives of policy concerned with acquisition of foreign technology normally include the following goals:

a) stimulating flows of technology to preferential or priority areas according to the national development plan;

b) ensuring that technology is obtained in conditions reflecting fair international practices;

c) improving the process of adapting and absorbing technology;

d) defending and developing local technological capabilities.

In executing technological policies, as outlined above the registries should perform a variety of actions, not only regulatory, but also co-ordinatory, promotional and monitoring ones.

Regulatory action is closely related to the definition of the development policy and also includes the need of legislation stating the conditions under which technology may be imported as well as the establishment of criteria for evaluating the agreements taking into account the country's needs and those of the specific industrial sectors.

As the transfer of technology affects many areas of the economy and the agreements may include matters involving competence of other government departments, the regulatory agency must co-ordinate its efforts with all such departments so that the overall government policy is taken into account, and also to minimize bureaucratic delays.

The need of co-ordinatory action is more important with such agencies or departments as those related to balance of payments and foreign exchange control, foreign investment, fiscal policies, customs, financing and incentives to investment, labour and immigration, etc.

The regulatory agency must also have close co-ordinatory links with the offices responsible for the country's policy formulation (ex: Ministry of Planning) and those dealing with the application of technology to industry (ex: Specialized Sectoral Departments, Ministry of Industry, Research and Development System, etc).

Along the years, and with the increase of experience, the functions of the regulatory agencies have gradually been extended from a deffensive protection of the national interests to ofeensively developing the local technological base and assisting local industry in all technological questions.

Such promotional capabilities arise from the fact that the regulatory agencies, in result of their activity of appraising and registering all transfer of technology agreements, can gather an enormous amount of experience and knowledge about:

- negotiation techniques
- transfer prices and conditions
- alternative sources of supply

With such experience and knowledge, that can be strenghtened by developing linkages with national and international information systems [1] and cooperation among registries, the regulatory agency can perform various promotional tasks as:

- conducting continuous sector based analysis of approved agreements with a view to establishing

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[1] *As for example TIES: Tecimological Information Exchange System operated by UNIDO.*

long-term trends in relation to prices, royalties, profit margins and technological development, and the dissemination of such analyses to the domestic business community;

- identifying the priority sectors, as well as the technological gaps and establishment of close relationships with national research and development facilities and the domestic business community to ensure that the operations of such R & D facilities become more directly related to domestic technological needs;
- backing-up the domestic firms in negotiating the agreements so that they achieve a fair balance between rights and obligations and avoid unfair terms and conditions which limit their rights.

Promotional functions are also those of explaining government policies and directives to both foreign suppliers of technology and the domestic business community.

The regulatory agency, which can be viewed as a channel between foreign suppliers of technology and the domestic firms, is the best instrument for the government to carry on direct and indirect promotional efforts in foreign business circles through both official and unofficial ways.

Promotional efforts in the domestic business comminity are specially important. In developing countries government regulatory policies are not always fully understood, particularly by private industry and affiliates of foreign companies. If these policies are to be executed efficiently, the co-operation of the domestic business community is essential. Such co-operation will be forthcoming only if the business community understands and supports the government's goals.

The national agency advises domestic businessmen on all issues related to the transfer of technology, starting with the selection and evaluation of the technology and ending with the negotiation of the agreements. It collects and analyses information on sources of alternative technologies and on the terms of the agreements and disseminates this information among businessmen.

It is recommended that the national agency organizes also training courses for government officials and businessmen dealing with key issues of government policies in this field, and issues related to transfer of technology agreements. In this way the national agency can increase skills in this specialized field.

Regular monitoring of the agreements has been a matter of increasing attention by the regulatory agencies, in view of assessing the progress of absorption of foreign technology by local licensees and to provide feedback regarding the impact of foreign technology on domestic technological progress in specific sectors and changes in technological needs.

Monitoring of the agreements is also a source of relevant experience and information, namely in what concerns the actual behaviour of the suppliers in comparison with the expectancy of the recipients, the influence of contractual terms on the effectiveness of transfer of technology, and what to be done in future cases in order to guarantee full absorption of the transferred know-how.

7. LEGAL AND ADMINISTRATIVE PROBLEMS

The control, promotion and monitoring of transfer of technology requires the creation of a legal and administrative framework and this involves the creation of a regulatory agency as the competent authority to appraise and register the agreements, and the solution of several problems, namely:

- definition of technology, for the purpose of regulation;
- establishment of criteria for the appraisal of the agreements;
- location of the agency and creation of the necessary institutional linkages between the agency and other government departments.

Concepts of technology

Defining technology is a difficult task and it is not uncommon that different people talk about technology and transfer of technology under different understandings and different points of view, depending on their own fields of activity, as for example, research and development on one hand and industrial activities on the other hand. Some people tend to consider technology as limited to R & D activities for the creation of new products and processes; for the entrepreneurs the concept of technology is an extremely dynamic one, the ultimate goal being the offer of products according to the market demand and in competitive conditions.

Furthermore, transfer of technology covers two separate situations: the transfer of industrial production capacities and the transfer of capabilities to master, adapt and further develop imported technology.

This suggests the range of perceptions regarding the nature of technology and the difficulty of finding an all-embracing definition.

We can say that technology comprises an overall set of linked knowledges and activities, since its generation up to the marketing of the products, and this means that technology in a broader sense also includes production and comercial management.

Technology is distinct from scientific knowledge which usually flows freely without significant constraints, whereas technological know-how is a comodity that is traded on the world market and is vigorously protected.

In most existing regulations, transfer of technology agreements are defined as the acts or contracts entred into directly or indirectly with foreign companies and/or foreign-owned companies, having as their principal or accessory objective the transfer, assignment or licensing of technology or trademarks, in the following manner:

(1) The licensing of the use or exploitation of trade-marks;

(2) The licensing of the use or exploitation of patents for inventions, improvements, industrial models, and drawings;

(3) The furnishing of technical information by plans, diagrams, models, instruction sheets, instructions, formulas, specification and training of personnel or otherwise;

(4) The supplying of basic and detailed engineering plans for the building of facilities or manufacture of products;

(5) Technical consultancy, services and assistance in whatever form it may be furnished;

(6) Services for the administration and operation of business enterprises of any kind;

(7) Computer programs.

The above definition is a very broad one and practically covers all actions through which domestic firms seek assistance from abroad, either for industrial purposes or for commercial activities.

In some countries the law also establishes which acts, agreements, or contracts do not require registration, as per the following examples:

(1) The furnishing of designs, catalogues, or advice, in general, which is acquired with the machinery or equipment and which may be necessary for the installation thereof, provided this does not include the making of subsequent payments;

(2) The assistance in repairs or emergencies, provided these are part of any act, agreement, or contract previously registered;

(3) The instructions or training furnished by institutions of learning, personnel training centers, or by the company to its workers;

(4) Advertising involving either occasional or periodic campaigns or regular or temporary cooperation of any description between national and foreign concerns either the advertising tra

de or not;

(5) Reproduction, distribution and sale of phonographic records;

(6) Hiring of industrial machinery and equipment;

(7) Edition, reproduction and sale of books and magazines.

Evaluation criteria

The guidelines to be established in the law for the appraisal and approval of transfer of technology agreements must take into account that they are to be applied to a wide range of situations in very different sectors, and that even within one particular sector the conditions to be agreed may differ from one contract to another. Therefore, in what concerns evaluation criteria the legislation should not go into details like duration or royalties to be accepted, because these are matters about which the judgement depends on each particular case and on the other conditions of the agreement. The legal provisions, in this respect, should mainly provide for a general philisophy and state criteria envisaging fair negotiation practices and thus, possible to be applied to all kinds of agreements.

With the experience gained in evaluating and monitoring the agreements, or to comply with government policy in a certain area, special sectoral criteria may be established.

Details and flexibility of legal guidelines vary from country to country, according the respective problems, constraints and policies.

Mexican law on one side, and Spanish law on the other, are

good examples of a tough regulation and a flexible one, respectively.

As a matter of fact, the mexican regulations state that the agreements cannot be registered and will not have any legal effects if they include restricitve conditions or limitations of various nature, which are described in the law. Exceptions are foreseen when the technology transferred is of special interest to the country, but such exceptions cannot be applied to agreements containing any of the following provisions:

(1) When their purpose is the transfer of technology freely available in the country, provided this is the same technology;

(2) When there is an obligation to assign onerously or gratuitously to the supplier of the technology, the patents, trademarks, innovations, or improvements obtained by the transferee;

(3) When limitations are imposed on technological research or development by the transferee;

(4) When the exportation of the transferee's products or services is prohibited, against the best interests of the country;

(5) When the use of complementary technologies is prohibited;

(6) When the parties submit to foreign Courts for decision in any controversy in the interpretation on enforcement of the foregoing acts, agreements, or contracts.

In Spain, the regulations on transfer of technology is written in a rather flexible way, with the indication of provisions which are considered as unfavourable if they are included in the agreements.

The registration of contracts follows an examination procedure in which the parties are invited to remove so-called restrictive or discriminating clauses, such as those that prevent, prejudice or hamper the development of the technology by the recipient or limit his corporate freedom, or constitute an abuse on the part of the party assigning the technology.

A large number of technical contracts have been entered along the years and it may be said that the Spanish Administration has adopted flexible criteria for its examinations and authorizations, assessing each contract submitted for registration as a whole, in such a way that the presence of certain discriminating clauses may nevertheless be accepted provided that they are seen to be offset by other advantageous aspects for the recipient of the technology, such as the recognition of the right to export to geographical areas with which Spain has an unfavourable trade balance.

The portuguese regulations governing the transfer of technology gives another example of a flexible law.

The evaluation criteria are centered in two main areas of concern:

- One of them is to stimulate the development and improvement of the domestic capabilities. In this connection the law establishes that the appraisal of transfer of technology shall take into account, primarily, not only their possible effect on the national economy but also the scientific and technological capacity already available in Portugal, such as the availability of research and consultancy services, including engineering, in departments, centres, institutes or companies both public and private. It also establishes that

specific guidelines or criteria for appraisal and authorisation purposes may be established for a certain sector, branch of activity or product by means of a joint order of the Minister of Planning and Economic Coordination and the Minister responsible for the sector concerned, and these shall be taken into account by the Institute.

- The other main area of concern is to guarantee that fair negotiation practices prevail in the relationship between the foreign suppliers and the domestic recipients.

  In this regard the law defines the provisions that agreements for transfer of technology shall contain, as follows:

  a) A detailed description of the nature of the transfer and of the practical form it will take as well as the type, form and amount of payments envisaged;

  b) An indication of the period for which the agreement is to remain in force;

  c) A guarantee that the recipient of the technology concerned will be kept informed of all or any improvements introduced into it during the agreement period unless such improvements are patentable or constitute an invention;

  d) An indication that components, spare parts and services related with the technology concerned will be applied at the request of the recipient of the technology as well as an indication

of the terms governing the supply thereof;

e) A statement to the effect that the selling price of goods and services will be fixed at levels not exceeding those in force on the international market whenever transactions in such goods and services between the supplier and the recipient of the technology are envisaged;

f) A detailed list of the ownership of the titles to the industrial property rights, as well as the indication of the respective duration, whenever transfer of technology include such kind of rights protected in the country as, for example, by means of patents, trade marks, models, drawings or other legal forms of industrial property;

g) Inclusion, whenever possible, of appropriate programmes for the training of personnel.

The portuguese law also gives an indication of the clauses whose inclusion in the agreements shall not be permited, although admiting that in cases where the transfer of technology assumes special interest for the national economy, agreements containing one or more of such clauses may be authorized.

Those clauses are the following:

a) Those which tie the provision of technology to the acquiring of capital goods or of intermediate products and other

technologies from a specific source;

b) Those which oblige the purchaser of the technology to transfer to the seller in unequitable conditions all or any inventions or improvements arising from the use of the technology concerned;

c) Those which restrict the volume and structure of production;

d) Those which either directly or indirectly restrict markets to which the importer of technology could have access;

e) Those which limit the distribution channels to be used if such limitation is harmful to the buyer of the technology or to the economic and commercial policy of the country;

f) Those which reserve to the seller of the technology the right to fix the selling or re-sale price of products incorporating such technology;

g) Those which set limits to the licensee's activity after the conclusion of the license contract, whenever those limits do not arise from the industrial property rights held by the licensor.

Beyond the provisions of general application to be included in the law, as indicated above, the regulatory agency should develop appropriate gui

delines concerning the treatment of specific types of agreements, and taking into account the sectors to which the agreement refer.

Location, organization and operation

Among the most relevant operational problems, to be solved when creating a regulatory agency special consideration must be given to those regarding location and the establishment of linkages between the agency and other government departments. Every country has a range of institutions that deal, in various ways, with aspects of technological policy and that reality, different from country to country, explains why the legal and institutional framework has found different solutions as well.

- The National Registry in Mexico was attached to the Ministry of Industry and Trade (at present Ministerio de Patrimonio) and the general director reports direct to the minister.

- In Spain the regulatory agency is the Industrial and Technological Quality Department, within the Ministry for Industry and Energy. A normal procedure in the decision making process includes the request of advice from the specialized government departments, according to the sector to which the agreement concerns.

- In Argentina the national office is called the National Registry of Contracts for Licenses and Transfer of Technology and is under the National Institute of Industrial Technology. The decisions of the National Registry are reviewed by an advisory committe composed of officials of the Secretariat of Industrial Development, the Secretariat of Science and Technology and the National Development Bank before

they are submitted to the Secretary of State for Industrial Development for final approval or rejection. Thus, in Argentina the national office does not occupy an important position as it does in Mexico. It evaluates and advises but does not make decisions.

In 1977 the organizational structure has been slightly modified in a sense that responsibility of approval of agreements rests at present with the Technical Undersecretariat subordinated to the Secretariat of State for Industrial Development.

. In Portugal, the competent authority is the Foreign Investment Institute, which has been established in 1977 to promote the foreign direct investments and to appraise the transfer of technology agreements . The Foreign Investment Institute depends on the Ministry of Finance and Planning but it is an autonomous body regarding the transfer of technology issues. However, it works in co-operation with other specialized departments and policy-making agencies, and also with the domestic R & D capabilities by supplying them inputs related to the country's technological needs.

. The Indian system of evaluation and registration of contracts involves several competent bodies. Though the final decision is made by the Foreign Investment Board, the proposals for foreign collaboration agreements are first submitted to the Secretariat for Industrial Approval in the Ministry of Industry. The latter seeks recommendations from various technical authorities through the Technical Evaluation Committee and the views of the administrative Ministry concerned with the product. These opinious having been given, the proposal is considered by the Foreign Investment Board. Only when the technology is suitable and the proposal is in accordance with the go -

vernment's overall policy does the Board examine the terms and conditions of the contract and sug - gests acceptance, modification, or rejection.

Procedures have been streamlined to reduce adminis trative delays so that a decision can be reached within 90 days.

Within the Far East area the Republic of Korea and the Philippines give an example of two different approaches concerning location.

In Republic of Korea, when a firm wants to import foreign technical services, it is required to submit to the Minister of Science and Technology an application for use of foreign technical service, and he considers the following criteria of evaluation in reviewing the appropriateness of such application:

- whether the requested foreign technical service is available from local engineering firms;
- whether the requested use of foreign technical service is justifiable and required;
- whether the selection of the giver of the requested technical service is appropriate;
- whether the content of the requested technical service and the method of extending this service are appropriate;
- whether the use period of the requested technical service and technical service fees are appropriate.

Approving an application for use of foreign technical services, the Minister of Science and Technolo

gy seeks an advice of the Service Import Review Committeee which he himself chairs and which consists of bureau chief-level officials of pertinent government Ministries. This system is complemented by services of KIST (Korean Institute for Science and Technology) and the Korean Technology Transfer Centre, directly involved in scrutinizing technology agreements.

In Philippines there is a Technology Transfer Board which is an inter-agency body attached to the Ministry of Industry.

The Technology Transfer Board which became operational by the end of 1978 is composed of senior representatives of the following authorities: National Economic and Development Authority, Central Bank of the Philippines, National Science Development Board, Technology Resource Centre, Board of Investments and the Philippines Patent Office. It is chaired by the Minister of Industry or his representatives. The Director of TTB is also an ex-officio member of the TTB. The Board utilizes a technical staff which, in principle, carries out all screening, evaluation and other work as well as prepares recommendations for the approval at TTB meetings, usually taking place twice a month.

A special reference should be made to the role of the Central Banks.

In countries where no special regulations exist regarding the transfer of technology agreements, the Central Banks have sometimes appeared as controlling bodies, at least for releasing the foreign exchange necessary to pay the contractual compensations.

When regulatory agencies exist the role of the Central Bank should be limited to the transfer of payments arising from the agreements, provided that such payments comply with the authorized conditions.

For that purpose, the regulatory agency should provide the Central Bank with all information having a bearing on payments arising from the agreements including alterations, renewals and termination thereof.

Regarding the organizational chart of a regulatory agency, it depends on the existing administrative institutions in which the agency is located.

Figure 7.1. represents a theoretical model based on the principle that the agreements should be evaluated by three key divisions: legal, economic and technical. The information office is assigned such tasks as performing statistical works and providing necessary data and information, as well as carrying out monitoring functions.

In practice such a sofisticated treatment is not always necessary and the agreements can be appraised as a whole by the evaluation staff and, when necessary, advice may be requested from other specialized departments or agencies. Depending on the amount of work, the staffing of a regulatory agency varies substantially but an average of 10-15 professionals should be taken as a reference based on the operational experience of some regulatory agencies.

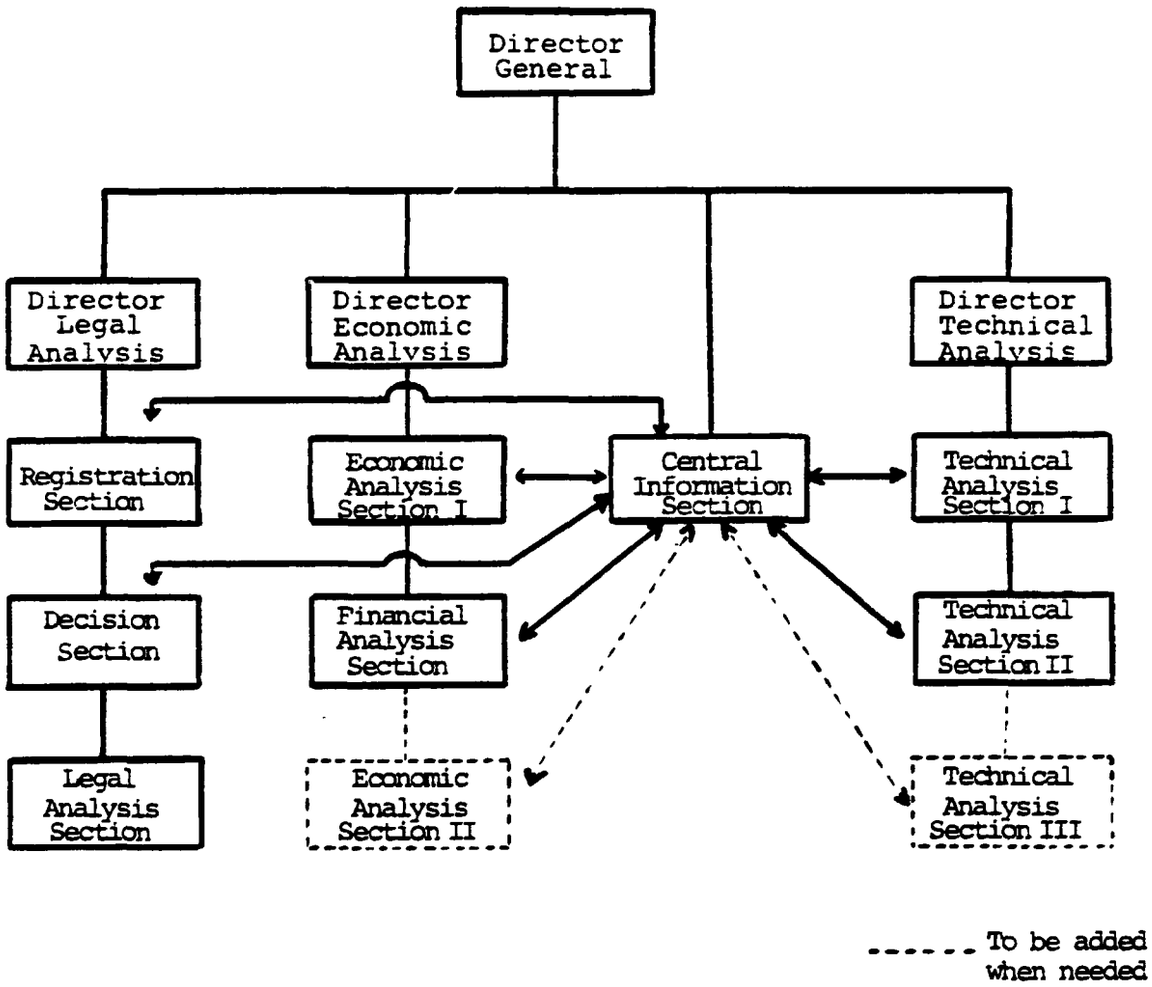
The staff to be employed should include engineers, economists and, at least, one lawer. Some of the staff should have experience in private or public enterprises and be well acquainted with all aspects of technology transfer, finance and fiscal policies.

Otherwise evaluation may not have sufficient quality and that could result in negative effects on domestic and foreign business communities.

For evaluation purposes it is convenient to decide what type of documents and data must be submitted with the agreements

FIGURE 7.1.

ORGANIZATION CHART FOR A NATIONAL OFFICE
FOR TRANSFER OF TECHNOLOGY



as, for example:

- information about licensee;
- data relating the licensor or supplier;
- relations between the parties;
- description of the agreement;
- expected exports, payments, etc.

It is also recomended that guidelines for evaluation and check lists be drawn up according to sector, since the technology flow and the terms of the technology agreements vary considerably from sector to sector.

The efficiency in evaluation may be substantially improved by access to TIES which is a system operated by UNIDO, permiting exchange of information contained in approved and registered contracts on a confidential, reciprocal, equal and mutually benefical basis. Improvements can also be obtained by co-operation among registries on a bilateral basis via registry visits, study tours and responses to specific queries on contracts under negotiation.

In order to facilitate the smoth operation of the evaluation process and considering that bureaucratic delays should be kept to a minimum, a deadline can be set for handing down decisions on agreements submitted for evaluation, which might be 60-90 days after the date of submission.

As for the cost of running the office, and although it should be noted that the total direct savings for the country are many times as great as the operating costs, a system of fees for evaluation a registration of the agreements may be established. In some countries such is a fixed one and normally very low; in Portugal it is stipulated according to the importance of the agreement, approximately 20% of the contract value, with an upper limit for the fee of about USD 300.

8. CONCLUDING REMARKS AND RECOMMENDATIONS

The case of Thailand regarding the transfer of technology issues is not very different from the situation in other countries before regulations have been effected.

In Thailand the need for regulation had been felt especially since the publication of the Fifth Plan, and a number of organizations have been stepping up interest in, and action concerning transfer of technology, namely BOI, MOI, MSTE and NESDB.

Apparently there are overlapping claims of responsability, but no practical experience exists in monitoring the inflows of technology, increasingly necessary for the development of the country, neither any significant cooperation or coordination was detected among above mentioned organizations.

Efforts are envisaged to devise a technological development policy, including a comprehensive system for the appropriate acquisition, digestion, adaptation and dissemination of imported technologies, as well as improvement of the local capabilities.

This is a task for a long term process, involving the strengthening of technological capacity and making education and R & D activities more responsive to the needs of the country; and the development of appropriate infrastructure should include the recognition of the different types of institutional functions to be performed, and the establishment of appropriate cooperative network among the several responsible bodies so that thay can work together in the same direction.

It should also be recognized that the development process, like in other developing countries, is dependent on inflows of foreign technology and such inflows happen mostly through

direct direct foreign investment or through contractual arrangements between foreign suppliers and private domestic firms whose interests are not always coincidental to the Government's objectives.

Therefore, it seems necessary and urgent to create promotional and regulatory machanisms allowing the Government to monitor the transfer of technology agreements, and take advantage of such capacity to provide for:

- the transfer of technology prices and conditions reflect normal international practices;
- conditions for all absorption of know-how are granted;
- the domestic scientific and technological capacity is protected and strenghtened;
- balance of trade is improved;
- bargaining and negotiating capabilities of local industry are increased.

As a rule, the mission found a strong promotional attitude in the Government officials contacted and it is known that efforts are being made to simplify the complicated bureaucratic mechanisms and to encourage more initiative by the investors. It seems that Government is hesitant in introducing additional regulatory measures, although often found as necessary, as they appear a possible source of discouragement to foreign suppliers of technology; on the other hand, the business community is sensitive to the weak negotiating capabilities of domestic firms due to lack of information about alternative suppliers and normal international practices; it is also rather fearful that regulation might create additional difficulties. Besides, business people are sceptical about the possibility of getting efficient back-up and assistance from Government agencies in negotiating with foreign parties.

In this connection the mission's comments are as follows:

a) regulating or monitoring the inflows of technology must not be viewed neither as discouraging the activity of foreign firms in the country, nor as being against promotion, provided that regulatory mechanisms are designed to achieve fair negotiating practices, instead of empowering the regulatory agency to chose the technologies to be imported or interfere with the technological options of the entrepreneurs;

b) as noted above not only in developing countries the transfer of technology is subjected to regulation; also in developed countries, namely in the United States, in Japan and in the European Common Market there are regulations forbiding restrictive conditions, abuse of dominant position and unfair trade practices;

c) ultimately, and even putting ourselves in an extreme liberal approach, regulating the inflows of technology would result in the creation of a channel between the foreign suppliers and the domestic recipients, with the immediate advantage od giving the Government information about:

   . the nature of the technology inflows;

   . alternative sources of technology;

   . sectors for which the imported technology is intended;

   . identification of sectorial needs and adoption of corresponding promotional measures.

However, the mission considers, as per the concerns of both Government officials contacted and business community, that

the task of regulating or monitoring transfer of technology should be performed by skilled people well acquainted with engineering and business matters and with a broad understanding of what transfer of technology agreements actually mean, and how to take advantage of monitoring in order to assist, if necessary, the domestic firms in negotiating better conditions, according to normal international practices.

Such staff should also be capable to conduct an efficient and active dialogue with the foreign entrepreneurs in order to make them know the country's objectives and policies, and achieve suitable, mutually advantageous compromises.

Foreign firms, when investing or doing business abroad, are prepared to meet and comply with regulatory measures and to face negotiations with the authorities, and surprisingly lack of regulation allows often unfair practices and deals as above referred to.

The study of the existing transfer of technology agreements in Thailand strongly suggests the need of creating regulatory mechanisms; moreover the setting-up of an agency for registration of foreign investment and transfer of technology is envisaged in the Fifth Plan.

Among other advantages, the establishment of such monitoring activity would result in:

a) providing for fair negotiation conditions, with direct beneficial effects on the foreign exchange balance, on the conditions for the assimilation of technology and on the competitiveness of Thai industry both externally and internally;

b) giving the Government information about supply conditions from different sources and for different sectors, for the benefit of domestic business community;

c) identifying the technological gaps and stimula te the development of local technological capa bilities;

d) conducting continuous sector based analysis of registered agreements in order to establish long--term trends in relation to prices, royalties and technological developments;

e) development of linkages with national and international information systems containing in formation on sources of technologies and dissemination of such data to the domestic firms, including the possibility of using experien - ces of other developing countries, by access to TIES system;

f) establishment of close relationship between regualtory agency, policy making institutions, research and development facilities and do - mestic business community to ensure that the operations of such R&D facilities become more directly related to domestic technological needs.

The question of regulating transfer of technology, as well as foreign investment, requires specific skills and justi - fies the creation of a specialized agency for that purpose.

However, taking into account the realities of the country, the mission feels that, for the time being, there is no room to set up a new independent institution, and that advantage should be taken of the existing infrastructure to locate the regulatory agency and to define:

a) the role of the already existing organizations in the development process, according to their own vocation and capabilities;

b) the network of linkages between the regukato- ry agency and the other organizations, so that

monitoring of technology inflows comply with the Government strategy and result in the development and the mobilization of national problem-solving capacities.

All of the main existing organizations are related, in some way, to the transfer of technology. For example:

NESB ..... in the policy making area;

MOI ..... dealing with the application of technology in industry;

MSTE ..... with a potential supporting scientific and technological infrastructure;

MOC ..... as responsible for granting industrial property rights.

But only the Bank of Thailand and the Board of Investment have dealt with transfer of technology agreements, although without making much of appraisal or evaluation.

As a matter of fact, the Bank of Thailand requests for submission of the agreements as an internal administrative measure with the sole purpose of checking the compliance of remittances with the agreed contractual conditions; the Board of Investment is already entitled to request for the transfer of technology agreements associated with promoted investment and is also entitled, according to the Investment Promotion Act, to grant remittances of payments arising out from such agreements.

Therefore those two organizations are the most suitable to start with operational action, but it is felt that in view of its character the Bank of Thailand does not favour the location of the regulatory agency within its organization.

As the lack of field experience about the realities associated to the transfer of technology agreements has been a sour

ce of misunderstandings and fears that interfering in the agreements would have a negative effect on prospective in - vestors, the mission in of the view that two alternatives should be considered by the Government:

. One alternative consists of creating appropriate regulatory mechanisms by issuing a law regarding transfer of technology (and if necessary affecting foreign investment) and setting up a regulatory agency within the Board of Investment; it is also possible to consider the creation of a non profit organization attached to BOI but with a special status namely for the purpose of granting the staff a suitable and motivating salary level and high level of professional expertise. Such agency should be empowered as the competent authority to appraise the technology agreements (and possibly direct foreign investment) and subject its approval and registration in compliance with the provisions of the law above.

. The other possible alternative would consist of an interim solution designed to provide practical knowledge on the transfer of technology issues enabling Thai officials to engineer appropriate future regulations (it deemed necessary).

In this connection, the mission makes the following recom - mendations:

1. A technical Secretariat should be created within or attached to the Board of Investment for the purpose of collecting and registering all exis - ting transfer of technology agreements and all new transfer of technology agreements, as a condition for such agreements to become legally enforced, namely for the purpose of remittances abroad. We

believe that 5 or 6 professionals area enough to start.

2. Registration for already existing agreements should be made in a very flexible way and without any special interference from the Secretariat,but it should provide for the opportunity of dialogue and exchange of views with the business community and learning about their feelings on results of relationship with the foreign counterparts.

   However, in cases where the duration of the agreements is openended (or, for instance, when the agreement is lasting for more than 10 years) registration should depend on agreement of both parties as to the establishment of a time period considered as convenient by the Secretariat.

3. New contracts should be subjected to evaluation by the Secretariat who would prepare recommendations to be submitted to recipient local company; consultative body composed of senior representatives of BOI, MOI, MSTE, BOT and MOC may also be established to provide broad forum for interministerial discussions of problems associated with transfer of technology.

   Eventually the Secretariat could report to the Restructuring Committee itself. Such recommendations should be based on the appraisal of the agreements and transmited to the parties (normally to the Thai firm) for voluntary action, deemed as appropriate and convenient.

4. During the course of action, the Secretariat would take advantage of the evaluation activity to get knowledge and experience about the agreements, to collect information, to train the staff and get used to establish links (when recognized as con -

venient) with other institutions concerned with development and promotional policies, as well as to identify the domestic existing capabilities related to the contractual matters.

The secretariat should also become a member of TIE's system, as a way to get information about conditions in other countries, thus providing assistance and guidance to domestic firms.

5. The Secretariat should be given a limited period of time to issue recommendations (maximum 90 days from the date of application for registration) and should be assigned the task of:

   . within 6 to 9 months after starting activity, to issue guidelines for evaluation of the agreements, according to the sectors;

   . within 12 to 18 months review its activity and propose final decisions in respect to regulatory activities.

In either alternative, the rules should apply to all agreements, either in promoted or in non promoted sectors, and also when the recipients are associated companies, branches or any form of representation of foreign companies.

Definition of transfer of technology agreements should cover all acts or contracts through which recipients seek granting of rights or assistance related to their entrepeneurial activities, namely:

- use of patents, know-how and trademarks;
- engineering agreements;
- management services;

- franchise;
- supply of computer software;
- consultancy;
- other forms of technical assistance.

Transactions within the country, i.e., when the supplier is a subsidiary of a foreign firm, should also be subject of registration.

UNIDO may assist in setting up legal and administrative framework to start with the regulatory activity or, should the creation of a Secretariat be the option, to provide follow-up covering the following areas:

- Training of the staff in contract evaluation and analysis;
- Assistance in developing guidelines according to sectors or nature of the agreements;
- Assistance in reviewing the Secretariat activities and proposals, namely in what concerns setting up final legislative and administrative framework.

As a final remark, the mission would like to stress that the Technical Secretariat should be composed by competent people with a great deal of common sense and a high moral and professional standard; and the person to be chosen as the head of the Secretariat should have some past experience both in engineering and licensing activities.

ANNEX I

FRAMEWORK FOR THE ANALYSIS OF THE AGREEMENTS

AGREEMENTS ANALYSIS

1. THE COLLABORATION OF JOINT CTC/ESCAP UNIT

One of the tasks to be performed along the first split mission was the design of an analytical framework for the analysis of the existing technology agreements for the application in computer software.

It was found that an input of a project within Joint UNCTC/ESCAP Unit on Transnational Corporation carried out by Dr. Mingsarn Kaosa Ard included the analysis of the existing agreements celebrated by Thai companies and filed in the Bank of Thailand.

All the relevant information had already been collected by Dr. Mingsarn's team and an understanding for collaboration was established so that Joint Unit would furnish the available information to UNIDO, and UNIDO would provide for software production and coding, eventually with supervision and technical advice from Joint Unit.

According to Mr. Pestana's guidelines the MOI staff wrote the computer program and the corresponding outputs were obtained. However, it was felt that further cooperation between MOI nad Joint Unit would be necessary in order to check the program and define what agregate information and outputs would be most convenient.

It is to be noted that by the time od the second split mission the Joint Unit Study was already available and permited by itself the most relevant conclusions about the inflows of technology in Thailand.

2. INSTRUCTIONS FOR COMPUTER ANALYSIS

Several forms were prepared according to the desired outputs. As inputs, each horizontal row has the data concerning one agreement, which is identified by a code number (question of confidentiallity) in column nº 2.

CISIR

FORM AA

PRINTER SPACING CHART

LINE DESCRIPTION

FIELD HEADINGS/WORD MARKS — 6 Lines per Inch — IBM 407, 408, 409, 1403, 1404, 1443, and 2203 — Print span:

IBM 1403 Models 1 & 4

IBM 407, 408, 409, and 1403 Models 6 and 7

IBM 1403 Models 2, 3, 5, N1 and 1404

IBM 1443 Models 1, N1, and 2203

GLUE

0 1 2 3 4 5 6 7 8 9 10 11 12

COMPUTER INPUT . SEE FORM AAL TO FULFILLMENT INSTRUCTIONS

1 2 3 4 5 6 7 8 9 10 11 12 13 14

SECT AGREEM. ... PROVISIONS TECHNIC DURATION COVERAGE PAYMENT CLAUSE ...

CODE ... INFORM START ... ROYALTY ...

TOTAL

Fold to Here

- 39 -

The information collected concerns: Sector of Industry Activity, according ISIC (column 1), Licensor Country (column 3), Licensor Share on Licensee (column 4), Total Foreign Equity on Licensee (column 5), Type of Agreement (column 6), Information concerning Provisions and Technical Information of the agreement (column 7 and 8), Life of the Agreement (column 9), Mode and amount of payment (column 10), Information concerning restrictive practices (Market - column 11; Pós-expiration - column 12; Competitive Products - column 13 and Tie-In Purchasing clauses - column 14).

To fill up the forms the instructions were the following:

1. SECT - Sector of Industrial activity according to ISIC code (four digits)
2. AGREEM.CODE - Agreement Code. See Dr. Mingsarm guidelines for coding (398/2 means that there are at least 2 agreements with the same licensee). We shall use 6 digits: 4 for the licensee and 2 for the agreement
3. LOR CNT - Licensor Country Code letters to be defined
4. LOR SHR - Licensor Share on Licensee, in percentage
5. FRG SHR TOT - Total foreign share on licensee, in percentage
6. TYP AGR - Type of agreement

   It is difficult to identify in a very important number of agreements, the type, either because it is badly defined or because the same agreement includes a lot of different types, so we will define only four types:

Management agreements .... M.A.
License agreements ..... L.A.
Service agreements ..... S.A.
Gentlemen agreements ..... G.A.

The main characteristics of these types may be summarized as follows:

. Management agreement - the licensor is entitled to manage the licensee business; licensee will control within pre-established limits, licensor's activity. Typical agreement in hotels. In such agreements other provisions may be included, namely: the use of licensor's trade mark, the training of licensee staff, know-how, etc.

. Licensee agreement - when licensor will supply licensee with all the information which will allow him to produce a specific good. The information may be supplied through written material, personal assistance, drawings, specifications, magnetic tapes, etc.

. Service agreement - when the agreement concerns a specific service rendered by licensor. The service rendered may have a well defined duration or not. For example: an engineering project will have a well defined duration, but a technical assistance to the factory equipment should be established in a yearly basis.

. Gentleman Agreement - if no contract was celebrated

7. PROVISIONS - see appendix III, Dr.Mindsarn Guidelines. Write a X in the respective vertical row

8. TECHNICAL INFORMATION - See Appendix III, Dr. Mingsarn Guidelines. Write a X in the respective vertical row

9. DURATION CLAUSES:

START: date (Month and Year) of the agreement beginning (Aug 82)

RUN : period of time during which the agreement will stay in force - 2 digits plus a letter: Y (Year) - M (Month) - W (Week). If the termination date is nos stated write IND (Inde - terminated).
Ex: 12 M; IND; 05Y

RNL : Renewal clause

Print:

AUT - if it is stated that the agreement should be authomatically renewed

OMI - if no provision concerning the renewal is included

NOT - if it is expressly declared that the agreement should not be renewed

PRI - if it is stated that renewals depend on prior agreement between the parties

PERI - duration of the renewals, as per RUN, plus a digit if only a limited number of re -

newals is considered (1-one renewal; 5-five renewals);if no limitation if stated print N (none)

Ex: 12M5
05Y2
01YN

10. PAYMENT CLAUSES:

CUR - Currency: use standard symbols

LUMPSCN-The down payment or any other type of fixed payment. If the amount is to be splitted state the total amount

Ex. 1: 2.6:12 means:
$2.6 \times 10^{12} = 2.600.000.000.000$

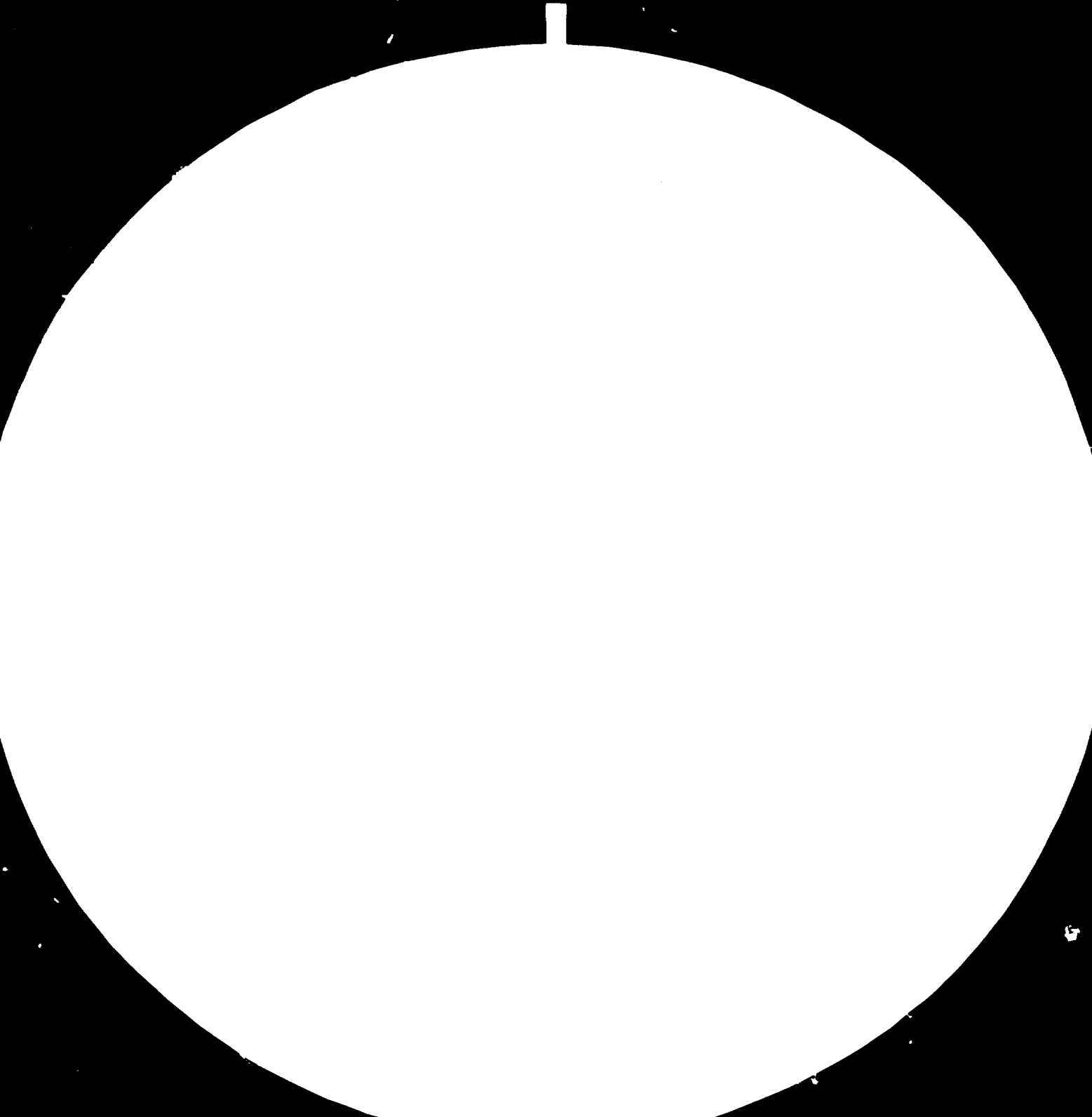
Ex. 2: 1.7:03 means:
$1.7 \times 10^{3} = 1,700$

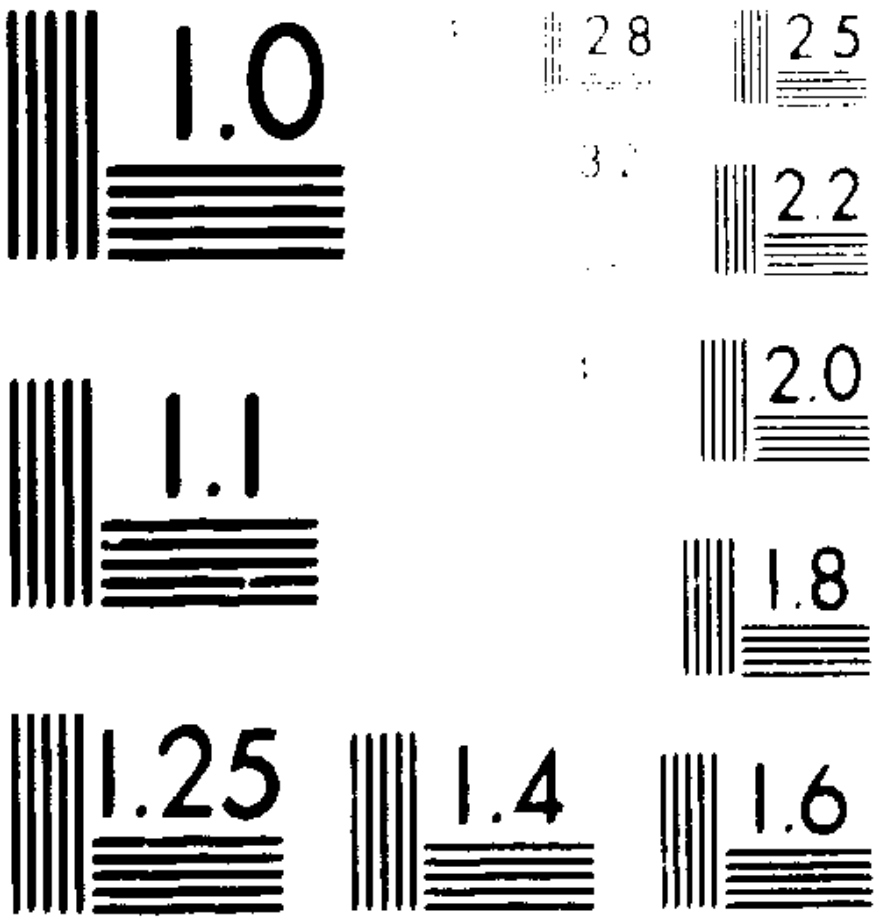
Only two significant digits are required

ROYALTY-It refers to the running royalty, the rate and basis of incidence. The rate may be a percentage or a fixed sum. Use the first five spaces.

If the rate in variable write, the highiest value and write an asterristic (*) in the 6th sapce. The last two spaces will be fullfilled with the incidence basis code which follows:

83.08.08




1.0
2.8
2.5
3.2
2.2
1.1
2.0
1.8
1.25
1.4
1.6

G.S. - Gross Sales
N.S. - Net Sales
G.P. - Gross Profit
N.P. - Net Profit
A.V. - Added Value
O.T. - Other

} The royalty rate is a percentage

L.B. - Per Pound
P.U. - Per Unit
K.G. - Per Kilogram
T.N. - Per Ton
L.T. - Per Liter
C.M. - Per Cubic Meter
etc - Define if necessary

} The royalty rate is a sum

Ex:

0	5	.	5	0	A	V
2	5	.	0	0	G	P
3	3	.	3	3	N	P
1	.	5	:	2	P	C
.	7	5	0	0	K	G
.	7	5	0	0	K	G
0	5	.	0	0	N	S
1	.	3	:	3	T	N

HONORARIUM: The first 6 spaces will be fullfiled with figures referring the honorarium amount. The 7th space will be used to pla

ce a letter to identify the honorarium basis if time

Y - Yearly

M - Monthly

W - Weekly

D - Dayly

H - Hourly

F - if a fixed amount is provided for all technical assistance during the life of the agreement

NOTE: There may be a confusion in a management agreement having a honorarium basis payment and a period of an year: Write F or Y? It is more convenient to write Y in such situation.

11. MARKET ARRANGEMENTS

12. TERMINATION CLAUSES

13. COMPETITIVE PRODUCTS

14. TIE-IN PURCHASING

Use the coding system of Dr. Mingsarn, writing an X in the vertical row corresponding to the clause. The column is referred in the 3rd horizontal row.

ANNEX II

SELECTED REGULATIONS ON TRANSFER OF TECHNOLOGY

1. US ANTITRUST STATUS

- Section 1 of the "Sherman Act" (15 U.S.C. para 1):

"Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal".

- Section 2 of the "Sherman Act" (15 U.S.C. para 2):

"Every person who shall monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among several States, or with foreign nations, shall be deemed guilty of a misdemeanor ..."

- Section 3 of the "Clayton Act" (15 U.S.C. para 14):

"It shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandises, machinery, supplies, or other commodities, whether patented or unpatented, for use, consumption or resale within the United States ... or fix a price charges therefor, or discount from, or rebate upon, such price, on the condition, agreement, or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies, or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement, or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce".

- Section 7 of the "Clayton Act" (15 U.S.C. para 18):

"No corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the ju

risdiction of the Federal Trade Commision shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly"

- Section 5 (a) (1) of the "Federal Trade Commision Act" (15 U.S.C. para 45 (a) (1)):

"Unfair methods of competition in commerce, and unfair or deceptive acts or practices in commerce, are declared unlawful."

2. THE FAIR TRADE COMMISSION GUIDELINES IN JAPAN

I. Among the restriction which are liable to come under unfair business practices in international licensing agreements on the patent rights or utility model rights (hereinafter referred to as patent rights, etc.) the following are the outstanding:

(1) To restrict the area to which the licensee may export the goods covered by patent rights, etc. (hereinafter referred to as patent goods).

However, cases coming under a, b, or c listed below are excluded:

(a) In case the licensor has patent rights, etc. which have been registered in the area to which licensee's export is restricted (hereinafter referred to as the restricted area);

(b) In case the licensor is selling patented goods in the restricted area in his normal business;

(c) In case the licensor has granted to a third party an exclusive license to sell in the restricted area.

(2) To restrict the licensee's export prices or quantities or patented goods, or to make it obligatory for the licensee to export patented goods through the licensor or a person designated by the licensor.

However, such cases are excluded where the licensor grants an exclusive license and imposes no restriction on goods already being manufactured, used or sold, or technology already being utilized by the licensee.

(3) To restrict the licensee from manufacturing, using or selling goods, or employing technology which is in competition with the licensed subject.

However, such cases are excluded where the licensor grants an exclusive license and imposes no restriction on goods already being manufactured, used or sold, or technology already being utilized by the licensee.

(4) To make it obligatory for the licensee to purchase raw materials, parts, etc. from the licensor or a person designated by the licensor.

(5) To make it obligatory for the licensee to sell patented goods through the licensor or a person designated by the licensor.

(6) To restrict the resale prices of patented goods in Japan.

(7) To make it obligatory for the licensee to inform the licensor of knowledge or experience newly obtained regarding the licensed technology, or to assign the right with respect to an improved or applied invention by the licensee to the licensor or to grant the licensor a license thereon.

However, such cases are excluded where the licensor bears similar obligations and the obligations of both parties are equally balanced in substance.

(8) To charge royalties on goods which do not utilize licensed technology.

(9) To restrict the quality of raw materials, parts, etc., or of patented goods.

However, such cases are excluded where such restrictions are necessary to maintain the creditability of the registered trademark or to insure the effectiveness of the licenses technology.

II. The aforementioned guidelines shall apply to international know-how licensing agreements.

III. In international licensing agreements on patent rights, etc., the following acts shall be regarded as the exercise of rights under the Patent Act or the Utility Model Act:

(1) To grant license to manufacture, use, sell, etc., separately;

(2) To grant license for a limited period within the life of patent rights, etc., or for a limited area within the whole area covered by patent rights, etc.;

(3) To restrict the manufacture of patented goods to a limited field of technology or to restrict the sale thereof to a limited field of sales;

(4) To restrict the use of patented processes to a limited field of technology;

(5) To restrict the amount of output or the amount of sales of patented goods or to restrict the frequency of the use of patented processes.

3. THE EEC RULES OF COMPETITION

- Article 85: Prohibited Practices

"(1): The following shall be prohibited as incompatible with the common market: all agreements between undertakings, decisions by associations of undertakings and concerted practices wich may affect trade between Member States and which have as their object or effect the prevention, restriction or disposition of competition within the common market, and in particular those which:

(a) directly or indirectly fix purchase or selling prices or any other trading conditions;

(b) limit or control production, markets, technical development, or investment;

(c) share markets or sources of supply;

(d) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.

(2) Any agreements or decisions prohibited pursuant to this Article shall be automatically void.

(3) The provisions of paragraph (1) may, however, be declared inapplicable in the case of:

- any agreement or category of agreements between undertaking;
- any decision or category of decisions by associations of undertakings;
- any concerted practice or category of concerted practices, which contributes to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit, and which does not:
  (a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives;
  (b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question".

- Article 86: Abuse of Dominant Market Position

"Any abuse by one or more undertaking of a dominant position within the common market or in a substantial part of it shall be prohibited as incompatible with the common market in so far as it may affect trade between Member States.

Such abuse may, in particular, consist in:

(a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;

(b) limiting production, markets or technical development to the prejudice of consumers;

(c) applying dissimilar conditions to equivalent transactions, with other trading parties, thereby placing them at a competitive disadvantage;

(d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts".

4. PORTUGUESE REGULATIONS ON TRANSFER OF TECHNOLOGY

Agreements for the transfer of technology shall contain:

(a) A detailed description on the nature of the transfer and the practical form it will take as well as the type, form and amount of payments envisaged;

(b) an indication of the period for which the agreement is to remain in force;

(c) a guarantee that the recipient of the technology concerned will be kept informed of all or any improvements introduced into it during the agreement period unless such improvements are patentable or constitute an invention;

(d) an indication that components, spare parts and services related with the technology concerned will be supplied at the request of the recipient of the technology as well as an indication of the terms governing the supply thereof;

(e) a statement to the effect that the selling price of goods and services will be fixed at levels not exceeding those in force on the inter

national market whenever transactions in such goods and services between the supplier and the recipient of the technology are envisaged.

Whenever transfers of technology include rights protected in the country receiving the technology by means of patents, trade names, models, drawings or other legal forms of industrial property, the agreement shall include the following:

(a) A detailed list of the ownership of the titles to the industrial property involved;

(b) an indication of the time scale for the use of the rights conferred by means of the titles regerred to in the above paragraph.

In agreements for the transfer of technology, particularly those governing relations between foreign companies and their branches in this country, the following clauses shall not be permitted:

(a) Those which tie the provision of technology to the acquiring of capital goods or of intermediate products and other technologies from a specific source;

(b) those which oblige the purchaser of the technology to transfer free of charge to the seller all or any inventions or improvements arising from the use of the technology concerned;

(c) those which restrict the volume and structure of production;

(d) those which either directly or indirectly restrict markets to which the importer of technology could have access;

(e) those which limit the distribution channels to be used if such limitation is harmful to the buyer of technology or economic and commercial

policy of the country;

(f) those which reserve to the seller of the technology the right to fix the selling or re-sale price of products incorporating such technology;

(g) those which set limits to the licensee's activity after the conclusion of the licence contract, whenever those limits do not arise from property rights held by the licensor.

In case where the transfer of technology assumes special interest for the national economy, agreements containing one or more of the clauses listed in the preceeding paragraph may be authorized.

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