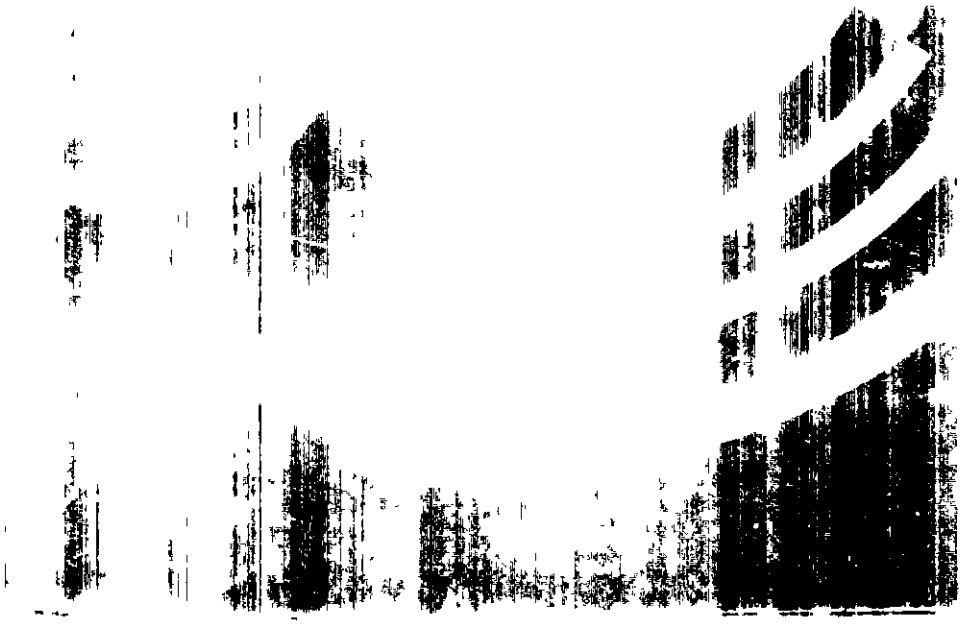
E/ESCWA/UNCTC/84/41Rev.1

Economic and Social Commission
for Western Asia

Egypt's Experience in Regulating Technology Imports



UNITED NATIONS
1988

Distr
GENERAL
E/ESCWA/UNCTC/87/4/Rev 1
3 November 1988
ORIGINAL ENGLISH

Economic and Social Commission for Western Asia

Development Planning Division

Joint ESCWA/UNCTC Unit on
Transnational Corporations

UN ECONOMIC AND SOCIAL COMMISSION
FOR WESTERN ASIA
4
LIBRARY & DOCUMENT SECTION

Egypt's Experience in Regulating Technology Imports

For the preparation of this study, Dr. Abdelkader Djeflat, Professor at the Institut des Sciences Economiques-Universite d'Oran (Algerie), acted as consultant to the United Nations Econonimc and Social Commission for Western Asia

88-0889

CONTENTS

CONTENTS (Continued)

List of Tables

INTRODUCTION

Technology transfer to countries of the Third World is increasingly sought through Transnational Corporations (TNCs) since a large domain of modern and highly sophisticated technology is generated and/or controlled by them[1/]

The growing attempts for technology transfer through TNCs raised in recipient (mainly developing) countries major concerns relating to: (a) the kind of technology being transferred and its relation to the social and economic objectives and conditions of the country, (b) the most appropriate channels to be used, (c) the costs to be paid to technology suppliers, and (d) the impact of imported technology on environment However, the most important issue remains undoubtedly the high level of control which TNCs exercise in transactions involving technology transfer, and which is often at the expense of recipient countries

The dilemma resulting from this situation arises from, on the one hand, the need for the technological capabilities and know-how of TNCs, and; on the other, the necessity to monitor their activities in the fear that their operations might be detrimental to the economies of host countries The dilemma is aggravated by a series of "imbalances" which the recipient countries are well aware of such as· the gap between the large experience of TNCs and the limited experience of host countries in dealing in international transactions and negotiations, the quasi-absolute control exercised by TNCs on the technology as compared to the host countries' limited capabilities to understand and penetrate the technological package, and finally the TNCs access to massive financial resources as compared to a relatively limited financial base of the recipient countries no matter how important their mineral resources may be, bearing in mind all the whims of the world market and the dwindling prices of commodities and minerals

The study addresses itself to the following main preoccupations·

- National laws, regulations and policies governing the transfer of technology in Egypt;
- Different mechanisms of technology transfer used by TNCs in Egypt and related costs,
- Conditions imposed by TNCs upon the use of technology acquired by nationals in Egypt,
- Impact of the conditions imposed on the economy of Egypt; and
- Measures taken by Egypt to enhance its bargaining power and negotiating capacity in transactions involving transfer of technology

---

1/ UNCTAD, Le role du systeme des brevets dans le transfert des techniques vers les pays en voie de developpement (New York, 1975).

The report is based on a series of interviews conducted on two separate occasions (late 1985 and then early 1986). The interviews were held with under secretaries at Ministry level, director generals and heads of institutions, industrial consultants and senior engineers, etc The institutions visited were just as varied and as numerous, including ministries (of Planning and Industry in particular), the Academy of Scientific Research and Technology (ASRT), the Institute of National Planning (INP), the National Research Centre (NRC), the General Organisation for Industrialization (GOFI), the Central Agency for Public Mobilization and Statistics (CAPMES), and others, such as the United Nations Information Center (UNIC) and the International Development Research Center (IDRC) Beside direct interviews with the various officials, the field work included the gathering of various documents, published and unpublished, from the visited institutions as well as from university libraries

However, access to information, particularly on some aspects perceived as sensitive such as royalty and profit payments made to TNCs, transfer pricing practices of TNCs, terms of contracts, etc , was relatively difficult[1/]

Consequently, this report consists of the following. An introduction, a succint description of some of the aspects of the policy framework regarding foreign investments and TNC activities in Egypt (Chapter 1), the strategies and mechanisms used by TNCs to transfer technology to Egypt, (Chapter 2) The conditions imposed by TNCs on the use of technology acquired by Egypt particularly through international transactions and an analysis of the impact of these conditions both in global terms and with regards to the transfer of technology and know-how (Chapter 3) And finally a review of measures taken by the Egyptian Government to reduce the impact of the conditions imposed by TNCs, in the area of transfer of technology. (Chapter 4)

1/ As an example, it was absolutely impossible to have access to contracts (even old ones) relating to imports of technology in the industrial sector, including those held at GOFI

CHAPTER I POLICY FRAMEWORK FOR FOREIGN INVESTMENT AND TNCs INVOLVEMENT IN EGYPT

A Main Features of TNCs Involvement in Egypt

Since the early seventies, foreign investment has benefited from a great deal of attention by the Egyptian authorities as stated publicly by several Egyptian officials after the "October Paper" and the "Open Door" policy declaration

The following declaration made by the Deputy Prime Minister for Economic and Financial Affairs of Egypt in 1982, summarizes, in few words, the whole spirit, philosophy and policy of the Egyptian Government regarding both foreign investment and foreign technology

> "The stagnant state that ensued after the sixties called for a radical revitalization of our productive activity We strongly felt that a technology transfer from the world's industrial nations would be the optimal path for us to follow and it became obvious that direct foreign investment would play an important role in our economic development programme In 1974, we promulgated Law 43 to grant a series of privileges and exemptions to foreign companies investing in Egypt A 1977 amendment extended the benefits of this law to Egyptian nationals"1/

Ten years after the promulgation of the 1974 Investment Law, the number of projects approved were 1342 inland projects and 302 in the free zones of Cairo, Alexandria, Suez and Port Said Foreign capital represented 55 percent of the total capital invested under the 1974 Investment Law by both private and public sources for inland investment and 99 4 percent for the free zones Of the projects approved, 63 percent were in operation, 19 percent were under implementation and 18 percent had been approved by the end of June 19852/

Since the promulgation of the 1974 Investment Law, the inflow of foreign capital has been growing at an increasing rythm Companies involved included some of the big transnational corporations in the various sectors of activity including the financial one

---

1/ Citibank, Egypt Investment Guide p 1

2/ General Authority for Investment and Free Zones, Facts and Figures, (No XV, June 1985) pp 1-4

Table 1 Structure of Total Capital Flow into Egypt, under the 1974 Investment Law (by end of June 1985)

Contributor	Million L.E	%
Egyptian	4354 3	66
Arab	1234 0	19
Others	1014 9	15
of which		
U S A	(302 9)	(4)
ECE	(404 7)	(6)
Total	6603 2	100

Source. Ibid, p 4

Table 2 Inflow to Egypt of Foreign Direct Investment from Major Industrial Countries 1977-1983

(In millions of U S dollars)

	1977	1978	1979	1980	1981	1982	1983
Inflow	105	318	1216	548	752	658	864
Cumulative total	105	423	1639	2187	2939	3597	4361

Source UNCTC, Trends and Issues in Foreign Direct Investment and Related Flows (New York, Sales No E 85 II A 15, ST/CTC/59, 1985) p 13

Thus, of the inland projects approved till the end of June 1985, under the 1974 Law, 42 percent were industrial projects, 19 percent were financial projects and 16 percent were services projects Agricultural projects represented only 7 6 percent of all approved inland projects Foreign capital for inland projects was predominant in indusrial projects (36 4 percent), in financial projects (29 4 percent) and in service projects (22 percent) In construction and agricultural projects, foreign contributions were respectively 7 percent and 5 percent of capital supplied by foreign investors for inland projects Thus, agriculture and to some extent, construction appear to be relatively free from TNCs involvement

While Table (2) gives an indication as to the magnitude of the inflow of foreign direct investment (FDI) into Egypt for the period 1977-1983; Table (3) lists some of the TNCs currently operating in Egypt, and Table (4) shows the relative presence of TNCs in Egypt by country of origin, as compared to their presence in Africa and in the World

Table 3 Selected TNCs Operating in Egypt by 1986

USA	FRANCE	GERMANY	UNITED KINGDOM	CANADA
A Banking and Finance				
- Bank America Corp	- Credit Commercial de France		- Barclays International Bank	- Bank of Nova Scotia
- American Express Int'l Banking Corp	- Banque Nationale de France		- Lloyds International Bank	
- Firsts National Bank of Chicago	- Societe Generale de Paris		- UBAF Ltd (London)	
- Chase Manhattan Corp	- Credit Lyonnais		- Marinjac Investment (Overseas) Co	
	- PARIBAS (alias Banque de Paris et des Pays Bas)			
B Other sectors				
- Sheraton International Inc (a subsidiary of ITT Corp USA)	- Creusot-Loire Enterprises	- Conintra International	- Northern Brick Co	- Ontario Ltd
- Evergreen Helicopters Inc	- Montalev Co	- Siemens	- Higgs & Hills Int'l Co Ltd	- Hend Co
- Brookwood Medical Centre	- Evian Co	- Etag Co	- Peat Marwick & Mitchell Co	- Carhart Overseas Ltd
- The Coca Cola Co (bottling only)	- Societe General Industrielle	- Oetker	- Total	- Inter-can Development Co
- Pioneer Hibred Int'l Inc	- Credit Lyonnais	- Hochst	- Guiness Peat International	- Capsule Technology International Ltd
- Brown & Root Int'l Co Ltd	- Travaux du Sud-Ouest	- Steinjuller	- Chloride	
- Arthur D Little Int'l	- Legrand Co	- Volgswagen	- Vita International	
- Rank Xerox Holding	- Concorde Hotels Co	- Bayer	- Acrow	
- Ardman Ice Co	- Vestia Union	- Wagner Co	- Thomas Cook	
- Chemtex Fibers Co		- Helmut Luz Bavaria Co	- Silka	
- International Multifoods Corp		- Daimler-Benz AG	- Rothmans	
- Colgate-Palmolive Co			- Int'l Drilling Fluids	
- Union Carbide Corp			- Johnson Wax	
- Ford Motors Co				
- American Motors Corp				
- General Motors Corp				
- Squibb Co				
- General Electric Corp				

Source Compiled by the author from various sources

Table 4 Global Distribution of Foreign Affiliates of TNCs from Selected Home Countries Operating in Egypt in 1980

Country of Origin	Affiliates of TNCs in Egypt as a percentage of total in	
	The World[a/]	Africa[b/]
Belgium	2 5	4 7
Denemark	0 7	3 2
West Germany	0 3	1 8
Finland	5 8	--
France	0 1	0 2
Italy	1 2	4 8
Netherlands	0 5	1 8
Sweden	0 2	2 2
Switzerland	0 9	7 1
USA	0 1	2 0
G B	--	0 3
All countries	0 2	1 1

Source UNCTC, Transnational Corporations in World Development Third Survey (Sales No E 83.II A 14, ST/CTC/46 and Corr 1), (a) p 319 (Table II 17), (b) p. 323 (Table II 18)

B. Foreign Investment Policy

The amendments introduced in 1977 to the Law of 1974, meant to remove remaining problems and obstacles, led to a rapid inflow of investment Some of the measures taken consisted of[1/]:

1 Identification of areas open for investment in which both private and joint venture enterprises are invited to participate Approval for investment in these areas, could be granted within a day,

2 Assigning to The Investment Authority the responsibility for obtaining all the approvals and licenses required from Government agencies within a maximum of sixty days of application,

3 Establishment of a permanent committee at the Ministry of Finance to settle disputes with the Customs Authorities,

4. Setting energy prices at one fifth of international prices for projects involved in the production of bricks and cement,

---

1/ GAFI "Projects Approval under Law 43/1974" (Vol 5, No 5, January 1985) p 7

The Government also urged business organizations and associations to arrange regular meetings with concerned Ministers to exchange views and to discuss problems affecting business performances, and undertook not to pass resolutions or acts affecting business before listening to and exchanging views with the parties concerned

In exchange, the Egyptian Government had some expectations amongst which, a commitment on the part of the business community working in Egypt, local as well as foreign, to help secure more investments The boost to investment is reflected through the facilitation of the procedures, whereby of the 9500 applications to import, less than 6 percent were denied[1/]

C. Laws With Direct Effect on Technology Transfer in Egypt

An assessment of the situation in the early 1980's showed that there had been very little patented technology or trademarks in use Licensing was in itself relatively limited However, with the rapid growth of foreign investment and the growing awareness that the supplier of technological know-how can be different from the supplier of machinery and equipment, the need for licensing agreements became more important

1. Patent[2/] law in Egypt

Egypt is a member and a signatory to the (1939) Paris Convention for the protection of Industrial Property since 1952, the World Intellectual Property Organization (WIPO) since 1975, the Patent Co-operation Treaty (PCT), the Agreement of the Hague concerning the International Deposit of Industrial design, the Agreement of Strasbourg concerning the International Patent Classification (since 1977) It has an examining system and patents given in Egypt are valid for 15 years and, industrial design for 10 years The Patent Office in Egypt is currently affiliated to the Academy of Scientific Research and Technology, while up to 1969, it was part of the Ministry of Supply The Office holds more than 3 million patent documents of which 14000 relate to patents registered in Egypt, with 95 percent of the patents being foreign Apparently local firms rarely use the Office for information purposes The main function of the Office is to provide conditions under which foreigners will be assured that their industrial property is recognized and protected in Egypt It is therefore still far away from the screening of technology acquired on the international market

The basic law on patents is the "Law on Patents, Design and Industrial Models" (Law No 132 of 1949 as amended by Law No 65 of 1955) All inventions can be registered for a patent with the exception of two cases

---

1/ Ibid

2/ A patent is an "exclusive right granted under the law, relating to the exploitation of a technical invention" WIPO, Legal Aspects of License Agreements in the Fields of Patents, Trademarks and Know-how, (Geneva, 1972) p 92

- When the invention has already been publicly used in Egypt,
- When drawings have been published or a patent has been issued in the preceeding fifty years

Similarly, a patent is not granted in case of inventions the exploitation of which would be immoral or would lead to public disorder (Art 2, Section 1, Chap 1)

Some of the relevant procedures relating to an application for a Patent are

1 Substances are not patentable, but the process of their production are, thus preventing situations which may create monopoly in the market and avoiding unnecessary legal protection for aspects which should be accessible to anybody (Art 2/b Section 1 Chap 1),

2 Patents for inventions are valid for 15 years after date of application, subjet to a five-year renewal period or 10 years in the case of chemical processes relating to foodstuffs, medicine or pharmaceutical composition (Art 12 Section 1 Chap 1) The period of legal protection with respect to industrial designs and models[1/] is five years with the possibility for extension up to two additional years

3 The Patent's Office may grant a compulsory licence[2/] when a patent has not been exploited in Egypt for three years after being granted, or when the requirements of the country are not met by the working of the patent either through insufficient exploitation or through exploitation being stopped (Art 30 Section IV Chap 1),

4 The State may expropriate a patent for reasons of public interest or national security This is the case for instance when the invention can be useful for military application (Art 33 Section III Chap 1)

On the whole, about 800 to 1000 applications are made each year originating from both national and international sources and of which some 150 to 200 are submitted by Egyptians Usually 350 to 450 applications are accepted per year

The procedure for granting patent, in its current form, is considered as archaic and unsuitable for the technological requirements of the country

---

1/ Industrial design or model is defined as " . every arrangement of lines or every form in relief, with or without colours, with the intention of using the same in industrial production by mechanical or manual or chemical means" (Law no 132 of 1949, Ch II, Art 37)

2/ The Patent Office is "allowed to grant a compulsory licence for the exploitation of the invention to any person to whom the patentee has refused to grant the right of exploitation or on whom he has imposed exorbitant financial conditions for this situation" Egypt's Law on Patents for Inventions Design and Industrial Models (Law no 132 of 1949) p. 12

2. Trademark[1/] law

Egypt is a member of the Agreement of Madrid on International Registration of Trademarks The Trademarks Registry is under the supervision of the Ministry of Commerce

The Law applicable in Trademarks is the Trademark Act of 1939 and as amended in 1956 The conditions imposed on trademarks are not too stringent, they relate to the type of mark that may or may not be registered, to their period of validity and to their scope, such as

1 Trademarks cannot be registered unless they are distinctive They are not registered if they are simply descriptive or mere pictures or representation of products, or violate public order or morals, or are emblems, flags or similar symbols or, are illegal marks and marks that mislead or confuse the public,

2 Trademarks are valid for ten years from date of application and can be renewed indefinitely for similar periods,

3 Licensing of trademarks is allowed for production intended for exports,

4 Goods destined for the local market are less likely to obtain approval for trademark licensing and particularly the approval for royalty payment for the use of the trademark

3. Licensing[2/] law

Among the many weaknesses detected in the legal instruments relating to technology transfer, is the fact that Egypt had no specific law or legal provision concerning licensing agreements authorizing the use of patents, trademarks, technology or know-how These agreements are usually approved by the General Organization for Industrialization (GOFI) The agreements could sometimes involve payments of royalties They have a duration of 5 to 10 years and are automatically renewable from year to year unless terminated by one of the parties or by both

Licensing fees are not covered by any special law They are usually subject to negotiation between the local firm and the foreign partner in order to determine royalties, lumpsum payments and/or management fees The royalty depends on the terms of the contract and usually ranges between 2 and 5 percent of the unit price of the product in question

---

1/ A Trademark is "a visible sign, protected by an exclusive right granted under the law, which serves to distinguish goods of one entreprise from those of other entreprises" Op Cit, WIPO, p 3

2/ - A license is "the consent given by the owner of an exclusive right (licensor) to another person (licensee) to perform certain acts which are covered by an exclusive right, or consent to use know-how"
- A license agreement is "the contract between a licensor and a licensee on the granting of a license"

D Legal Framework Relating to Foreign Investment

1 Main features of Law 43 of 1974, as amended

The main features of law No 43 of 1974 as amended by law No 32 of 1977, relating to foreign investment can be summarized as follows

a Investments geared towards the realization of economic and social objectives, within the framework of Egypt's general policy and national plan are approved whenever foreign expertise or foreign capital are required;

b The main fields open for investment are manufacturing, mining, energy, tourism, transport, housing and urban development, construction, contracting, technical consultancy, investment and merchant banks, investment companies which aim at utilizing funds in the fields hereby enumerated and, reinsurance companies,

c. Special priority is accorded to projects designed to generate exports and reduce the need to import basic commodities as well as to projects involving advanced technology or which make use of patents and trademarks of worldwide reputation;

d Licenses in the free zones may be granted for manufacturing, assembling, processing and other operations, and for storing of transit goods as well as mixing, and repacking, i e adapting goods warehoused in the free zones to the requirements of the market

2 Taxation and fiscal incentives

Foreign investments are exempted from certain taxes and customs duties in the following manner

a Net income is exempted from the tax levied on commercial and industrial profits and from other types of taxes such as basic tax, defense tax, national security tax, etc for a period of five years, from the first fiscal year, following the start of production Similarly, there are tax exemptions for the same period on revenues from

- profits that are distributed,
- profits that have been reinvested in the project,
- profits that have not been distributed but which have been earned during the exemption period and distributed after the lapse of the said period, and
- special reserves allocated to consolidate the financial position of the company

The exemption period is extended to eight years when it is in the public interest to do so, taking into account the nature of the project, its location, its importance to economic development, the value of its capital, or the extent of its participation in the exploitation of natural resources and in increasing exports Finally, for projects involving reconstruction, establishment of new cities, outside the agricultural land and the perimeters

of existing cities and land under reclamation, the tax exemption period could extend from ten to fifteen years

b After the expiration of the tax exemption period, up to a maximum of 5 percent of profits that are distributed by the project are exempted from the general tax on income,

c All capital assets and imported construction material and components necessary for approved projects are entitled either to a deferral of customs duties and other taxes or to their exemption, after appropriate approval is obtained,

d Shares are exempted from the annual proportional stamp duty for a five year period, and finally,

e No taxes or fees are imposed on interest due on loans obtained in foreign currencies by the project

These exemptions reflect clearly the Egyptian Government's will to offer the maximum of incentives to private investments in general and particularly to foreign investments

In addition to these general incentives, there are some special incentives applicable to investments in the free zones, namely

- Goods exported from, or imported into the free zones, as well as instruments, machinery, production equipment and transportation equipment, are exempted from custom duties and other taxes and dues,
- Projects established in the free zones and related dividends are exempted from the provisions of Egyptian tax and duty laws,
- Transactions carried out in the free zones or between such zones and other countries are not subject to the provisions of exchange control laws,
- Imports into and exports from the free zones are not subject to any restrictions,
- Wages, salaries, compensations and the like paid by projects existing within the free zones to their expatriate employees are exempted from the general tax on income,
- Egyptian employees engaged by projects and establishments within the free zones are not required to secure a government permit to work for a foreign organization, while foreigners are required to secure a work permit only from the zone's Chairman of the Board,
- Projects established in the free zones may not be nationalized or confiscated and the assets of such projects cannot be seized, blocked, confiscated or sequestrated except by judicial process,
- Fiscal incentives granted to inland foreign investors are also applicable to those in the free zones

In addition, there are a number of bilateral agreements with various countries which provide extra incentives and guaranties to nationals of those countries For instance, the investment protection and encouragement

agreements with the USA, West Germany, France, the United Kingdom, Japan, etc There are also agreements with the United Kingdom and the USA against war, unrest, nationalization and expropriation

Other laws which could affect TNCs activities in Egypt, are[1/]

- The Egyptian Code of Commerce,
- Law No 26 of 1954 concerning joint stock companies, partnership, and limited liability companies,
- Law No 14 of 1939 and law No 99 of 1949, both as amended by law no 46 of 1978 (Income Tax Reform Law),
- Law No 224 of 1951 as amended (Stamp Duty),
- Law No 91 of 1959 (Labour Code),
- Law No 120 of 1975 (Central Bank and Banking System Law),
- Law No 43 of 1974 (Relating to foreign banks in Egypt),
- Law No 163 of 1975 (Pertaining to the Central Bank of Egypt's authority to supervise and control the banking system),
- Law No 97 of 1976 (Regulating transactions in foreign currency),
- Law No 66 of 1963 (Customs Code),
- Law No 49 of 1968 (Governing entry and residence of foreigners),
- Law No 66 of 1953 and law No 86 of 1956 (Relating to petroleum),
- Law No 118 of 1975 (Regulating imports and exports)

E Assessment by ASRT of Existing Laws and Regulations Relating to Technology

The multiplicity of legal instruments directly related to technology transfer, patent law, trademark law, licensing agreement and industrial property treaties appear to have played a relatively limited role for an effective screening of technology imported through TNCs channels As in many other developing countries, they were perceived more as simple administrative procedures which the law of the land required In this respect they were applied "passively" and lost their policy aspect

Two kinds of laws can have an influence on technology transfer. the laws which are enacted to regulate aspects of social and economic life , which are unrelated to technology transfer per-se but could have an indirect effect on it, and, the laws which are enacted specifically to regulate technology transfer In most developing countries, it is the first kind of laws which usually prevail With very few exceptions, found mostly in Latin-America, technology transfer laws are usually non-existent due either to the lack of sufficient awareness as to the importance of regulating technology transfer and technological development or simply due to the lack of adequate competences

---

1/ UNCTC National Legislation and Regulations Relating to Transnational Corporations (United Nations; Sales No E 83 II A 7, ST/CTC/26, New York, 1983) p 122

In Egypt, the Academy of Scientific Research and Technology (ASRT) sees legislation as a " fundamental instrument in the implementation of the technology policy by translating its orientation into general rules which clarify and regulate practices in an increasingly important field"1/

The Academy has set-up a Committee on Transfer of Technology to "prepare an inventory of the national legislation, and related economic and administrative arrangements concerned with the transfer of technology"1/

1 Technology-related legislation prior to 1986

Technology-related legislation includes the laws that have an immediate and direct effect on technology transfer and the technological development of Egypt However, these laws need to be amended or completed in order to be of significant (direct) effect on technology transfer and technololgy policy These laws, as commented upon by the ASRT (hereafter referred to as the Academy), are

a The Patents Act No 132/1949

This Act needs to recognize the interests of technology suppliers, while protecting national interest The institutions responsible for its implementation also need strengthening

b The transfer of technology legislation

Its aims should be seen as much broader than mere regulation of technology imports It has to " provide a legal instrument for maximizing the benefits reaped by the society from the imports of technology and assure that such efforts complement local efforts"

c Investment Law No. 43/1974, (as amended)

" which embodies elements of critical importance for potentially motivating and rewarding relevant and profitable contribution to national technological capabilities " This law should make it possible to grant distinctive privileges to foreign investors showing a willingness to transfer technology and to contribute to endogenous technological development

d. Organization of Industry Law No 21/1958

Modern technological concepts and practices could be introduced in new industrial projects through the introduction of some modifications to this law, which is an old one

---

1/ ASRT "Technology Policy Statement" (National Technology Policy Seminar, III/2, 1983) p 16

e. Law No. 69/1973 on Professionals in Scientific and Technological (R&D) Institutions

For the generation and development of technology, this law could be amended to provide professionals in technological and scientific institutions with an adequate framework

2. Indirect technology-related legislation

The Academy includes in this category all laws that have " the potential of affecting, to varying degrees, the process of technological development", such as customs law, law on importation and exportation, law governing civil servants in the Government and public sector, companies law, education law, taxation law, commercial agencies act, labour act, act on commerical registration, act on industrial registration, currency act

Again, these laws need to be ammended and be given adequate interpretation before acquiring some kind of effect on technology transfer or development

There are also some registration procedures with many bodies which could be converted easily into screening procedures and which in their current form do not go beyond simple administrative procedures, such as

- Registration with the Industrial Registry under Law 24 of 1977, which requires the firm to voluntarily disclose its ownership, location, manufacturing capacity, product-mix, and particularly foreign payments for technology In this latter case where foreign exchange is paid for technology, the registration of the technology agreement with the General Authority for Investment (GAFI) is also required;

- Registration of machinery and/or technology with the Ministry of Justice (attestation of the parties to the contract, date of agreement execution etc)

Similarly, there were a number of appraisal procedures but which fell short of real technology screening procedures, such as the techno-economic appraisals of the General Organization for Industrialization (GOFI) and those of the General Authority for Investment (GAFI)

The appraisal of GAFI of the joint-venture projects, includes in particular an assessment of the free currency input of the foreign partner, and the reasonability in the capitalization of know-how, intellectual property (patents, trademarks), and machinery and technical services supplied by foreign partners However, no special attention was paid by GAFI to the technology licensing agreement or to contracts pertaining to technology related services

One of the major deficiencies is the lack of legal and regulatory instruments and procedures which could have been used by these bodies to undertake an effective screening of technology acquired through TNCs channels

---

1/ ASRT "Science and Technology Instruments (STPI)" General Report, December 1979

CHAPTER II STRATEGIES AND POLICIES USED BY TNCs TO TRANSFER TECHNOLOGY TO EGYPT

A TNCs and Transfer of Technology Channels to Developing Countries

The definition of technology is a controversial issue In this report, "technology" is defined as a mixture of hardware and software, embodied in machinery and equipment or in skills, and disembodied in licenses and know-how Technology must be considered as a final output of a long and complex process of basic application and research[1/] Most of modern technology is produced in and by industrialized countries to meet their specific needs

Sales of technology-based goods to developing countries have been growing at a relatively rapid pace in recent years Exports of capital goods from the OECD countries to developing countries grew from $ 17 billion in 1970 to over $ 131 billion in 1980 at an average annual growth rate of 22 percent[2/], and fell during the recession of the early eighties to $ 121 billion in 1984 and 1985[2/]

Foreign direct investment (FDI) has been a predominant channel for TNCs operations in developing countries. It was widely believed that transfer of technology could occur through this channel " as it involves the physical relocation of entire production systems combining, in a single package, capital goods and a number of forms of disembodied technology"[1/] A close examination of this type of channel as well as the experience gained by developing countries through resort to this channel, have unveiled some factors which put in doubt its ability to ensure the transfer of technology to the host countries, such as

- The nature of the relationship between a TNC and its affiliate or subsidiary is characterized by the complete dependence of the latter on the former and by the centralization of decision-making at the head-office of the home country,

- The centralization of research and development (R&D) at the company head-office leaves very little scope for the affiliate to undertake the type of activity leading to new products or even to a modification of existing ones,

---

1/ Michalet, C A "Transfer of Technology by TNCs Traditional versus new forms" Seminar on Technology Policy in the Arab States - ECWA (E/ECWA/NR/SEM 2/19), Paris December 1981

2/ United Nations, Bulletin of Statistics on World Trade in Engineering Products 1985 (New York, Sales no E/F/R 87 II E 10, 1987) Table 2, p 26

- The diffusion within the host country of the technology applied by a subsidiary is limited Even when local companies are involved, they become "relay-affiliates" Thus, local firms operate more towards the strategy set by the TNC than to fulfill their own aims and growth

With the relative decrease of foreign direct investment[1/], other forms of channels have gradually been used These can be divided into two major categories, namely the integrated form and the unpacked transactional form

a The integrated or embodied form applies when all the technological components necessary for a production unit are put together into a tehnological bundle and sold as such to the technology recipient These technological packages include equipment and machinery, know-how, technical and technological services, and some technical assistance The responsibility of assembling all these components rests solely with the technology supplier, including the various technological and non-technological choices "Generally, this responsibility includes the supply of complete plant and equipment, design and construction of civil work, complete erection of plant and equipment and commissionning of the total plant facilities up to the stage of start-up, including the initial training of process operators"[2/] The role of technology receivers in these arrangements is relatively negligible and is often restricted to local administrative matters The most common types of contracts in this category are the turnkey contracts, the product-in-hand contract or even the market-in-hand contract which has been relatively less used than the two previous ones Respectively, the first one guarantees the operationality of the plant, the second one guarantees the plant output, both in qualitative and in quantitative terms, for the contractual period and, the third one guarantees the sales of the plant output

b The disembodied form of technology transfer (transactions) whereby the various technological components are sold separately,could cover any, or a combination, of the following

- Licensing agreements where the licensee (technology acquirer) is given the right to use technology against the payment of a fee The contract may include in this case know-how, trademarks, patents, technical assistance as well as franchising in some cases A host country resorts to acquiring technology through licensing whenever it has restricted foreign equity ownership in some or all sectors Licensing is resorted to by the technology owner as a risk minimizing strategy in cases where the possibility of losing the technology exists, and whenever this approach serves his strategy,

---

1/ Foreign direct investment has decreased in the seventies as compared to the sixties data from the OECD-DAC in constant dollars, show that the growth rate of foreign direct investment decreased from 6 1 percent in the 1960-1970 decade to 3 0 percent in the 1970-1978 period Similarly, and with few exceptions, the share of foreign direct investment in the total flow of investments into developing countries has declined since the mid-seventies

2/ UNCTC, Transnational Corporations in World Development. Third Survey (United Nations, Sales No E 83 II A 14, ST/CTC/46, New York, 1983) p 172

- Management contracts through which a foreign firm is given the responsibility to manage an enterprise for a set time It is a convenient mechanism for securing the management and technical services of TNCs while retaining the ownership and some measure of control on the local enterprise[1/] This usually includes the training of local personnel but excludes the supply of equipment The undeniable attraction to TNCs of this channel stems, according to some analysts, from the fact that it may not be very different from the wholly-owned subsidiary in terms of the degree of control of the undertaking and the distribution of financial benefits Besides, these arrangements have the merit of being in accordance with the ownership aspirations of developing countries and therefore less vulnerable politically,

- Marketing contracts, through which, a foreign firm is given the responsibility to market the output of the enterprise,

- International sub-contracting is also a growing type of cooperation between a principal, generally located in an industrialized country, and a sub-contractor in a developing country A sub-contracting agreement can result either from host country regulations concerning mandatory local content ratio or from a compensation agreement which forces a foreign firm to export part of its output Sub-contracting could also exist between a TNC subsidiary and a local firm,

- Finally, the joint-venture channel which exists in various forms It implies the sharing of ownership between a foreign supplier and a local firm Even though it is widely believed that the joint-venture channel offers greater opportunities for effective transfer of technology to developing countries, in practice, it all depends upon the terms of the agreement, since majority ownership of equity by local partners does not guarantee in any way access to technology, as experience has shown Even in situtations where TNCs appear to favour some technology transfer to local recipients, chances are that the technology is mature, less firm-specific and not changing very rapidly, loss of control in this case would be less costly Joint ventures with TNCs can be found in the public as well as in the private sector

There are also mixed forms which might be used following a negotiated deal between suppliers and recipients of technology for example, a turnkey plus a management contract, or a licensing agreement plus a technical assistance contract

Although TNCs have a wide range of channels to choose from whenever "transfer of technology" is involved, yet, foreign direct investment appears to be a preferred channel considering their reluctance to have to face any form of interference by the host country representatives in their activities However, the nature of the technology involved plays an important role in the

---

1/ Ibid, p 263

choice of channels of participation of TNCs Thus "where the technology is relatively new and/or highly firm-specific, the evidence is that transnational corporations place a high premium on retaining absolute control over their technology-based advantage through the establishment of wholly or majority owned subsidiaries "1/

TNCs select channels which allow for the maximization of returns2/ This view which gives the technology receiver a relatively passive role in channel selection for technology transfer is substantiated by some evidence in the case of Egypt where the belief in some official circles is that there is no real selection of channels when dealing with foreign suppliers particularly when these are TNCs

B. Financial Mechanisms used by TNCs in Technology Transfer

The choice of a channel by a TNC for technology transfer into a developing country determines the way through which profits are made and transferred abroad In the case of TNCs, more than in any other case, the repatriation of profits is perhaps just as important as the earning of that profit

---

1/ Data concerning 3291 large TNCs for 1977, indicate that foreign direct investment is concentrated in industries characterized by high and medium research intensity . Comprehensive data appear to exist only for the US TNCs for 1977, while very few developing countries collect data on trade inflows by type of ownership This is true for trade figures in general and no doubt it is also true for data relating to flows of technological products and services Of the total USA trade associated with TNCs, 59 percent constitute flows between unaffiliated parties and 41 percent were intra-firm flows. Thus, intra-firm transactions are an important component of the trade conducted by TNCs

TNCs in United States Foreign Trade 1977

Trade (export & import)	Amount (billion of dollars)	Share in TNC-related trade	Share in US trade percent
- Arm's length	149 0	59	53
- Intra firm	105 0	41	38
- Total TNC-related trade	254 0	100	92
- Total US trade	278 7	--	100

UNCTC Transnational Corporations and International Trade. selected issues (New York, February 1985) p 3

2/ Langdon, S "Technology Transfer by Multinational Corporations in Africa Effects on the Economy" Africa Development - (Vol II, No 2, Codesria April/June 1977). p 99

A variety of financial mechanisms exist for the TNC to transfer its earnings out of the host country, some of these mechanisms are specific to TNCs activities, while the others are unrelated to the identity of the suppliers These mechanisms are closely linked to the type of channel used, thus·

- In the case of joint ventures payments are explicit;

- In the case of licensing agreements, payments take the form of lump-sum fees, running royalties, shares in profits, issue of equity, payment on an "as used" basis,

- In the case of management contracts, payments take the form of a share in sales or profits, lumpsum payments, payments of fees on a "service rendered" basis,

- In the case of technical services contracts, payments include consultancy fees,

- In the case of turnkey contracts, payments are scheduled over the life of performance of the work Front-end payments are made to initiate project planning and design and installments at various stages of project completion Two payment methods have been used in recent years the fixed price arrangement whereby a price agreed upon by the two parties is paid to the supplier according to the above scheme The other arrangement is the cost plus fee arrangement whereby, the recipient bears all the costs incurred and pays on top of that a fee agreed upon beforehand; this fee being either fixed or proportional to the total value of the contract

- Transfer pricing. is one of the mechanisms used specifically by TNCs and their affiliates in the case of foreign direct investment, although some argue that it may be used between unrelated parties such as in the case of joint-ventures Transfer pricing is also called "price manipulation" which is self-explanatory Indeed, the existence of significant volumes of intra-firm trade between TNCs and their affiliates, gives rise to the possibility of price manipulations with a view to maximizing global after-tax profits The whole mechanism of transfer pricing is usually based on the way TNCs invoice goods and services to their affiliates Thus, if income tax rates are higher in host countries than in their home countries, by under-invoicing exports, over-invoicing imports or assessing charges of various kinds on their affiliates, TNCs can transfer profits from their affiliates to the parent company in the home country There are reasons which push TNCs to use transfer pricing A study on Brazil has identified five major factors influencing transfer pricing behaviour both for over-pricing and for under-pricing during the period 1972-1977 Over-pricing of imported goods counterbalanced the existence of government imposed price controls and, the limits on the official repatriation of profits, not to mention the desire to reduce taxes on profits Under-pricing of imported goods reduced tariff payments and helped in evading the impact of credit controls

On the whole, transfer pricing is perceived as detrimental to the balance-of-payments of host countries, even though it may be a necessary evil when foreign direct investment is permitted while tight exchange controls and restrictions on the repatriation of profits exist Nonetheless, it remains a

matter of concern to host countries, particularly in developing countries where the balance-of-payments are relatively fragile and can be easily affected

It was estimated that receipts of OECD countries from developing countries in the form of royalties and fees and renumeration for technical services grew at an annual average rate of 15 6 percent during the 1970s from $ 610 million in 1970 to $ 2,620 million in 1980

There are no reliable data in Egypt on the cost of technology imports, disaggregated by type, and no comprehensive analysis of contracts containing technology components Studies on indirect pricing for technology remain relatively rare

A study made on Egypt in 1981 found that "Only rarely do the contracts associate charges with specific items Usually, some aggregate price is established or assigned to a particular part of the contract and on that basis, payment is made"[1/] The situation does not seem to have improved since then as it was pointed out that "Some contracts did not specify the price for each of the technology component"[2/]

C Past Assessments of Egypt's Efforts in Technology Transfer 1980 and 1985

The "October Paper" of 1979 in which the President of the Arab Republic of Egypt addressed the Nation on a new development strategy, highlighted the importance given to the technology issue through the following objectives

a To raise the rate of development by polarizing foreign capital and associated advanced technology,
b To adopt an "Open Door" policy, in order to attract the most modern technology,
c To launch an overall revolution in education and scientific and technological research, and to build up stronger links between the universities and scientific institutions and the production sector,
d To put on top of all the priorities the need to support science and technology research centres,
e To enter a new era of science and technology through building up of Egypt's endogenous capabilities relying on the existing appreciable number of scientists and engineers,
f To consider expenditure on science and technology as investment in heavy industry,
g To act as partners in the field of imported technologies by adapting these technologies to suit the local environment,
h To use modern technologies in the conquest of the desert,

1/ UNIDO, "National Registry for Technology Transfer Egypt" DP/EGY/78, October 1981, (based on the work of P O'Brien) p 46

2/ Hebeish, A "Country Paper of the Arab Republic of Egypt" Seminar on Policies for Technology Transfer and Development - (Helsinki, October 1985), p 7

An assessment made in 1980 of the "technology transfer" situtation in Egypt indicated that[1/]

- Most of the technology the country was employing belonged to the sixties,
- Most of it was machine-embodied,
- Practically none of it was from transnational corporations

Suppliers of equipment and machines were also the suppliers of technology in its disembodied form such as technical assistance and training of plant personnel, which indicates that attempts to diversify the sources of technology and to unpackage the technology bundle were relatively limited Thus, the use of patented technology and trademarks over which the typical obligations of a license would prevail was relatively limited during the period This "passive acceptance" of contractual terms relating to technology transfer also applied to inter-governmental technical cooperation programmes of the public sector with the Eastern Bloc However, this latter issue is out of the scope of this study A round-table discussion on "Current Perspectives on Technological Development in Developing Countries and Their Relevance to Egypt" held in 1981 concluded that

"The country (Egypt) seemed to be going backward Whereas in the 1950s and the 1960s, turnkey industrial projects were comparatively rare, a fair amount of licensing did take place, and it could be said that the country was following a pattern of unpackaging of technology imports, the situation was the reverse these days Joint-venture projects were frequently turnkey "[2/]

The report[3/] showed that in 1979, among 96 agreements, then in the process of being approved, 87 (91 percent) were for the sole purchase of machinery, 8 (8 3 percent) were for the combined purchase of machinery and technology and only one (1 percent) was for a straight forward licensing agreement for foreign technology The reasons put forward were·

a Due to the pressures for augmenting production capacity, emphasis was put on machine embodied technology while few agreements covered disembodied technology per-se,

b The adopted rapid administrative procedure led to relatively little evaluation of these agreements,

c Many public sector firms resorted to joint-ventures as they sought to obtain cash and technology to survive under the new conditions

The above-mentioned study revealed that Egypt had a real shortage in management capabilities and yet resort to management contracts with TNCs was relatively limited

---

1/ UNIDO "National Registry for Technology Transfer Egypt" (DP/EGY/78/001 - May 1980, (based on the work of V R. Arni)) Op Cit, p 74

2/ Ibid Appendix IB - p 1

3/ UNIDO Op Cit, p 78

The form of the technology package differed according to the size of the enterprise Thus small enterprises used mainly machine-embodied and technician-embodied technology with very little use of disembodied know-how and patents This is particularly the case in the agro-industrial sector where there was a diversity of technology sources Large enterprises did not exist in that sector and had not therefore experienced any predominant form of technology imports[1/]

A more recent assessment of the situation[2/] made in 1985 concluded that·

a The technology which was imported into Egypt since the implementation of the "Open Door" policy retained its foreign entity with limited local content

b. In most cases, Egypt received the foreign technology in the form of "package" or turnkey projects under the belief that this is "the most viable alternative to quickly develop the capacity for economic production and in accordance with the state of the art". This meant that suppliers were responsible for project design, machinery provision, buildings, training of operatives In some cases, their responsibility was extended to the initial implementation of operations until the quantity of production agreed upon was reached, in which case the contract was a "product-in-hand" contract[3/]

c In few cases, the receiver has implemented his projects through unpacking of the technological bundle; involving acquisition of license, product and production know-how, patents, technical assistance, basic and detailed engineering, management and admimistrative services through the utilization of management contracts and finally training In the industrial sector, the major types of unpackaged deals were technical assistance agreements, licensing agreements, engineering contracts and patent rights[4/]

The technology flow into Egypt is judged inacceptable by concerned Egyptian officials and scholars, such as the Academy of Scientific Research and Technology (ASRT) This has resulted from a series of shortcomings caused by an excessive use of technological packages (integrated forms of technology transfer) The shortcomings can be grouped into four separate categories

a Shortcomings related to the technology

- Most of the contracts did not specify precisely the technology required for implementation,

---

1/ UNIDO "National Registry for Technology Transfer in Egypt" DP/EGY/78/001 - May 1980 (based on the work of V R Arni), Op cit, p 8

2/ Hebeish, A , Op cit, p. 5

3/ The view held by GOFI is that Egypt has not used turnkey contracts in their pure form since 1958' Rather, the contracts used were semi-packaged deals involving to some extent local suppliers

4/ The figures regarding the number and the types of contracts were, unfortunately, not disclosed by the Contract Office of the Technology Transfer Division of GOFI

- Nothing was mentioned in the contracts indicating the necessity for making use of local facilities and for the adaptation of technology to the Egyptian conditions

b Shortcomings related to the technology supplier

- The supplier had the right to select his experts without consulting the receiver,
- In most of the projects, the supplier had a free hand in project management, in determining and selecting the Egyptian labour force, in supervising the production and preparing its programme without any guarantee for the receiver who will then bear all the losses;
- The supplier employed foreign experts with fantastic salaries

c Shortcomings related to the technology receiver

- More than one receiver made contracts with the same supplier for the same technology but with different contractual conditions,
- In some instances, the receiver contacted only one supplier to acquire technology rather than a group of suppliers to obtain the best possible conditions;
- In some instances, contracts for importing and installing machinery and equipment were signed, and as an after thought, contracts for the know-how related to these components were later on negotiated and signed

d Shortcomings related to the contract itself

- Some contracts did not specify guarantees by the supplier regarding production volumes, the quality of output, maximum industrial costs, etc ,
- Some contracts did not specify the price for each of the technology components, nor the prices of materials to be provided by the supplier,
- Some contracts did not mention the cost of production or an estimation of it,
- Some of the contracts included some highly unrealistic conditions

This is on top of the variety of restrictive clauses which technology recipients were subjected to in Egypt and which will be looked at in more depth in the following Chapter In 1984, the Academy of Scientific Research and Technology produced a document in which the National Technology Policy was formulated In this document, it was clearly stated that " Unpacking imported technology and the assessment of the possibility of introducing national technology in the transfer process must be included" in contracts and that " turnkey projects are entirely unacceptable"[1/]

1/ Hebeish, Op Cit, p 14

CHAPTER III IMPACT OF THE CONDITIONS IMPOSED BY TNCs ON THE USE OF TECHNOLOGY TRANSACTIONS IN EGYPT

The various channels used by TNCs to transfer technology are subject to conditions designed to guarantee the expected level of return on investment and to protect the market position of the technology supplier

The bargaining power of technology suppliers, particularly TNCs, is stronger than that of recipient developing countries, due, inter-alia, to the following

1 The information gap is in favour of TNCs given the recipient's inability to collect, analyse, store and process information on the product, the technology, the market, the supplier and the transaction under negotiation,

2 The competence gap is in favour of TNCs considering the various specialists, working as a team, in negotiating a deal, faced usually with a less qualified smaller team from the recipient firm Moreover, lack of coordination of the various national entities involved in the negotiations widens the organizational gap, to the detriment of the recipients, and,

3 The experience gap, is also in favour of TNCs considering the accumulated experience of their teams, through numerous and varied negotiations with developing countries covering the scope of their operations across borders and cultures

The bargaining power of TNCs is thus reflected through the conditions which are imposed on technology transfer transactions and which often, restrict the scope of action of the technology recipient

TNCs impose their conditions not only on affiliates but on any form of association including joint-ventures with local partners, be they public or private firms In 1985 these conditions were described in the case of Egypt as " so unrealistic that one ought to say that the receiver was not aware of the simplest concepts of contracting for technology transfer"[1/]

On the whole, four broad categories of restrictives practices imposed by TNCs in technology transfer transactions can be identified

- Clauses that permit the over-pricing of technology and thereby restrict access to it,

- Clauses that have the effect of prolonging technology imports such as tie-in clauses for inputs, restrictions on competing supplies, raw materials specifications, excessive quality control measures and obligation to introduce unnecessary design changes,

---

1/ Hebeish, A , Op Cit, p 8

- Clauses that have the effect of restricting the assimilation of the technology made available such as restrictions on the diffusion of technology, limitations on the recipients' access to technical changes and improvements and, on the use of technology after the expiry of the agreement,

- Clauses that restrict production capacity and limit the scope of learning

A Conditions Imposed by TNCs on Technology Transactions in Egypt

At the Second Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development, Egypt presented a country paper[1/] which concluded that "some unfavourable factors" existed in the transfer of foreign technology, namely

- Imposition of expatriate personnel,
- Export restrictions,
- Unfair rights of supervision over production,
- Restrictions on the right to contract with third parties,
- High royalties

An evaluation of the contracts held at GOFI relating to Egypt's industrial sector revealed conditions resulting from the superior bargaining power of the supplier as well as from a relative neglect and lack of competence on the part of the acquirer These inlcuded

- Lack of sufficient technological details in the contract and particularly lack of details and specifications for raw materials, components, and machinery,
- Lack of details regarding quantities, quality and standards, and finally,
- Weakness of guarantees, warranties and penalties in the contracts

The range of conditions imposed by TNCs was even broader as the field investigation conducted in Egypt revealed On the whole, seven major types of conditions were identified

- Relatively high royalties,
- Payment of royalties on patents which had fallen into public domain,
- Often exaggerated payment of indirect costs and hidden costs for technical assistance personnel;
- Additional costs incurred through the imposed use of specific primary or intermediary goods (tied purchases),
- Unnecessary long duration of contracts,

1/ "Second Draft National Paper of Egypt" The Second Regional Preparatory Meeting for UN Conference on Science & Technology for Development (-UNESCO- E/ECWA/NR/CCNF), September 1978

- Supply of obsolete technology,
- Supply of technology which represents a hazard and a danger to local operations and the environment

B. Restrictives Practices

Restrictive clauses are considered to be the most stringent types of conditions imposed by TNCs in these technology deals and are a major source of concern to officials in Egypt

An evaluation of the industrial transactions held at GOFI, found 5 major types of restrictive clauses

- Territorial clauses drastically limiting the potential market,
- Tied purchase clauses whereby all materials and components had to be supplied through the technology supplier or his assignee,
- Clauses related to minimum royalty payment,
- Clauses setting production and sales to a certain ceiling,
- Clauses inhibiting Research & Development activities by the local recipient of technology

The field investigation revealed that restrictive clauses in technology transfer transactions in all sectors were as varied as numerous and consisted of:

- Grant back provisions;
- Export restrictions,
- Tied purchases, requirements to purchase goods from specific suppliers,
- Research & Development restrictions,
- Publicity restrictions,
- Limitations on production volumes,
- Restrictions emanating from the requirement to use certain quality controls and/or to meet standards,
- Restrictions on adaptations related to the type of technology acquired,
- Restrictions on pricing,
- Imposition of certain trademarks,
- Limitations on the horizontal diffusion of technology,
- Imposition relating to the representation of the products in certain territories

These restrictions and stringent conditions are not felt in the same way by all Egyptian firms In the view of some Egyptian officials, restriction on selling to other countries or what is called the territorial clause is felt even more painfully now that there is a major export drive, decreased hard currencies inflow, and expanded capacity to export The other most painful restrictive clauses, according to GOFI officials, are the restrictions on production volumes and the tied purchase clauses which impose that components and materials be bought either from the technology supplier or from one of his assignees

On top of the obvious and explicit restrictions, there are other more insidious types of clauses, which emerge and suddenly become vitaly important, in times of crises between the two parties This is the case, for instance of missing or inadequate guarantee clauses[1/]

In the case of joint-ventures with the public sector, an assessment of the situation showed that some of the new conditions imposed by foreign partners (TNCs) were drastic, given the losses experienced by these joint-ventures These conditions were

- The management had to be foreign (either belonging to the foreign company's permanent staff or personnel recruited specifically by the foreign company for the project),

- Salaries of foreign expatriates, which are non-negotiable, should be taken out of the venture fund and be paid in hard currencies Moreover, these salaries should be totally transferable to the expatriates' home country,

- Foreign expatriates should be given decent accomodation, means of transport and, entertainment allowances

Several reasons were put forward to explain the weak bargaining position of Egyptian firms and the host of restrictive clauses found in technology transfer transactions in Egypt Among the most important ones, besides the information, competence and experience gaps, is the resort to the supplier of technology to also provide financing, which reduces the bargaining position of the acquirer The involvement of foreign capital, particularly from technology suppliers, and which was intended to increase Egypt's capacity to import technology, contributed in a paradoxical manner, in preventing technology from being effectively transferred into the country

C Impact of the Conditions Imposed by TNC's on the Economy of Egypt

The most important indicators that can help to assess the impact of conditions imposed by TNCs on the host economy include[2/]

- Cost of imports and limitations on exports with the expected effect on import substitution policies,
- Limitations on foreign exchange earnings which is a corollary of the preceeding indicator,

---

1/ The reluctance of the supplier in giving adequate guarantees can use several avenues including the semantic one, thus in one contract the foreign supplier would insist on the use of the term "I grant " instead of "I guarantee "

2/ Girvan N , Transnational Corporations and Technology Transfer Effects and Policies Issues (United Nations, UNCTC, May 1985) pp 116-154

- Limitations on complementarity and integration at both national and regional levels Existing potentials for local and sub-regional integration and complementarity can be destroyed by such limitations, thus increasing the partitionning between various sectors of the home economy[1/],
- Limitations on the ability to compete on the international market

There are also other forms of impact which relate directly to the effectiveness and cost of technology transfer to the host economies With regard to this last category, they have been attributed to the alternative forms of technology transfer adopted by TNCs in developing countries The impact can be different from one type of TNC involvement to the other

1 Impact of foreign direct investment

The expected beneficial impact of foreign direct investment and the actual impact resulting from experience can be considered in three main areas

- In the transfer of skills to the local labour force, TNCs appear to have had a relatively negligible impact particularly in the case of African Countries[2/]

- In the stimulation of local technological activities such as the promotion of R&D activities, the development of a capital goods sector, etc ,TNCs impact has been considered as relatively negligible in as much as they tend to concentrate their R&D activities at their Head-Offices to the detriment of local innovation

- In the diffusion of techniques throughout the economy through the establishment of, or support for, linkage industries within the economy, through the turnover of personnel or the secondment of staff to other local industries, and/or through the provision of technical assistance to other entreprises within the local economy Again, this category of impact was limited in scope

---

1/ Djeflat, A "Les Difficultes de l'Integration Intersectorielle en Algerie et la Dependance Technologique", Africa Development, (Codesria, Vol X, No 3 - 1985) pp 137-185

2/ In this respect, the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy of the International Labour Office accords to training a great importance Thus TNCs are urged to ". ensure that relevant training is provided for all levels of their employees in the host country, as appropriate to meet the needs of the entreprise as well as the development policies of the country to participate in programmes with the aim of encouraging skill formation and development and to make the services of skilled personnel available to help in training programmes organized by Government as part of a contribution to national development" Moreover, they should contribute to broaden the experience of local management in suitable fields" (Geneva ISBM-92-2-101896-2, 1982)

The end-results of the impact of TNCs on joint-ventures have generally manifested themselves in the poor performance in up-grading the local skills and competences and in improving the quality of the products made locally; and in the limited scope for technology transfer In most joint-ventures, the transfer of skills is not systematically organized, planned or scheduled, and is expected to occure through the mere contact between the foreign supplier and the local recipient

2 Impact of non-equity forms of TNCs participation

There is a wide variety of consequences which result directly or indirectly from the conditions imposed by TNCs under non-equity forms of participation Much of this impact derives directly from the use of restrictives clauses in the technology transfer transactions and includes the over-pricing of the technology, the prolongation of contracts unnecessarily and hence the imports of technology from abroad, the limited assimilation of imported technology both at the individual level and at the national level through the lack of diffusion, the inhibition of adaptation of the indigeneous creative activity and finally the limited scope for the development of production capacity

D Impact of TNCs at the Macro-economic Level

The impact of the conditions imposed by TNCs' in transactions involving transfer of technology cannot, however, be assessed solely in terms of technological factors, but should also take into account the implications on macro-economic variables such as employment, exports and imports, the balance-of-payments, etc

In the case of Egypt, the general impact of TNCs' operations cannot be measured accurately given the low participation of TNCs in some sectors (estimated at 5 percent in the industrial sector), the "Open Door" policy and the resulting investment Law, which has brought several changes regarding investment, and the difficult access to information[1/]

1 Capital flows

A large share of the foreign capital component in Egypt's total investment originates from important TNCs operating in the fields of banking, petroleum, engineering, pharmaceuticals, contracting, housing, construction, and tourism

1/ The virtually impossible access to various contracts for technology transactions held both at GOFI and GAFI has made it difficult to work out the magnitude of technological overcosts, for example

The contributions of TNCs from the USA and the E E C were respectively L E 302 9 million and L E 404 7 milion, representing 4 percent and 6 percent of the total capital inflow for the period up to the end of June 1985[1/] Foreign capital participation in 1981 averaged 54 4 percent for inland projects and 60 percent for free zone projects[2/] By the end of 1984, foreign participation in projects under the investment law represented 55 percent of total capital amounting to L E 3.6 billion

It is estimated that for the period 1977-1983, branches of foreign banks established in Egypt under the umbrella of Law 43 of 1974, with total capital of L E 40 million, had transferred abroad the equivalent of L E 111 million in profits[3/] These convertible profits had reached the level of L E 195 million by the end of 1984[4/]

.

2 Exports and balance-of-payments

During the period 1976-1985, Egypt's balance-of-payments' current account has shown an annual deficit ranging from a low U S. dollars 411 millions (in 1983) to a high record of U S dollar 2 2 billion (in 1985) Egypt's ratio of merchandise exports to merchandise imports fluctuated in the range of 40 -to- 57 percent, with the trade balance for goods, services and other incomes also showing a continuous deficit ranging from U S dollars 2 2 billion to 6 billions

With the 1979 adjustments in oil prices, Egypt's exports of petroleum rose from 31 percent of total exports in 1979 to 57 9 percent in 1980, thus increasing Egypt's import financing capacity.

1/ GAFI, Facts and Figures (June 1985) Op.Cit, p 1

2/ UNIDO "National Registry for Technology Transfer Egypt" DP/EGY/78, October 1981, (based on the work of P O'Brien) Op.cit

3/ GAFI, Investment Review (Vol 6, No 1, April 1984)

4/ The following table illustrates the situation taking the cumulative total for all capital importing developing countries (billion U S dollars)

	1978	1979	1980	1981	1982	1983	1984
- Net inflow of investment	7 3	9 9	9 9	14 6	11 8	8 7	8 0
- Net profit outflows	-9 1	-10 9	-13 3	-13 2	-13 6	-10 6	-11 5
- Net transfers	-1.8	-1 0	-3 4	-1 4	-0 8	-1 9	-3 5

Source UNCTC, Trends and Issues in Foreign Direct Investment and related flows (U N , New York, Sales No E.85 II A 15, ST/CTC/59, 1985) p 34 table III.6

Table 5 Egypt's Balance of Payments, 1976-1985

(Millions of U S dollars)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Current transactions, n e s	-1431	-1200	-1221	-1542	-438	-2136	-1852	-411	-2081	-2245
Merchandise exports (f o b)	1609	1974	1939	2424	3854	3999	4018	3693	3864	3836
Merchandise imports (f o b)	-3842	-4038	-4743	-6002	-6814	-7918	-7733	-7515	-9250	-8338
Merchandise balance	-2233	-2064	-2804	-3578	-2960	-3919	-3715	-3822	-5386	-4503
Other goods, services, & income (credit)	1220	1639	1719	1960	2662	2938	3202	3570	3512	3442
Other goods & services (debit)	-1260	-1763	-1960	-2193	-2931	-3385	-3820	-3847	-4188	-4400
Other balance	-40	-124	-241	-233	-269	-447	-618	-277	-676	-958
Balance on good & services	-2273	-2188	-3045	-3811	-3229	-4366	-4333	-4099	-6062	-5461
Private unrequited transfers	842	988	1824	2269	2791	2230	2481	3688	3981	3216
Official unrequited transfers, n e s	--	--	--	--	--	--	--	--	--	--
Direct investment	61	98	298	1211	541	747	285	471	713	1175
Portfolio investments, n e s	--	6	4	3	5	7	--	6	1	20
Other long-term capital, n e s	367	199	417	431	405	1275	1105	179	527	490
Total	-1003	-897	-502	103	514	-107	-461	245	-840	-560
Other short-term capital, n e s	-272	-1040	-536	-130	61	36	83	-377	459	-335
Erros & omissions	-31	30	-28	11	35	124	132	213	115	664
Grand Total	-1306	-1907	-1016	-16	609	53	-245	81	-266	-231
For reference										
% of Merchandise exports to merchandise imports	41 9	48 9	40 9	40 4	56 6	50 5	52 0	49 1	41 8	46 0

Source IMF, International Financial Statistics (several issues)

The share of manufactured exports which was in the range of 40 percent of total export in 1979, fell to 22 percent in 1980, due to the adjustment in oil prices which boosted the relative weight of mining in total exports

Several factors are considered to account for Egypt's trade deficits, of which

- Projects established under Law 43 have failed to achieve their export forecast set in the feasibility studies Some 30 companies out of 148 company having export targets had exported, in 1985, goods for around L E 15 million[1/],

- The continuous growth of domestic demand has reduced production surpluses to be made available for exports,

- Most production facilities were running below designed capacity, due to technical difficulties and poor training of local manpower,

- Restrictions on volume and direction of exports of production facilities stipulated in agreements with TNCs had reduced export potential to neighbouring countries in the Arab World and Africa

Foreign direct investments, mainly, from neighbouring Arab countries, and foreign companies, and long-term capital inflow from industrialized countries, in combination with growing remittances from Egyptians working abroad, and growing Suez Canal revenues, have however mitigated Egypt's balance-of-payments situation, thus allowing the materialization in 1980 of a surplus of U S dollars 609 million

For the period 1976-1985, the cumulated deficit in Egypt's balance of payments amounted to 4 2 billions and was mainly inherited from the 1976-1978 period For the period 1980-1985 Egypt's cumulated balance-of-payments deficit was a mere U S dollars 1 million

3 Employment effect

The employment impact of TNCs in developing countries is directly correlated to their choice of technology, which has generally been capital intensive

Emphasis on employment generating investment, with lesser capital intensity, is a choice usually considered by concerned Governments in developing countries, but rarely by TNCs According to an ILO[2/] report

a Technology choices by TNCs subsidiaries are not determined by the level of local wages, and low wages are not an incentive for the adoption of labour-intensive technologies,

---

1/ GAFI "Law 43/1974 Ten Years After" Investment Review (Vol 6, No 2, July 1985) p 3

2/ ILO Employment Effects of Multinational Entreprises in Developing Countries (Geneva, 1981)

b The most important determinant for TNC subsidiaries appear to be the economic constraints facing the firm, the technical specifications and quality standards set by the parent company and the firm's internal innovative drive,

c Host country policies for employment promotion, when they exist, have little if any impact on a subsidiary's technology choice,

d The technology choices and decisions of a TNC subsidiary have three types of clearly identifiable indirect employment effects in the host country These are the "backward" effect or linkages with local suppliers and sub-contractors, the "forward" effect on local distributors and customers, and the "narrow horizontal" effect on local entreprises in the same industry

Published figures regarding employment in Egypt[1/] show several trends

- The main trend is the declining share of agricultural employment accompagnied by increased urbanization of the population at the expense of the countryside Between 1947 and 1976, the share of manpower in agriculture is reported to have declined from 58 percent to 48 percent of total labour force The 14 percent drop went to industrial manufacturing (4 4 percent), to services (3 5 percent), to construction (3 0 percent)and to commerce (2 4 percent)

- The share of manufacturing employment which reached its hight in Nasser's years appears to have been declining since 1970 (quoted period 1970-1980),

- The steady rise in the skill level (i e. non-manual occupations ranging from professionals to sales workers) as reflected in the increase from 12 4 percent of total employment in 1947 to 20 8 percent in 1974, with manual occupations increasing from 24 6 percent to 31 1 percent during the same period

A survey conducted in 1980 reflected some new trends following the "open door" policy and particularly the application of the 1974 investment law· over half of the labour force (estimated at around 10 3 millions) consisted of salaried and wage earners while 40 percent were self-employed and family workers Over half of the labour force was still in rural areas while the share of female workers was below 9 percent of the total The majority of workers in urban areas are salaried employees Overt unemployment was at 5 2 percent of the labour force, while unemployment among females was nearly four times that of males Wages in agriculture had increased from L E 1 0 per day in the mid 1970s to L E 3 0 in the early 1980s The general consensus was that overall unemployment had decreased partly as a result of the rising demand for Egyptian labour in oil-rich Arab countries during the period

---

1/ GAFI "Investment Approval Process" Investment Review (Vol 5, No 2, July 1984) p 8

Regarding the employment effects of projects approved under Law 43 of 1974, some 84 thousand jobs representing 120 percent of the estimated opportunities were created Total wages amounted to L E 200 million in 1983 representing 248 percent of estimated wages and the average wage was L E 2360 per annum[1/]

However, a close look at the situation reveals distorsions in the labour market created by foreign companies as a result of the high discrepancy in some wages paid by these companies compared to the local ones Local skilled and qualified personnel tended to be attracted by higher paid jobs with foreign companies at the expenses of local companies, be they public or private[2/] Similarly, the sectoral bias of foreign investment towards services, tourism and consumer goods, coupled with the quick payback periods sought by foreign partners, have led to an internal brain drain which has taken skilled technical staff away from technological activities into commercial ones[3/]

E. Technological Impact

The impact of the conditions imposed by TNCs on technology transfer to Egypt can be assessed through the following indicators·

Cost of technology

1- Payments for technology imports,
2- Over costing of technology

Expected benefits from technology imports

3- Training and skill formation,
4- Diffusion of technology.
5- Development of technological capabilities and local R&D,

Technology policy

1. Payments for technology imports

Statistics on Egypt's capital outflows are not detailed enough to indicate the share of payments for technological products and services[4/] This is partly due to the inadequate information system and partly to the existence of a variety of channels which can be used to pay foreign companies, namely the public sector, the private sector, the banks, and the "parallel circuit" of currency exchange Experience has shown that although in some deals no royalties were declared, yet payments for "royalties" did occur

---

1/ GAFI "Law 43/1974 Ten Years After" Op cit, p 3
2/ Mazhar, Y K "The role of EIDDC in Egypt" Technology for the people fair, (September 1980) p 2
3/ UNIDO "National Registry for Technology Transfer Egypt" DP/EGY/78, October 1981 (based on the work of P O'Brien) Op cit, p 15
4/ During the field investigation, it was not possible to obtain such figures which, apparently, cannot be found neither with the Central Bank nor with the concerned Ministries

There are however some published global figures that give an idea about payments for technical know-how in the form of royalties, profits, dividends, etc

Thus, Egypt's non-merchandise payments have grown at a steady rate and represented 32 percent of annual average import of goods and services for the period 1980-1985, against 28 percent for the period 1976-1979 The two largest items of the non-merchandise debit account are factor payments (interests, dividends, etc) and payments for "other" services This last item includes remittances of expatriates working in Egypt plus some unidentified and unclassified payments such as interest, dividends and profit remittances The increasing number of foreigners working in Egypt was a natural outcome of the "Open Door" Policy

Table 6. Egypt's Merchandise and Non-Merchandise Imports, 1976-1985
(In millions of U.S dollars)

	1976-1979		1980-1985	
	Amount	%	Amount	%
Cumulative for the period				
Merchandise imports	18625	72 2	47568	67 8
Other goods and services	7176	27 8	22571	32 2
Total imports	25801	100 -	70139	100 -
Annual Average for the period				
Merchandise imports	4656	72 2	7928	67 8
Other goods and services	1794	27 8	3762	32 2
Total imports	6450	100 -	11690	100 -

Source Computed from Table 5

2 Technology overcosts

It is widely recognized that unguided technology as well as the terms under which it is acquired could commit the country to outflows of funds which can seriously endanger its balance-of-payments position These outflows of funds can have a devastating effect on the economy of the recipient country when they take the form of overcosts or cost overruns whose effect on local production are nil and which have to be paid for at the end of the day in one way or another Eventhough it was widely admitted that Egypt suffered these kinds of overcosts, studies on their magnitude and nature are not available There are indications, however, that these overcosts may have been relatively important, like in many other developing countries, in view of the fact that the implementation of investment projects has suffered many serious delays and the fact that capital outflows have been relatively important in comparison to inflows, as seen earlier

3 Training and skills formation

While recent accurate figures could not be obtained, however an assessment of the situation made in 1976 shows the tendencies which were likely to continue well into the eighties The imbalance of the manpower structure as reflected in the divergence between the situation in 1960 and the forecasted requirements for 1985, had not been corrected the percentage of managers had grown out of proportion while the percentage of technicians remained far too low The category of specialists had grown within reason, however this category is loosely defined and could include some administrative functions far remote from technological preoccupations A great deal of these imbalances were attributed to the educational and training system, including polytechnics and universities, and to the use which is made of the graduates of these institutions[1/]

Table 7 Projected Needs of Various Occupational Categories
(Percentages)

	1960 census	Requirements forecast for 1985	Situation by 1976
- Managers	0 8	1 5	3 6
- Specialists	1 4	4 0	4 5
- Technicians	2 1	12 0	6 4
- Auxiliary	8 4	8 5	6 4
- Skilled workers	11 1	24 5	19 8
- Semi-skilled workers	37 9	24 5	--
- Unskilled workers	38 2	25 0	59 3
TOTAL	100 0	100 0	100 0

Source Institute of National Planning - Manpower planning in Egypt (1971) and Ministry of Planning Manpower requirements (1977-1978)

4. Diffusion of technology

The diffusion of technology within the recipient country is known to occur in several ways through labour turnover after the acquisition of proper skills and competences, through the involvement of local sub-contractors and through inter-industrial linkages Accurate figures could not be obtained on these three phenomena in Egypt However there are indications that they were relatively limited as a result of the conditions imposed by TNCs on the technology recipient

---

1/ Ayubi, M M "Technology Policies in Egypt Scientists, Technocrats and Public Policy" International Seminar on Technology Policies in the Arab States - ECWA (E/ECWA/NR/SEM 3/7), Paris December 1981, p. 15-20

Labour turnover in Egypt went in two separate directions one towards the neighbouring Arab countries, and the other towards the services sector where quick money could be obtained, resulting in the loss of skills of the productive sector

The involvement of local sub-contractors in Egypt was hampered by the excessive use of packaged forms of technology acquisition, which exclude local inputs from the package and also by other restrictive clauses which impose designated sources of supply for both technological products and services

Thus, inter-industrial linkages were not possible, the recipient firm being usually locked up in lengthy transaction with foreign counterparts allowing very little exchange with the local industry and the economy in general

5 Development of technological capabilities and local R&D

A study made in the early 1980's of the situtation after seven years of application of the 1974 Law on Foreign Investment[1/] highlighted several difficulties

- The rate of implementation of projects approved by both GOFI and GAFI was much lower than it used to be, reflecting the difficult access of local competences to the newly acquired technology,

- There seemed to be some disillusion as to the usefulness of the technology entering the country, since much of the investment was related to tourism and infrastructure and, with very quick payback periods and little interest in genuine and sustained transfer of capabilities,

- The lack of "sustainability" of investment projects in the sense of developing the local capabilities for reproducing and improving the technologies involved,

Thus the growing dependence on foreign suppliers in spite of the availability of local capabilities in selected areas State-owned industrial entreprises, medium and large, have shown little interest in drawing on the services of the "Engineering and Industrial Design Development Centre" set up in Egypt in 1968, with considerable financial and technical support from the United Nations and other organizations, while they have continued to resort to the services of their original sources of technological know-how and hardware This was attributed to the entrenchment of the position of foreign suppliers and particularly TNCs who manage to incorporate in technology transactions sufficiently strong barriers, thus hampering the resort to, and development of, local capabilities[2/]

1/ UNIDO "National Registry for Technology Transfer Egypt" (DP/EGY/78 - October 1981 (based on the work of P O'Brien) pp 9-10

2/ El-Kholy, O A & Madkour, N "Technology Policies in the Civil and Military Sectors in Egypt A Comparative Study" International Seminar on Technology Policies in the Arab States - ECWA (E/ECWA/NR/SEM 3/6), Paris December 1981

An evaluation made in 1981 of the R&D situation led to the following findings

- The links between production entreprises and domestic R&D institutions were extremely weak,

- The lack of concern in unpackaging imported processes accentuated the absence of ties between the production and research systems;

- The situation was made worse by the rapid technological advances witnessed abroad to which domestic industrial production was locked-out

An evaluation of the situation in 1985[1/] concludes that the conditions imposed by foreign suppliers through contractual clauses were not always conducive to the development of R&D in Egypt The "possible contribution of local technology and stresses on the utilization of local materials were neglected" and similarly, "nothing was mentioned in the contracts indicating the necessity of making use of local facilities and adaptation of the technology to the Egyptian conditions" Thus, no real incentives were included in the contractual arrangements to encourage Egyptian firms and institutions to undertake R&D and develop their own technology

The Science and Technology (S&T) system in Egypt includes two major components· S&T generating institutions which include universities and research laboratories with a total manpower of 2000 qualified staff in more than 200 institute and, secondly S&T users including production and service sectors and individuals that benefit from the technology generating institutions. These latter institutions have contributed very little to the transfer of technology from abroad In the industrial sector, which is known to be the most dynamic sector in technology applications, R&D is still in its infancy. the Ministry of Industry has only recently established an advisory board on industrial R&D to a satisfactory level This does not include military technology which appears to be a lot more organized and more successful. The centralization of R&D at TNCs home-offices and the restrictions on R&D activities of recipient companies made it difficult to establish an adequate link between the national science and technology system and the imported technology from abroad This meant that the potential for technology diffusion through the rest of the economy remained relatively limited

Nonetheless, it is widely realised that S&T is vital to socio-economic development and in this respect, the national S&T community and ASRT in particular are expected to play an important role in major projects of national interest such as energy conservation, substitution of Nile silt for brick making, environmental issues etc In food, agriculture and water resources, relatively well organized structures make significant contributions to national projects

---

1/ Hebeish, A., Op cit, p 7

6 Impact of Government policies

There is a wide belief that the "Open Door" policy had an implicit technology policy component through its emphasis on foreign investment and technology The impact of the "Open Door" policy and consequently of TNCs' participation in the implementation of this policy, led to the following situation

- Some of the introduced technology was very advanced and capital intensive This was judged as not very judicious considering the huge amounts of money required for this kind of technology and the limited number of jobs created,

- Some of the technology acquired from TNCs on the international market, was perfectly within the capabilities of local competences,

- Due to weak or non existent policy regarding guarantees, some of the technologies introduced were not always proven, which meant that they were tried in Egypt at the expense of the country The example given was that of prefabricated houses which are not standing the test of time,

- Generally, there was no clear guidelines relating to financial clauses to be applied in technology transactions and on the whole financial conditions for the importation of technologies were unfavourable In some cases the whole of the invested capital was repatriated within a matter of two years, while the foreign party retained its partnership and received a share in the profits,

- There was a tendency for the foreign capital to impoit the needed technical manpower at all levels, rather than to train local labour,

- Finally, in terms of technological learning, the impact of TNCs was relatively limited The production units acquired the technology from foreign sources in packaged deals, including maintenance operations This prevented the dialogue between the production units and the potential local suppliers of know-how Production units also lacked confidence in the local sources of technologies and were reluctant to reveal difficulties encountered in production

F The Case of Joint-Ventures

The impact of TNCs operations is likely to differ with the difference in the type of channel used for the transfer of technology A UNIDO assessment of the joint-venture situation in 1981 with regards to their impact on technological development of Egypt[1/], concluded that public and private firms were demonstrating a "chameleon effect" as a result of turnkey projects

---

1/ UNIDO "National Registiy for Technology Transfer Egypt" DP/EGY/78 - October 1981 - (based on the work of P O'Brien), Op cit, Appendix IB, p 1

" They switched from an emphasis on production to one of commercialization and professional staff had their confidence destroyed by a process which focussed on the superiority of foreign technology and the chronic problems in doing anything locally There was in short, a serious danger to the country's technological base, having an irreversible character, at least in the medium term"

Joint-ventures involving foreign suppliers and public companies were assessed in an official Government Report in 1986 to which the local press gave a great deal of attention and coverage and even greater criticism[1/] Four major grievances were made

1 Joint-ventures between Egyptian public companies and European and American partners have suffered important losses in the last few years In the 1975-1985 period, 33 percent of them had continuous losses, 40 percent were on the fringe of bankruptcy, while the rest either stopped production or were facing various kinds of problems,

2 These joint-ventures survive at the expense of public funds borrowed by public companies mainly from State banks at a relatively high rate of interest (11 percent),

3 The losses incurred in some joint-ventures exceed sometimes the funds invested originally Foreign equity, strangely enough, was made in local currency rather than in convertible currencies,

4 The attempts made to help some of these companies out of their difficulties have failed

In spite of the relativelly important Government participation to the capital of these joint-ventures, estimated at 59 percent when human, material and financial resources are added up, the social impact of these joint-ventures, in terms of employment, for example, was relatively limited, while their economic impact in terms of improving the quality of production was negligible

Similarly, their contribution to technology transfer is considered unsatisfactory During the study seminars organized by ASRT[2/] it was recognized that the technological dependence of Egypt had increased over the last few years as a result of inadequate levels of production and productivity This technological dependence was attributed partly to the marginal role of national R&D

It can be seen thus that the centralization of R&D syndrome of TNCs has played an important role in preventing Egyptian entreprises from developing their R&D This was coupled by a low demand for local technological contributions (in terms of goods, services and know-how)

1/ Mentioned in El Ahaly Newspaper, Wednesday 29 October 1986 in an article on Joint-Ventures in Egypt

2/ Fayez, M B E , Op cit, p 1

CHAPTER IV. MEASURES FOR REDUCING THE IMPACT OF THE CONDITIONS IMPOSED BY TNCs ON TECHNOLOGY TRANSFER TO EGYPT

"Government policies establish the framework for technology import transactions, and provide incentives and disincentives aimed at influencing the behaviour of recipients towards the conscious management of the transfer process and the assimilation of imported technology[1/]" Government policies are aimed at curbing the activities of foreign suppliers when these activities and the conditions imposed can have adverse effects on the home economy, and tend to encourage their activities when these go towards a better assimilation of the imported technology and the upgrading of national skills and competences

Developing countries in Latin America, for instance, that have tried individually (Columbia) or jointly (the Andean Pact countries) to eliminate or limit the use of restrictive practices of transnational corporations have clearly demonstrated that once such practices are identified, it is relatively easy for the host country's regulatory agency to enforce their partial disappearance One of the key elements of the success is attributed partly to the fact that most of these restrictive practices are considered illegal in the advanced countries that are home countries for TNCs "Consequently, TNCs appear to be more enclined to abide by these standards if the host country can prove their violation and if they are willing to act reasonably in the sense of not pressing too hard for a full elimination of these restrictive practices that may be of vital interest to a given TNC or may reflect past commitments to third parties"[2/]

Girvan[1/] groups these policy instruments (see Table 8) into three main categories, namely

- Policies relating to macro-economic framework,
- Policies relating to the regulation of technology instrument, and;
- Policies aiming at the promotion of local technology and associated capabilities

A. New Orientation Regarding Technology in Egypt

Like in many other developing countries, technology considerations tended to occupy a marginal position among the various preoccupations of policy-makers "There are always leading policies which are decided upon politically and nationally, other policies have to adjust to the leading theme Security decisions are leading everywhere and so are policies related to social stability and then comes development "[3/]

1/ Girvan, N , Op.cit, p. 98

2/ UNCTC Measures Strengthening the Negociation of Government in their Relations with Transnational Corporations Technology Transfer Through Transnational Corporations. a technical paper (New York ST/CTC/11 1979) p 17

3/ Hebeish, A., Op cit, p 3

Table 8. Main Categories of Policy Instruments for Active Technology Transfer

Main categories of policy instruments	Relevant parameters
A Macro-Economic Policy Framework	- Characteristics of development policy and strategy, - Foreign investment policy, - Industrial development policies, - Import policies, - Fiscal, monetary and credit policies, - Public investment programmes and policies
B Regulation of Technology Imports	1. Negative approval standards - Payment terms, - Restrictive practices in contracts, - Duration of contracts, - Domestic availability of technology 2 Positive approval standards - Collection of information on availability of technology, - Search, selection and negotiation/bargaining procedures, - Personnel training, - Research and Development activities
C Promotion of Local Technology	- National science & technology planning, - Education & training of technological manpower, - Investment in R&D, - Support for the engineering and capital goods sectors, - Provision of technology information systems

Source Girvan, N , Op Cit, p 98

The attitude towards the importance of the technological component of development policies has changed in recent times and greater interest and more weight appears to be given to technology The strong political support given at the highest level to technology is reflected in Egypt's current five year development plan (1982-1987) There is now a common understanding in Egypt that Science and Technology is vital for the socio-economic development of the country and very great expectations are placed by the Egyptian political leadership, by the various sectors of the economy, on the role of science and technology It is also realized that national projects and development plans

include important science and technology elements which could be covered only by specialists, and that any decision in major development plans can be taken only if thorough studies are performed by the science and technology community These attitude changes are embodied in various decisions

- In the current development plan (1982-1987) where technological development appears as one of the main preoccupations and which is reflected through three main objectives explicitly formulated

a To develop an indigenous technology base for the acceleration of economic development through the effective utilization of existing centres for applied research,

b To encourage foreign investment in industries where technical know-how is not available locally, the raw materials are found locally, and the products are intended primarily for export,

c To support small-scale, artisanal industries, and co-operative activities financially, and by providing assistance in the choice of technology,

- In the recent decision of the prime Minister of Egypt appointing ASRT as the consulting body to the Cabinet on matters of science and technology and development and, inviting it to be represented in the Higher Ministerial Committee on Policies and Economic Affairs and to participate in the formulation of the next five year development plan (1987-1992)

B The Framework for a National Technology Policy in Egypt

A National technology policy for Egypt is a relatively extensive and complex task requiring the mobilization of many disciplines, skills and expertise This important task was given to ASRT which undertook a programme of extensive work lasting for more than three years and involving many skills and disciplines One of the basic principles regarding the orientation of this policy is that it is perceived as an instrument which would " deal with the reality of the technology system, regulating and rationalizing the responsibilities and duties at all levels and for all sectors of society involved in technology development"1/

As result of the application of a national technology policy, Egypt should be in a position to

- Depend on its own capacity,
- Make policy decisions on technology,
- Generate technology critical for national development,
- Evaluate, absorb and improve imported technology for national use,
- Set up a central organization capable of selecting and adapting technology to local conditions

---

1/ ASRT "Technology Policy Statement" (National Technology Policy Seminar, III/2, 1983)

In moving towards these objectives, the Academy took upon itself to meet certain pre-requisites, such as

- Planning and programming of national R&D activities and their execution through the implementation of the current five year plan (1982-1987),

- Taking the necessary steps for developing the next 5 year R&D plan (1987-1992) based on the identified socio-economic development objectives,

- Supporting science and technology (S & T) manpower needs,

- Establishing S&T regional centres directed to achieve integrated regional development,

- Building up the national S & T information and communication network,

- Developing scientific equipment for production and maintenance,

- Supporting standardization and metrology

The document formulating the National Technology Policy, completed in the middle of 1984, identified various policy elements necessary to the various areas of socio-economic development A major emphasis was put on technology transfer aspects

The following are some of the important features of the new technology policy for Egypt

- Technology transfer from external sources must be channeled to areas which cannot be met by indigenous capabilities for the time being, provided that the technology was not already transfered, nor processed by patents, nor immediately accessible to indigenous capabilities,

- It should contribute to indigenous capabilities at the unit level and at the national level,

- Depacking of imorted technology and the assessment of the possibility for introducing national technology in the transfer process must be included turnkey projects are entirely unacceptable,

- Particular emphasis should be given to imitation and adaptation as important intermediary stages in developing indigenous capabilities,

- The role of the Egyptian R&D units in technology transfer must be emphasized in terms of contributions and responsibilities,

- Technology transfer is a multi-faceted process involving evaluation, choice of contracts, etc Therefore, there must be unified criteria and indicators for technology transfer arrangements, specially for clauses relating to the duration of the contract, royalties, indirect costs, etc

Since November 1984, the Academy of Scientific Research and Technology has been involved in translating the National Technology Policy Document into programmes of action Two main directions are drawn for these programmes

- The first one relates to the transfer of its activities as a central focal point to the various sectors through the establishment of " sectoral nodes for a national network of technology development, while keeping the coordinating central authority in the Academy Each sector node would integrate the activities of relevant institutions, departments and directorates in implementing the National Technology Policy"

- The second one would be to develop the national technological capabilities at the national, sectoral and institutional levels and furnish the know-how and information required for the effective participation of the technologic segment in the implementation of development plans This includes national and sectoral training programmes at the managerial and executive levels as well as for R&D personnel

For the implementatin of the proposed technology policy a number of leading sectors were identified, namely. Textiles, food and drug industries, capital goods industry (particularly equipments necessary for agriculture, land reclamation, irrigation, construction and food industries) and petrochemicals These sectors were selected on the basis of the following criteria·

- The need for the product,
- The existence of productive capabilities and linkages to other suplementary production sectors,
- The availability of raw materials, energy and manpower,
- The availability of corresponding R&D units,
- The relative importance of the sector as reflected by its share of allocated funds in the development plan, and finally;
- The foreign policy considerations and potential for exports

C. The 1986 Law Regulating the Technology Transfer to Egypt

The UNIDO mission of the late seventies concluded that one of the major deficiencies was that Egypt had not enacted a legislation on technology transfer One of the recommendations made in the mission report was that the transfer of Technology Policy (TOT) "should incorporate a parallel instrument to law 43 of 1974 so as to provide a channel for direct transfers of technology"[1/] The need for technology regulations was felt not as an instrument to overcome some of the obstacles to technology transfer but rather as a tool to support a technology policy which Egypt needed badly

---

1/ UNIDO "National Registry for Technology Transfer in Egypt" (DP/EGY/78/001 - May 1980) (based on the workd of V R Arni) Op Cit, p. 27.

Since the beginning of the eighties, with the newly acquired importance of technology to development in the eyes of policy-makers and the evaluation work done at the Academy of Scientific Research and Technology which revealed several unacceptable practices, the need for a technology transfer regulatory framework became urgent[1/]

However, an opposite opinion was voiced simultaneously, coming mostly from foreign companies operating in Egypt, as illustrated by the view of a Vice President of one of the big consulting companies[2/] who describes screening of technology transfer as " a sterile pattern of negative regulation and control which can stifle initiative and cut-off the country from vital access to the best of the fast moving stream of new technological knowledge flowing around the world today" This attitude is in line with the view put forward by Kamel Maksoud that "One of the major limitations for the freedom of the country to regulate the import of technology is the fact that in many cases, the development projects are established using foreign loans and the donors usually determine the kind of technology to be provided"[3/]

Over a period of four years, the Genral Authority for Investment and the Free Zones (GAFI), the Academy of Scientific Research and Technology, the Supreme Court of the State, the General Organization for Industrialization (GOFI) and the universities were able to formulate legislation on technology transfer to Egypt. The purpose of this legislation is to ". provide a legal instrument for maximising the benefits reaped by the society from the import of technology and furnish a justifiable competitive edge to efficient suppliers of technology and to insure that such imports complement local efforts and are in harmony with transferred technologies in strengthening indigenous technological capabilities[4/]

The law on technology transfer which was still in its draft form and undergoing major dicussions and examination by various parties concerned, at the time of the consultancy mission, was passed in February 1986 The full document is reproduced in Appendix 1. Basically the law deals with six main preoccupations the registration of contracts, the guarantees, the settlement of disputes and the applicable law, the responsible bodies for enforcing the law and possible assistance, the penalties and finally its application date

In the preamble, emphasis is put on two aspects of the scope of the law both with regards to the source of technology and with regards to the technologies to be included

---

1/ Wahba, W G "Technology Regulations in Egypt" Investment Review - (Vol 1 - No 4, Jan 1981) p 6

2/ Krebs, W "Strengthening Egypt's Access to Foreign Technology" - Investment Review - (Vol 2, No 3, October 1981) pp 4-5

3/ Maksoud, Kamel "The Place of National Research Centrer (NRC) in Egypt's Technology Policy" - International Seminar on Technology Policies in the Arab States - ECWA, (E/ECWA/NR/SEM 3/20), Paris December 1981

4/ Hebeish, A , Op cit, p 8

Thus regarding the source, all contracts and agreements on technology transfer, irrespective of the source of technology, are concerned by this law private firm established in Egypt, subsidiary of a TNC, joint-venture etc Similarly, all types of transactions involving technology in one form or another must abide by this law

With regards to the type of technology transfer to be covered, it includes all types with the exception of pure sale, purchase, leasing or rental of goods which are not considered as technology transfers Technology transfers which are concerned by this law include the following

a Selling or licensing of industrial property with the exception of commercial or industrial trademarks unless these are part of the technology transfer transaction,

b Provision of know-how and expertise especially in the form of feasibility studies, plans, diagrams, models, specifications and instructions as well as descriptions of technological components, basic and detailed engineering designs,

c. Provision of managerial and technical consultancy and training of personnel,

d Provision of services relating to the operation and management of enterprises and computer software;

e Provision of technical assistance in all areas

Thus the law includes all technologial know-how and expertise which are not embodied into a piece of machinery and equipment as the legislator realizes that it would be difficult to legislate on the technology package when all its elements are firmly tied to each other

1. <u>Registration of contracts</u>

The registration procedure, in this law, unlike the previous one which was of purely administrative nature, implies a serious screening of technology transactions Thus a contract cannot be effectively implemented if it is not registered and to be registered it must not contain one of the forbidden elements (Art 5) mentioned below

Two categories of elements will prevent a technology transfer transaction from being registered

For the first categoiy (Art 6), the contract is absolutely void and its registration is prohibited when

- The technology to be supplied is available locally,

- The acquirer is obliged to waive, without being rewarded by the supplier, the patents, inventions, trademarks, innhovations or improvements that have been obtained and/or realized during the course of the contractual period, or when a contract contains conditions which could lead to an unequal contractual relationship between the two parties,

- The contract puts restrictions on the acquiring party in the field of R&D,

- A contract prevents or restricts the export activities of the acquirer in a way that may be detrimental to national interest,

- A contract prevents the acquirer from utilizing complementary technology from other sources,

- A contract imposes restrictions on the size of production and on prices for the local and the foreign market

- The contractual period exceeds ten years

For the second category (Art 7), the contract may not be registered although it may not be absolutely void However, when required by the common good and national interest, approval of the registration may be given This applies when

- A contract imposes financial obligations not proportional to the technology provided or presents a heavy burden on the national economy,

- A contract allows the supplier to interfere with administrative matters of the acquirer or attempts to regulate them unless it is confined specifically to assistance in this area,

- A contract binds the acquirer to buy from the supplier or other designated parties, equipments, machinery, spare parts, raw materials and the like which could be obtained on better terms from other sources,

- A contract binds the acquirer, without reasons, to sell his goods to the supplier of the technology or to another party designated by him This applies also to the nomination of the supplier as sole agent or representative

The two sets of forbidden clauses relate to the various restrictive practices experienced by Egypt in technology transfer transactions, particularly with TNCs, since the flow of of foreign investment resulting from the "Open Door" policy and the Investment Law They are part of what has been called "negative approval standards"1/

While the first set appears to be concerned purely with technology transfer considerations, the second set of forbidden clauses relates more to political, administrative, and commercial considerations

The Egyptian legislator is eager to give as much freedom and as much room for manoeuvre as possible to the Egyptian firm to develop its technological capabilities This is a reflection of the new philosophy and the new situation in Egypt whereby some confidence has been acquired in local capabilities, and their ability to participate in the technological development

---

1/ Girvan, N , Op cit, p 98

2 Guarantees

Guarantees belong more to the "positive approval standards" category although part of these are dealt with in more depth in the proposed technology policy

The supplier is requested to guarantee not only that the technology is fit for the purpose (which in fact relates to any kind of transaction), but also to provide further guarantees regarding the following aspects (Art 8)

- To disclose any risk which may result from the utilization of the technology either on the environment or on health,

- To indicate any restriction which may affect the rights of the technology acquirer,

- To supply the acquirer with spare parts or other components necessary for the use of the technology at the current price rate This clause is a fundamental one, the problems of spares and overcosts of technology have sometimes devastating impact on developing countries,

- To provide all documents of a technical character and other information necessary for the assimilation of the technology,

- To guarantee against damages caused by the technology when used according to the conditions of the contract

The guarantees extend to other aspects relating to the use of local competences, and to the upgrading of local skills which were usually of marginal importance in current arrangements Thus, it is stipulated (Art. 9) that

- The supplier guarantees the employment of local labour with technological capabilities and to train local labour whenever necessary;

- To use various technological inputs from local sources such as materials, consulting and engineering services etc . as well as services from the national research network,

- To provide technical assistance for the use of the technology;

- To maintain confidentiality on information provided by both parties to the contract

3. Settlement of disputes and applicablitiy of the law

Unlike many situations where the law of the supplier applies to any dispute, here it is the Egyptian law which is applicable (Art 10) indicating thus that the Egyptian legal system and apparatus is in a position and quite capable of handling matters related to technology transfer However, in order not to discourage foreign investment and particularly the inflow of technology, still badly needed by the Egyptian production system, the legislator has envisaged the use of arbitration. Thus it is clearly

stated that "Disputes between the two parties may be settled amicably to the extend permissible under Egyptian law It may also be agreed to settle the disputes by arbitration" (Art 11)

4. Responsible bodies

The responsibility for enforcing the law is given to the Academy of Scientific Research and Technology (ASRT), which sees its role under this jurisdiction completely oriented towards technology transfer and technological development In this respect, Art 13 defines its terms of reference

1 First of all, with regards to technology transfer, ASRT is responsible for all the screening procedure it examines and evaluates the contract, registers it, ascertains its compliance with the law, prepares a register concerning all aspects of the technology and technology transactions Moreover it assists the authorities in all matters related to negotiations, unpackaging of the technology, elaboration of model contract etc . thus ensuring optimal technology transfer

2 Secondly, with regards to the development and advancement of technology, it participates in the formulation of the national technology policy, and promotes the use of local technological inputs as well as other kinds of inputs, promotes R&D particularly in joint-ventures, participates in the regulation of foreign direct investment with regards to technology transfer, prepares sectoral studies on technology transfered to Egypt and finally cooperates with other national, regional and international technology transfer institutions

5. Sanctions

The sanctions envisaged by the new law aim at reducing two practices which can be detrimental to any viable technology policy the first is the restrictions on the flow of information and the second one is the fraudulous activities aimed at giving the wrong information to acquire private advantages

Regarding the fist category, sanctions are applied to all those who refuse to " provide the data required by the Academy within its terms of reference in accordance with the provision of this law "(Art 14/d) or in case of "Failure to present the contract, or the amendment thereto for registration" (Art 14/b)

Regarding the second category, sanctions apply on all those who provide incorrect information to register a contract (Art 14/a) and those who execute the contract under different requirements than those registered (Art 14/c)

6. Date of application

In the final provisions of this law, it is stipulated that the law applies to all contracts concluded as from the date of its publication in the Official Gazette Contracts concluded prior to its publication are only presented for registration to the Academy

C Monitoring of Technology Transfer Transactions

1. The need for monitoring

While screening is undoubtedly a vital activity for improving the terms and conditions under which technology is acquired from abroad and particularly from TNCs, it is fundamental to insure that these terms and conditions are effectively implemented Experience has indeed shown[1/], particularly in some countries of Africa and Latin-America that major deviations could occur, making all the previous efforts practically useless In many countries, such as Argentina, Columbia, India, Philippines and others, there is now a growing tendency to extend the role of the regulatory agencies to insure the implementation and the supervision of approved technology agreements, in other words, to monitor their effective implementation

Monitoring is defined " as the set of measures and actions taken by respective government agencies aimed at controlling and evaluating the effects of execution of approved technology transfer contracts"[2/] even if often it has been used to include also the screening of technology transfer agreements Defined in this manner, monitoring complements the action of regulating technology imports It is viewed as the extension of government intervention over the most crucial stage of the technology transfer process i e the absorption and mastering of the acquired technology.

2. The objectives of monitoring

Three major objectives are set to monitoring·

- To reinforce the positive effects of the application of the technology acquired through the set of corrective measures introduced by the regulatory agency As pointed out earlier, essential deficiencies can be revealed only at the stage of execution of the contracts and important deviations can also occur at this stage;

- To provide an important feedback to the regulatory agencies on the new procedures and techniques for the evaluation of agreements submitted for approval,

- To give the regulatory agencies an essential input for evaluating their own performance in screening technology transfer agreements In addition, it can provide background information for the general assessment of the effectiveness of the existing legal and insititutional framework for technology transfer

---

1/ Djeflat, A "Limitations to Technology Policy Implementation in the Arab World Empirical Analysis" International Seminar on Technology Policy in the Arab States - ECWA, (E/ECWA/NR/SEM 3/5), Paris December 1981

2/ UNIDO Monitoring of Technology Transfer Agreements by Regulator Agencies An overview of policies and issues, (October 1983, ID/WG 405/27) p 2

Monitoring being an integral part of the whole screening process, its preoccupations and measures have to be incorporated in the same legislative framework, used to regulate technology transfer from abroad Two conditions were put forward for monitoring to be effective

(a) Access to information necessary to perform the monitoring function and,

(b) The right of the monitoring entity to intervene during the implementation stage to correct deviations from the approved contract

The recommendations made by UNIDO to perform effectively the monitoring function is through the exchange of experience between developing countries through the TIES system[1/] Egypt which is still at the stage of screening of imported technology through regulations, laws and explicit policy, should incorporate the monitoring function in its future technological development plans Its participation in the TIES constitutes an important asset in this respect

3. The Balance between Control and the Open Door Policy

The legitimate desire to screen and monitor technology transfer to Egypt through policy and legal instruments, no matter how justifiable it may be, can always be interpreted by foreign investors as restrictions to their movements and a possible tightening of the freedom to invest in the country, a freedom already largely proclaimed in official declarations as a result of the "Open Door" policy

On the other hand TNC operations still constitute, like in many other countries, a valuable means for having access to the much needed and locally inaccessible technology, for sustaining the projected rate of economic growth and providing employment and income to the population and hopefully for achieving gradual autonomy with regard to decision-making on technological matters

In this respect, TNCs' contribution should not be looked upon simply in terms of inflow and outflow of resources, but in a much broader array of variables such as technology transfer, the creation of employment opportunities, upgrading local labour skills, backward and forward linkages, trade propensities and net balance-of-payment effects

There is a need, therefore to increase the awareness of both the public and foreign suppliers' of the necessity of the law and, to convince the latter of the vital importance of technology transfer regulations It should be emphasized that regulations consititute the fundamental conditions for an Open Door policy that could be profitable to the Egyptian people as well as to TNCs

---

1/ UNIDO "Technological Information Exchange System (TIES)" Progress Report (October 1983, ID/WG 405/6)

The law on technology transfer should not be applied in a uniform manner to all situations and technology transactions alike The effective contributions to technology transfer and the building up of local technological competences should be born in mind while applying the law to particular transaction

Reducing restrictive clauses in technology transactions has shown in other parts of the world (Latin America in particular) its limited risks in discouraging foreign investments from flowing into the country This was, however, possible only to the extent that the vital interests of technology suppliers were not geopardized and secondly as a result of the use of a sub-regional approach The implementation of the new law should make sure that the country fully benefits from TNCs technology while bearing in mind that TNCs have also to benefit from their activities in Egypt

The General Authority for Investment (GAFI) will have the delicate task of balancing between some of the relevant technology transfer regulations, while insuring that the technological code does not interfere too much with foreign and private investors as they have been described in Law 43

It should be realised also that TNCs are not the only channel for importing technology but that alternative channels exist These should be systematically enlisted and assessed for possible alternative sources of technology

4. <u>An Institutional Framework for Monitoring</u>

The Academy of Scientific Research and Technology (ARST) to which the technology transfer law gives a preeminent role, should include in its consultative role to the Cabinet matters related to the application of the technology transfer law, to the application of technology transfer policy decisions

In this respect, the Academy's role should be extended to the Higher Ministerial Committee on Policies and Economic Affairs in order to reduce the delays and bureaucratic weight which can constitute major handicaps to a proper implementation of the technology policy, to the technology transfer regulations and to their monitoring

The role of the Academy must be particularly emphasized at the Ministry of Industry where most of the technology transfer and development policy decisions are made, and also where major TNCs activities are concentrated. In this respect the involvement of the President of the Academy in the Advisory Board on Industrial Research Centres constitutes a Good step towards this direction.

The implementation of technology policy and technology transfer law should recognize the specificities of each sector and particularly with regards to the weight and the importance of TNCs activities and involvements In this respect the sectoral nodes which constitute the National Network of Technology Development and which the Academy is establishing should constitute a vital instrument to develope intelligence on sectoral technological characteristics

The R&D regional centres directed to achieve integrated regional development and established by the Academy should be fully involved in the transfer of technology from TNCs, right from the supplier selection stage and bargaining to the implementation stage This will give the opportunity to the Egyptian R&D capabilities to participate effectively in the acquisition of know-how, in solving local problems, and will prevent R&D from being automatically (or quasi-systematically) concentrated at the suppliers' head offices, or parent companies, in the case of foreign direct investment

At the Ministry of industry, the Technology Transfer Department (TTD) under the General Organization for Industrialization (GOFI) should play a preeminent role in the implementation of policy decision and the law on technology transfer Its privileged access to contracts with foreign suppliers and particularly to TNCs operating inland should allow it to undertake a proper monitoring action in close cooperation with the Academy of Scientific Research and Technology

TTD should be prepared to undertake all the technical work needed for a proper technology policy, for the implementation of technology regulations and for the monitoring of technology transfer and development transactions In this respect it will need to develop proper tools for the collection, and the interpretation of information

With regards to the private sector, TTD should be able to work out ways and means of bringing private firms to incorporate national and social considerations such as building local skills and competences in their dealings with TNCs This is in consideration of the fact that the law, on its own, may not be sufficient and that a real cooperation from private firms will be needed

The evaluation process should not be simply a matter of "passing forms" and written assessments from one office to the other it has to be a dialogue where TTD should find ways to alter, or encourage others to alter the parameters of technology policy

5. Monitoring steps

The monitoring action[1/] is a necessary and a complementary action to that of the evaluation and the registration procedure, it is a way of assessing the progress by the local Egyptian firms in the absorption of foreign technology, the influence of contractual terms on the effectiveness of technology transfer and the way to guarantee a suitable contract performance It is also important for the purpose of disseminating knowledge and experience on technology transfer issues to other governmental agencies and to other business and industrial entitities

---

1/ The monitoring actions proposed here were largely inspired by the monitoring model put together by UNIDO (ID/WG 429/4 - September 1984)

Being strongly dependent on the relationship with the National Registry for technology transfer, there is a need for strong co-ordinatory activities The Technology Transfer Department of GOFI (TTD) should play a major role as a coordinating body with regards to industrial transactions under the jurisdiction of GOFI These include public entreprises and large Egyptian firms For transactions involving joint ventures, the General Authority for Investment (GAFI) will have to provide TTD with all the necessary help and collaboration regarding information etc It has been playing this role under the Technological Information Exchange System (TIES) and should find no difficulty in providing the necessary data for monitoring purposes

Monitoring being heavily based on information, it is recommeded that periodical collection of information on the performance of the agreements should be undertaken It requires a well established information system within the Registry

Micro-oriented monitoring should be based either on information derived from requisits set out by the registries as conditions for approval or from questionnaires made out specifically for monitoring purposes On top of that, monitoring through information should be completed by direct contacts, plant visits etc for a better understanding of the realities

Macro-oriented monitoring, mainly concerned with the assessment of overall trends regarding the scope and effects of technology transfer requires aggregated data, either collected at the micro level or from other sources of information To this effect, an extensive information system should be set up, with possibly computerized means of handling the information. The responsibility taken recently by the Academy of Scientific Research and Technology to build up the National Network of Science and Technology Information and Communication constitutes a major step in that direction and deserves full support of the Government

It must be born in mind in so doing that this is a costly and highly demanding process and therefore only the necessary information items must be collected, both at the micro and the macro level This is without neglecting the didactic role of information collection in as much as Egyptian firms have to learn how to systematically collect, and process data related to technology transfer and technology development

Monitoring of contract performances and production levels should be systematically organized, and this needs a regular flow of information from the Central Bank of Egypt

Monitoring, being an in depth process, is to be done selectively to start with, looking primarily at important agreements with significant economical impact, at contracts where specific approval conditions were established and at priority sectors

Monitoring of short-term agreements such as engineering and turnkey contracts should be done with the view to learning about the capabilities and the insufficiencies of the suppliers, both foreign and local, and consequently improving the approval criteria for future cases

Monitoring of consultancy agreements should be done with the view to finding out the actual benefits for the client resulting from the consultant's work and/or recommendations, and, testing the feasibility of proposing the participation of domestic firms in future works in order to improve local skills and create conditions for future self-reliance

The necessary skills should be developed to undertake the monitoring task and particularly for some very important agreements which require specific skills justifying the support of specialized official institutions

At the institutional level, monitoring can be envisaged within the registries, within TTD and for that purpose, it should have the necessary resources, skills and an appropriate organization However, due to the variety and the multiplicity of the tasks, it could be more advisable to set up a monitoring department This department within TTD will have to report to the Academy together with the other sectoral nodes

The monitoring entity may need assistance from other specialized departments for some highly specialized technical matters beyond the normal capabilities of the registry's staff For that purpose it should establish the necessary links and the cooperation schemes with other government agencies, and promote an active inter-departmental coordination efforts

Monitoring should present no difficulty with regards to the cooperation of the recipient firm of the technology in the case of Egypt as a result of the law on technology transfer However, in case of lack of cooperation, a good relationship should be established with the foreign exchange controlling authorities in order to bring the disobedient firm to a more cooperative attitude namely through stopping remittances

Upon contract renewal, monitoring should consist of assessing whether the renewal is justifiable and necessary for the continuation of the licensee's activities, what could be the consequences on the economy in case of eventual termination, what conditions should be negotiated to improve the contract performance and to decrease the dependence of the licensee from the licensor and, how to monitor the fulfilment of the envisaged goals when authorizing the renewal

In case the contract has lasted a long time and the licensee is tied-in to the licensor in one way or another, a significant reduction on the royalty rates should be proposed

CONCLUDING REMARKS

In spite of being sometimes incomplete, the elements presented in this report shed some light on fundamental issues regarding TNCs operations and the transfer of technology to Egypt

The high hopes put on the ability of TNCs to bring into the country the most modern and most needed technology appear not to have always materialized, particularly when taking into account the enormous effort made by the Government to attract, motivate and help foreign investors to operate in Egypt

In spite of the relatively limited share of foreign investment in the economy as a whole, TNCs' prominent role as major source of technology gives them a vital importance for the technological development of the country

TNCs' direct investment and wholly owned subsidiary play a negligible role in technology transfer and the development of local technological competences in Egypt, and are mostly concentrated in the export-oriented free zones and in sectors such as finance, tourism and, services which are characterized by their limited technological content

High hopes were put by the Government on joint-ventures with foreign companies and TNCs in particular in the belief that the joint interests will give a better access to the technology even if the experience of other countries have shown that there are equal chances of success as of failure The recent evaluation and criticism which were directed towards joint-ventures, particularly those involving the public sector, imply that the technology transfer may not have been up to expectations

The heavy resort to packaged forms of technology acquisition, such as turnkeys, coupled with the recourse to the technology suppliers for financing, have drastically reduced the bargaining power of the Egyptian negotiator, already weakened by limited experience and weak information base In this sense, major technological decisions were made outside the control of the recipient firm

Nonobstante the massive amounts of technological products and services injected in the country in accordance with the Government objectives for modernizing the country, and which would not have been possible without TNCs operations, stringent conditions have been imposed on Egyptian recipients of technology These conditions include in particular restrictive clauses which left very little room for maneuver to the Egyptian firm They condemned the Egyptian firm to eternal passive technology consumption with little scope for technology production Some of these restrictions which were somewhat bearable during the seventies have become difficult to accept as a result of the changing conditions of the Egyptian economy and the gradual development of local technological competences The overcosts of imported technology are a burden on the balance-of-payments of the country.

The impact of the conditions imposed by TNCs is varied even if it is difficult to attribute this impact solely to TNCs It includes on top of overcosts, the distorsion of the employment market in spite of its growth in absolute terms In general terms, the positive impact has been relatively limited and certainly below expectations while the negative impact includes poor development of local skills and competences, limited R&D activity, poor technology diffusion and distorsions of implicit technology policy

The Egyptian Government's decision to set up a proper technology policy and to forge a proper legal instrument for screening and regulating technology transfer and development indicates a desire to reduce the conditions imposed by foreign partners and their negative impact In so doing, the Government retains its "Open Door" policy and the drive to attract foreign investment, although the Latin-American experience has shown that regulations have not discouraged foreign investment and technology to flow into a given country

The Academy which can play a central role with respect to the screening policy has also the burden to develop the endogenous technological capabilities besides applying the law on technology transfer The "new" law appears to be an ideal instrument for dealing with major restritive practices, however it will need a highly coordinated and tuned institutional and procedural framework in order not to fall into the danger of becoming a simple formality

Moreover, the "new" law will need a proper monitoring system, considering all the risks of deviations which exist during the application of agreements This is another challenge which the Academy and Egypt will have to face-up to

APPENDIX I

GENERAL AUTHORITY FOR INVESTMENT AND FREE ZONES

Law on the Organization of Transfer of Technology

Chapter I Preliminary Provisions

Article 1

The prosivisions of this law apply to all contracts and agreements on transfer of technology whether such transfer is international, across the regional frontiers, between parties supplying and parties acquiring technology, or between resident or non-resident parties or companies established or to be established within or outside the Egyptian frontiers, or one of the parties is an affiliate or daughter copany owned or supervised by a foreigner The provisions of this law also apply to every act of which technology is considered one of the conditions

Article 2:

In the understanding of this law, the term "party" means any natural or moral person under public or private law, whether such a person is an individual, a group of persons or a company, wherever their headquarters or centres of activity are located

Any State, governmental agency, international or regional organization or the like, when it enters into a contract conerning a transaction for transfer of technology of a commercial nature, is considered a "party"

Affiliates or daughter companies, joint-ventures or the like, regardless of the nature of economic and non-economic relations existing between them, are also considered to be "parties"

Article 3

"The party acquiring technology" means any person who exploits or acquires a technology or any rights related to it, under a licence or purchase contract or by any other means

"The party supplying technology" means any person who grants a licence or sells or makes available any vehicle of technology or any related rights

Article 4.

In the meaning of the provisions of this law, transfer of technology means the transfer of methodological knowledge required for manufacturing or developing a certain product, applying a certain means or method of providing a certain service However, a pure sale, purchase, leasing or rental of goods is not considered a transfer of technology

In particular, the following are considered transfer of technology

a Selling or licensing of all forms of industrial property, with the exception of trade marks or manufacturers' marks, service marks or trade names, unless these form a part of technology transfer transactions,

b Provision of know-how and expertise, especially in the form of feasibility studies, plans, graphs, samples, specifications, instructions, formulate and basic and detailed engineering designs,

c Specialists' services in the provision of technical and managerial advice and training of personnel,

d Services relating to the operation and management of enterprises and software,

e Provision of technical assistance in all areas

Chapter II· Registraton of Contracts

Article 5

Conclusion of contracts for transfer of technology shall be subject to the provisions and controls contained in this law A contract may only be effective after registration in accordance with article 13 of this law

Article 6:

A contract shall be absolutely void and its registration prohibited in the following cases

a. If the purpose of a contract is to transfer technology which is locally available;

b If a contract obliges the acquiring party to waive, without recompense, patents of inventions or trade marks or innovations or improvements that may be obtained or undertaken, during the contractual period, by the acquiring party, or if a contract contains certain conditions which may lead to an unequal contractual relationship between the parties thereto,

c If a contract limits the activity of the acquiring party in the field of research and development,

d If a contract prevents or restricts the acquiring party from exercising its rights in the export field in a way that may be incompatible with the interests of the State;

e If a contract prevents the acquiring party from utilizing a complementary technology from other sources,

f If a contract imposes on the acquiring party restrictions relating to the size of production or sale prices for both the local and foreign markets,

g If the period of a contract exceeds ten years

Article 7

Contracts may not be registered in the following cases·

a If a contract imposes financial obligations not proportional to the technology provided, or results in a disadvantageous burden on the national economy,

b If a contract allows the suplier to intervene in the administrative business of the acquiring party or regulates such business, unless the contrat is confined to the provision of assistance in that area;

c If a contract binds the acquiring patty to purchase from the supplier of the technology, or from a source designated by the supplier, equipment and machinery, spare parts, raw materials or intermediaries which might be obtained on better terms from other sources;

d If a contract, without justifiable reason, binds the acquiring party to sell the goods produced by it to the supplier of the technology or to another party designated by it This provision shall also apply where the contract binds the acquiring party to nominate the supplier as its sole agent or representative

Nevertheless, approval of the registration of contracts in the foregoing cases may be given if required by considerations relating to the common good, in accordance with the nature of the contract and the requirements of the national economy

Chapter III. Guarantees

Article 8:

The supplier shall undertake the following

a To disclose risks which may result from the utilization of the technology which forms the subject matter of the contract, particularly those related to the environment and public health, the supplier shall also undertake to provide the most recent means of avoiding such risks,

b. To indicate, at the time of conslusion of the contract, any restrictions or obstacles which may affect the rights resulting from the technology, including any formal or legal procedure,

c To supply the acquiring party, upon request, with spare parts or any other components produced by it which are necessary for the use of the technology which forms the subject matter of the contract, at a cost not exceeding the current prices thereof,

d To guarantee the efficiency of the technology for producing the goods and services agreed upon, if it is utilized in accordance with the contractual conditions,

e To provide all documents of a technical character as well as other data and information required for the assimilation of the technology which forms the subject matter of the contract,

f To guarantee to make good damage resulting from the utilization of the technology and affecting persons or property, when the technology is utilized by the acquiring party in accordance with the conditions of the contract

Article 9:

The contract must guarantee the following

a Employment by the party acquiring the technology of local labour with a certain degree of expertise; the supplier shall provide an adequate number of experts to train such labour;

b Utilization of the materials, technical knowledge, consulting and engineering services and other resources available, as well as recourse to assistance from national research centres in solving the problems of production and its development,

c. Provision by the supplier of the technical services required for the application and utilization of the technology,

d. Maintenance of the confidentiality of data and information provided by both parties to the contract

Chapter IV: Settlement of disputes and the applicable law

Article 10·

The Egyptian courts shall have jurisdiction to decide on disputes arising from technology transfer contracts

Article 11·

Disputes arising between the two parties may be settled amicably, to the extent permissible under Egyptian law

It may also be agreed to settle the disputes by arbitration

A board of arbitration shall be composed of a member chosen by each party to a dispute and a member with a castring vote to be chosen by the arbitrators In the event of failure to agree on the choice of the latter within 30 days of the appointment of the last arbitrator, the choice shall be made, upon request of a party, by a decision issued by the Supreme Council of the Judicial Authorities, from among counsellors to the Egyptian judicial authorities, specialized law agents or authorized arbitrators on the international arbitration lists The same provision shall be applicable in case of failure by a party to choose its arbitrators The place of arbitration shall be the country of the defendant in the dispute concerned

The arbitration committee shall estalbish its own procedural rules without being bound by the rules of civil and commercial procedures, except those related to the basic guarantees and principles of legal proceedings, with the understanding that the committee must bear in mind the need for the speedy settlement of the controversy The decisions of the arbitration committee shall be made by a majority of votes and the reasons shall be stated The decisioon of the arbitration committee shall be deemed final and binding on both parties

The arbitration committee shall determine the party by whom the arbitration expenses shall be born

Article 12·

The provisions of Egyptian law shall be aplicable to contracts subject to this law

Chapter V Terms of Reference

Article 13·

The Academy of Scientific Research and Technology shall have the power to enforce the provisions of this law To this end, the Academy may seek assistance from all competent machineries In particular, it may

I In the contracts for transfer of technology

1 Examine and evaluate the contracts, in cooperation with the specialized authorities, according to the type of technology required,

2 Register the contracts and issue the relevant certificates,

3 Prepare a guide concerning the types of technology, its sources and its alternatives, the means of negotiation between the parties to the technology transfer contracts and the components of such contracts from the technical, economic or legal view points,

4 In the negotiation processes concerning the transfer of technology, cooperate with a guide the governmental authorities and the bodies and companies of the public sector, and extend advice to enterprises of the private sector in this connection, in order to ensure optimal conditions, including access to alternative sources for technology and its suppliers and the possibility of partial technology packages,

5 Cooperate with the authorities concerned in developing model contracts for technology transfer,

6 Coordinate with the authorities concerned in the follow-up of contracts in order to ascertain their compliance with the provisions of the law and to suggest adequate sanctions in case of discrepancies

In all cases, the Academy has the right to request the data that it may deem necessary for the performance of its functions

II. In the development and advancement of technology

1 Participate in the formulation of the national technological policy,

2 Participate in assistance for channels which link development with technological research and development activities,

3 Take measures to achieve increased utilization of local technological sources,

4. Encourage the utilization of local resources and, in particular, primary and intermediary materials, labour and means of production,

5 Induce and encourage joint-ventures to undertake research and development operations locally as well as to benefit from local experience,

6 Cooperate with the competent authorities in order to establish rules and regulations to govern direct investment in the field of transfer of technology,

7 Prepare sectoral studies on the technology transferred to Egypt, classify and analyse contracts for transfer of technology and make suggestions in that respect, in the light of an examination of technological development models in other countries,

8 Establish relationships or links, through the machineries concerned, with foreign and reginal technology transfer centres as well as with foreign and national centres for technological and scientific information

Chapter VI: Sanctions

Article 14

Notwithstanding any more severe penalty provided for in any other law, any person who commits any one of the following acts shall be punished by imprisonment for a period not exceeding one year and a fine of not less than 5,000 Egyptian pounds or either one of these two penalties·

a Providing incorrect data in order to register a contract,

b Failure to present the contract, or the amendments thereto, for registration,

c Execution of the contract under different requirements than those registered;

d Refusing to provide the data required by the Academy within its terms of reference, in accordance with the provisions of this law

The public action shall be initiated, in respect of the acts referred to, upon a request by the President of the Academy or whoever he may authorize for this purpose

The Academy may, furing the consideration of the action, accept reconciliation on the basis of the fines provided for in this law

All sums ordered to be paid for violations of the provisions of this law, or those payable by the violator as a result of reconciliation, shall accrue to the Academy

Chapter VII: Final provisions

Article 15:

The provisions of this law shall apply to contracts concluded as from the date of its application

As for contracts concluded before its entry into force, these are to be presented to the Academy for registration within a time limit of six months from the date of application of this law, notwithstanding provisions agreed upon between the parties

Article 16:

The competent authority shall issue the implementing regulations for this law in conformity with its provisions and shall facilitate the application of these provisions for the contrating parties.

Article 17:

This law shall be published in the Official Gazette and shall be applicable as from the date of its publication.

List of References

1	ASRT	"Technology Policy Statement" (Natıonl Technology Policy Semınar, III/2, 1983).
2	ASRT	"Scıence and Technology Instruments (STPI)" General Report, December 1979
3	Ayubı, M M	"Technology Policıes ın Egypt· Scıentısts, Technocrats and Public Policy" International Seminar on Technology Policies in the Arab States - ECWA (E/ECWA/NR/SEM 3/7), Paris December 1981
4	Danıels, C	"Egypt ın the 1980's The Challenge" The Economıst Intelligence Unıt -Specıal Report- No 159
5	Djeflat, A.	"Les Difficultes de l'Integration Intersectorielle en Algerie et la Dependance Technologique", Africa Development, (Codesria, Vol X, No 3- 1985)
6	Djeflat, A	"Lımıtatıons to Technology Policy Implementatıon ın the Arab World Empırıcal Analysıs" International Seminar on Technology Policy in the Arab States - ECWA, (E/ECWA/NR/SEM.3/5) Paris, December 1981
7	El-Banna, A M	"The ımpact of Transnational Corporations on the Balance of Payments of Egypt" a technical paper ST/ECA/CTNC/1
8	El-Kholy, O A & Madkour, N	"Technology Policıes ın the Cıvıl and Mılıtary Sectors ın Egypt. A Comparative Study" International Seminar on Technology Policies in the Arab States - ECWA, (E/ECWA/NR/SEM 3/6), Paris December 1981
9	ESCWA	"Second Draft National Paper of Egypt" The Second Regional Preparatory Meeting for UN Conference on Science & Technology for Development - ECWA, (E/ECWA/NR/CONF 2/C P/5)
10	Fayes, M B E	"Approach to the Formulation of the National Technology Policy Required for Egypt and the ıdentıfıcatıon of ıts arrangements" NTP/Seminar II/4 -ASRT- 1982
11	GAFI	"Investment Approval Process" Investment Review (Vol 5, No 2, July 1984)
12	GAFI	"Projects Approval under Law 43/1974" (Vol 5, No 5, January 1985)
13	GAFI	Investment Review (Vol 6, No.1, April 1984)
14	GAFI	"Facts and Figures" (June 1985)

List of References (Continued)

15. GAFI — "Law 43/1974 Tens Years After" Investment Review (Vol 6, No 2, July 1985)

16 Girvan, N — Transnational Corporations and Technology Transfer Effects and Policy Issues (United Nations, UNCTC, May 1985)

17 Hebeish, A — "Country Paper of the Arab Republic of Egypt" Seminar on Policies for Technology Transfer and Development -(Helsinki, October 1985)

18. ILO — Tripartite Declaration of Principles concerning Multinational Entreprises and Social Policy Geneva 1982

19 ILO — Employment Effects of Multinational Entreprises in Developing Countries (Geneva, 1981)

20 Krebs, W — "Strengthening Egypt's Access to Foreign Technology" -Investment Review- (Vol 2, No 3, October 1981)

21. Kreye, O — "La Delocalisation Industrielle" Revue Tiers Monde, T (XXI -No 81- Jan/Mars 1980)

22. Langdon, S — "Technology Transfer by Multinational Corporations in Africa Effects on the Economy" Africa Development -(Vol II, No 2, Codesria April/June 1977)

23. Maksoud, Kamel — "The Place of National Research Center (NRC) in Egypt's Technology Policy" -International Seminar on Technology Policies in the Arab States - ECWA, (E/ECWA/NR/SEM 3/20), Paris December 1981

24. Mazhar, Y K — "The role of EIDDC in Egypt" Technology for the people fair, (September 1980)

25 Michalet, C A — "Transfer of Technology by TNCs Traditional versus new forms" Seminar on Technology Policy in the Arab States - ECWA, (E/ECWA/NR/SEM 2/19), Paris December 1981

26 Sagafi-Nejad, T — "Technology exports from Developing Countries· the case of Egypt" UNIDO/IS 362-December 1982

27. UNCTAD — Le role du systeme des brevets dan le transfert des techniques vers les pays en voie de developpement (New York, 1975)

28. UNCTC — "Measures Strengthening the Negociation of Government in their Relations with Transnational Corporations Technology Transfer through Transnational Corporation a technical paper" (New York ST/CTC/11 -1979)

List of References (Continued)

29. UNCTC — National Legislation and Regulations relating to Transnational Corporations· (United Nations; Sales No E 83 II A 7, New York, 1983)

30. UNCTC — Transnational Corporations in World Development· Third Survey (United Nations, Sales No E 83 II A 14, ST/CTC/46, New York, 1983)

31 UNCTC — "Transnational Corporations and International Trade selected issues" (United Nations, New York, February 1985)

32. UNCTC — "Transnational Corporations, Technology Transfer and Industrial Performances" (United Nations, New York, 1981)

33 UNCTC — Features and Issues in Turnkey Contracts in Developing Countries. A Technical Paper (United Nations, New York, ST/CTC/28, 1983)

34 UNIDO — "National Approaches to the acquisition of technology" -No 1- New York-1975

35 UNIDO — "National Registry for Technology Transfer in Egypt" (DP/EGY/78/001 -May 1980) Op.Cit, (based on the work of V.R Arni)

36 UNIDO — "National Registry for Technology Transfer: Egypt" DP/EGY/78, October 1981, (based on the work of P O'Brien)

37 UNIDO — Monitoring of Technology Transfer Agreements by Regulatory Agencies An overview of policies and issues, (October 1983, ID/WG.405/27)

38 UNIDO — "Egypt" -Industrial Development Review Series- UNIDO/IS 637- May 1986

39 UNIDO — "Technological Information Exchange System (TIES)" Progress Report (October 1983, I/WG 405/6)

40 Wahba, W G — "Technology Regulations in Egypt" Investment Review -(Vol 1, No 4, January 1981)

41 WIPO — "Legal Aspects of License Agreements in the Fields of Patents, Trademarks and Know-how, -(Geneva, 1972)

PRINTED IN ESCWA, BAGHDAD