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**Current Perspectives on Technology
Acquisition in Egypt**

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Current Perspectives on Technology

Acquisition in Egypt

Dr. Wahby G. Wahba

Introduction

Despite the fact that Egypt has a sizeable science and technology establishment and manpower(1), the contribution of this national resource to the overall socio-economic development of the country has left much to be desired. Links and interactions between technological activities on the one hand and production and economic activities on the other hand are generally weak. As a result, new investments, economic management and development in industry and other branches, had therefore to depend on an increasing degree on imported technology. In many cases the Egyptian negotiators for foreign technology did not have the benefit of domestic experts during selection and bargaining. In fact the Egyptian importer of technology got used to working without domestic technological support, even in the subsequent adaptation and follow-up of technology transfer(2).

(1) About 260 R & D institutions and units and over 25,000 holders of M.Sc. and PH.D degrees.

(2) I. H. Abdel-Rahman", Towards A Technology Policy For Egypt", Seminar II, Summary Position Paper and Possible Points for Discussion , Nov. 1982.

Strategies of development, which are based on the autonomous growth of consumption and aspiration to new consumption patterns, increasing dependence on imports, led to unfair competition for local production especially industrial production. In particular basic industries of building machines, machine tools, engineering, basic chemicals and electric and transport equipment were neglected, exports stagnated and imports expanded, especially in food.

Employment and migration policies, created shortages, which were not reduced by intensive training programmes. Labour costs in production increased, and many Egyptian products became less capable to compete in domestic and external markets.

It was evident, however, that comparative advantages for Egyptian labour and products would be further reduced, when the new technologies of micro-electronics, biotechnology, standardization and robot production are introduced internationally on a large scale, thus reducing the share of labour in production.

There have been new trends, that took place during the last few years, which indicate a shift in public policies

towards increasing productivity, training, production and exports. Wage, employment and price policies are being carefully considered. Public, foreign ^{and} private investments are encouraged. Technological efforts, combined and organized in appropriate forms can support these new trends, and thus give technology a new role as a leading sector, and not merely as a service and support sector(1).

In Egypt, all of the basic factors of production: land, labour, capital - can and should be more productively utilized. More of the economic growth should come from the domestic commodity producing sectors of the economy, particularly agriculture and industry, which lagged behind the energy and service sectors in the past decade's growth spurt. A development strategy based in large part on technological modernization in these two sectors will exploit the several potential development advantages which are available for Egypt's economic growth. The task of mobilizing Egypt's scientific and technological resources for purposes of development is in fact a task of providing

(1) Ibid.

a means by which scientific and technological resources can consider and interact with the economic, technical, managerial and organizational limitations that determine the rate and extent of innovation in agriculture, industry and the service sectors. Innovative academic type research is only one small part, and may be the least important in Egypt, of the total services economic activities need from the technological community.

"Towards A Technology Policy For Egypt"

The Academy of Scientific Research and Technology (ASRT) in Egypt, as a part of its joint activities financed by the U.S.A.I.D., has been collaborating- during the period 1981/83 - with the institutions of the key sectors of the national economy in an overall effort to arrive at a generally agreed - upon national science and technology policy framework that would embody a set of major lines of action which - when implemented - would produce effects on the pattern of technological development of the country and consequently on the overall national economy. The central part of that project was a series of three annual seminars which were held in three successive years, 1981, 1982, 1983. Each seminar was composed of two components: the first was

an all-Egyptian discussion and analysis meeting, and the second was an international seminar in which a number of international experts participated. Undoubtedly the three seminars taken all together have created interest and varying responses from a large number of scientists, engineers, technologists, economists and other specialists. The wide range spectrum of concern, starting from pure and fundamental sciences in one end, to the economics of production at the other end, became better appreciated. The constraints under which decisions are taken in the different bands of this wide spectrum of activities became clearer. Two currents of thought emerged out of that exercise. The first gave attention to the technology-development interaction as practiced actually in Egypt, and considered that through this interaction, specific technology questions, as well as technology directions could be identified. The other current of thought gave attention to the identification and formulation of a coherent and explicit "technology policy" to guide and control technological developments and application. In the following paragraphs I shall try to throw some light on

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both concepts and start with the former which was called by its initiator "the interactive approach"(1).

The Interactive Approach

The principle in that approach is to involve the "operators" in the technology field and its applications in studies and discussions, which would hopefully lead to concepts and actions which "they" themselves could do. Discussions in that case could bring out ideas and proposals, which can be put forward to policy makers and supervisors at different levels. All attention is directed towards technology in economic and social development both at the micro level of a single project or at the level of a national programme and policy. The yardstick for measuring success, becomes therefore, the contribution which chosen technologies contribute to social and economic development. The objective could be identified as being the selection of the most appropriate technology (amongst available alternatives and within the constraints of each case), and the management of the operations in which it is used, especially as regards

(1) I.H. Abdel Rahman, An Interactive Approach to Promote Technology for Development in Egypt & Follow Up of the Interactive Approach in Building and Implementing Technology Policy in Egypt, Seminar II/12, November 1982, Seminar III/4, November 1983.

the training of personnel concerned and the successive innovation and advance. In a simplified form, the economic decisions should be taken after adequate consultation with the technologists. The advice wanted from the technologists will be related mostly to the selection and adaptation of imported technology. In other words, the technologists and the development economists must have a meeting ground in which they can collaborate for national interests.

This kind of dialogue was initiated by three important sectors in 1983, namely, industry, agriculture and irrigation. In each one of these sectors, the ministry concerned organised and presented its plans and development programmes. The industry conference was attended by about 300 managers and chairmen of industrial companies. The second conference, concerned with agriculture, recognized specific objectives for reaching higher targets for production and productivity of the main agricultural and food items. It may be noteworthy to mention here that the Egyptian Agriculture Research Centre, an affiliate of the Ministry of Agriculture is considered to be the largest research organization in the whole of the Middle

East and Africa. It is composed of more than 3000 qualified research and development workers, belonging to 11 specialized R & D institutes, together with a number of experimental research stations, and 26000 acres of development farms all over the country. It is very clear that such a huge and well organized structure must be closely involved in technology development, not only as users, but also as planners and creators at different levels.

Another equally important focus of technology and development in Egypt exist in the field of water resources.

A major national project, has been completed few years ago with the assistance of the World Bank and the UNDP to prepare a water master plan for Egypt. R & D in water is of utmost importance to Egypt which depends totally on Nile water. Major research projects cover a wide scope ranging from increasing water resources, the High Dam and lake management and control, 36000 kms of main water arteries, the environmental and development aspects of water use, the protection of northern sea shores from erosion and many other problems related to the use of water.

The stress in the above was to a large extent on the approach and methodology of dialogue and interaction. Any dialogue of that kind would by necessity include the major elements of a formal technology policy which was expected to emerge through this approach.

The National Technology Policy

From the very beginning it was clear that the basic objectives of the technology policy would be the development of indigenous technology and the efficient absorption and adaptation of imported technology. For the national technology policy to be maximally effective it was strongly advised that a multi-institutional and multi-functional study be initiated to explore all issues which govern the influx of foreign contributions into the national economy within a comprehensive conceptual framework which aims at the stimulation of contributions from the national technology system.

This requirement can be achieved by the formulation of the national technology policy as an integral part of the overall national development policy. The exercise which lasted for three years and ended by the formulation

of a comprehensive technology policy for Egypt was so rich in its component parts and had a significant contribution to the national endeavours by all economic sectors concerned as well as by the national innovative-adaptive-productive system, which embraces institutions responsible for the generation, transmission and utilization of technology. The outcome of this exercise is not simply seen as a document or statement but seen in fact as a consensus that does not only reflect cooperation but represent a commitment built on clarity of the sectoral concerns within the context of the needs of the national development(1).

Undoubtedly, technology policy is closely linked, even at the day to day and project by project level, to economic, financial, labour, wages, exports, imports, investment, education, training and other policies. National development requires the infusion and integration of appropriate and selected technological innovations in productive enterprises all over the wide

(1) E.E. Galal, Progress Report - Issues for Consideration, Towards a Technology Policy for Egypt, Seminar III, 1983.

range of sectors producing goods and services. The technology policy, as adopted by Egypt, favours the selection and introduction of appropriate techniques, both imported with fair conditions and that which is locally generated. In that case, appropriateness has to be decided upon, not only at the level of the parties concerned but also within a wider frame of national objectives. The technology policy in its final version has satisfied to a large extent the need for guidelines to cover this wide-ranging and complex set of inter-related areas.

In the final analysis, it is believed that Egypt can progress almost solely on the basis of its manpower, technology and management and not so much on the basis of physical resources(1).

Technology Regulation in Egypt:

The Draft Code

The "open door" policy heralded by Law 43 of 1974 emphasizes the need for additional production capacity in Egypt and seeks the use of more modern technologies to realize that production. The promotion of foreign

(1) I.H. Abdel Rahman, *Technology, Business and Public Policies in Egypt*. Seminar 1/7, October 1981.

investment has been reinforced by a decentralization of administrative powers and in particular through the creation of the Investment and Free Zones Authority (GAFI). Since 1974, GAFI has been administering Law 43 which integrates the Egyptian economy ever more closely with the world market. The net impact of Law 43 has been to set in motion a series of changes of direct relevance to the use of modern technology in Egypt's industrial sector. There has been in fact a sharp increase in the number of arrangements and in particular of their packaging with foreign investment. Due to the emphasis on augmenting production capacity, much of the technology has been embodied in new machinery in addition to a quite significant number of separate contractual agreements to cover technology per se.

Until recent years Egypt did not pay much attention to the import of technology in its official policies. Attitudes have changed, partly because of a growing recognition that the country possesses a scientific and technological potential of its own, and hence that it is not always necessary to import technology; but also because

Egypt will continue to seek the best technology available in relation to its own needs from foreign suppliers.

It is needless to say that no one country, no matter how technologically advanced, can maximize the effectiveness of its economy without constantly acquiring new technology from abroad as well as developing as much as it can at home. These facts have created a lively worldwide market in technology in which it is important for the nation to participate. Identifying, choosing among alternatives, and obtaining access to public or privately held technology is itself a process requiring talent, know-how and investment. Bargaining power in technology negotiation has become in itself a specialized technique. The local negotiator is in a still weaker position if he is seeking loans and may feel helpless in front of the external parties. In addition to that one should not forget that national development requires the infusion and integration of appropriate and selected technological innovations in productive enterprises all over the wide range of sectors producing goods and services.

It was under these assumptions that a committee representing the Investment Authority, the General Organization

for Industrialization, the Academy of Scientific Research and Technology, and the Council of State was entrusted with suggesting a draft code on technology regulation in Egypt. This exercise started in 1981 with the aim to design a set of flexible policies that would take into account the conditions under which technology can be acquired in the international market, the different conditions introduced for foreign ownership, the characteristics of the domestic and export markets, and the improvement of technological capabilities in the country. This can be considered as a fresh approach to policy, in which case the legal instrument could serve to create space in which new lines of action could be worked out. Our experience while formulating the draft code illustrates how national economic objectives can influence a law dealing with technology transfer to safeguard national, economic and technological autonomy. The law should be seen as the outcome of a policy debate and might be regarded as the starting point or continuation of a fresh approach to policy, in which case the legal instrument could serve to create space in which the new lines of action could be worked out.

The Draft Code

Scope of the Law

The draft legislation - which was published in the TIES Newsletter of July 1985 - covers seven chapters with 17 articles. It defines the terms contained in the law in view of the fact that the law governs issues which have not been covered in any preceding legislation in Egypt. The scope of the law covers various types of transfer of technology agreements. In defining technology and technology transfer, Egypt followed the concept adopted by the UNCTAD in the draft international code of conduct on the transfer of technology. The international draft code defines technology as "systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service, and does not extend to the transactions involving the mere sale or the mere lease of goods". Article 4 stipulates that pure sale, leasing or rental of goods is not considered a transfer of technology. Also trade marks would not be considered transfer of technology unless they form a part of technology transfer transactions. Licensing of trade marks is considered within the scope of the law provided that the

trade mark be important for the export of products manufactured under license or may bring along recognized technical prestige. The main idea behind that is to reduce the use of foreign trade marks in the domestic market. Direct sale of computer programmes, models and industrial drawing, know-how or assignment of rights are considered to be transfer of technology.

Registration

The draft law also proposes the obligation to register technology transfer contracts with the Academy of Scientific Research and Technology with a view to affecting the processes of examination, control, evaluation and the monitoring of the implementation of the contracts. The Registry with the assistance of specialized agencies will develop model contracts for technology transfer. It will also help in the negotiation processes concerning the transfer of technology including the access to alternative sources of technology and the possibility of partial technology packages. If registration/approval is denied, the agreement will then be null and void. This means that the agreement cannot be enforceable before any authority and that fulfillment thereof cannot be required before Egyptian courts.

It goes without saying that the executive regulations will take care of the "procedures" including the period within which the entity in charge of enforcing the law will take decision on the agreements submitted for registration, the possibility of the parties to appeal against that decision and patent infringement and validity.

Enforcement

The draft law also provides for the monitoring of the execution of the agreements to be carried by the competent authority and other agencies concerned to ensure the enforcement of the agreement as approved by the authority. Furthermore penalties are included in the draft legislation for a) failure to present the contract for registration b) furnishing of false data for registration c) refusal to supply information when required d) execution of the contract under different requirements than those registered.

Restrictive Practices

As of course expected, the draft law governs conditions disadvantageous to national interests as

well as unfair conditions which may lay a heavy burden on the acquiring party. In certain cases, however, some of these conditions could be tolerated. The prohibitions are only in a few instances formulated in a strictly per se manner and covered by Article 6.

It may be appropriate here to give some examples of these conditions and the general criteria proposed for their application. Article 6 prohibits registration of contracts in seven cases. The first item is the prohibition of registration if the purpose of a contract is to transfer locally available technology. This clause has been interpreted to mean that a contract cannot be accepted when it involves technical know-how in the public domain, or covers foreign technical know-how that a local research institute can provide.

The last clause of Article 6 prohibits the registration of contracts with terms of enforcement that exceed ten years. Although all obligations of the recipient company are not to exceed a period of 10 years, there is nothing in the law that prevents the Registry from accepting a new contract after the original one has expired. The

approval of course will be given on a case-by-case basis. Other conditions which deal with the type of restrictive practices that must be eliminated from contracts before they can be registered include:

- the contract which obliges the licensee to grant back to the licensor the patents, trade marks, innovations or improvements he made during the contractual period; or if the contract contains certain conditions which may lead to an unequal relationship between the parties involved. The last statement has been interpreted to mean that a contract could not be accepted if the exchange of information on improvements or innovation developed by either party is not conducted on a reciprocal basis with regard to remuneration.

- the contract which limits the activity of the acquiring party in the field of research & development.

- the contract which prevents or restricts the acquiring party from exercising its rights to export.

- the contract which prevents the acquiring party from utilizing a complementary technology from other sources.

- the contract which imposes on the acquiring party restrictions relating to the size of production or sale prices for both local and foreign markets.

Article 7 covers five clauses that deal with, among others, the type of restrictive practices which could be accepted for considerations related to the common good, in accordance with the nature of the contract and the requirements of the national economy.

The most important may be the first clause which prohibits the registration of the contracts that set a price out of proportion to the value of the technology acquired or impose a disadvantageous burden on the national economy. Of course it is not possible to establish general rules concerning an adequate level of payments. But the registrar can at least examine some of the most obvious implications for the economy of contractual arrangements with foreign companies. Such an examination should deal with the effect of payments for technology on the company itself, the effect of the payments on the balance of payments, and the effect of the payments on the cost of goods and services produced and on the consumer sector in general.

Guanrantees

In recent years Technology Transfer legislation has focussed more on the issue of clauses which could guanrantee a successful technology transfer compared to earlier legislation where reference was sometimes made to performance guarantees.

In the words of the UNIDO Secretariat " The Egypt-ian Draft Code is in this respect unique as it includes a variety of obligations and clauses which should be included in the agreement which no other legislation has covered". Most notable is the obligation to disclose risks which may result from utilization of the technology, particularly these related to environment and public health and "to make good damages resulting from the utilization of the technology effecting persons and property." Furthermore it makes reference to contractual guarantees when it concerns employment of local labour and utilization of local resources.

Settlement of Disputes

Article II stipulates how disputes are to be settled with a view to resolving these in the most speedy and

reliable ways. The law provides that the Egyptian courts shall primarily have jurisdiction to decide on such disputes and allows for arbitration. Arbitration takes place subject to specific rules which are contained in article II. The law also states that disputes shall be subject to the provisions of the Egyptian Law. The law concludes with the listing of sanctions which are to be imposed in case of violations of the provisions of the law.

This was a summary of the most important provisions of the draft code on technology regulation in Egypt. We do believe that flexibility in the implementation of the law is the most important issue.

One of the specific objectives of the law is to assist the recipient companies in selecting and negotiating foreign proposals so as to guarantee fair negotiation practices, and to ensure that acquisition of technology will strengthen the national capabilities.