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D03361



Distr.
LIMITED

ID/WG.130/3
24 April 1972
ORIGINAL: ENGLISH

United Nations Industrial Development Organization

UNIDO/LES Symposium on Problems and Prospects
of Industrial Licensing in Developing Countries

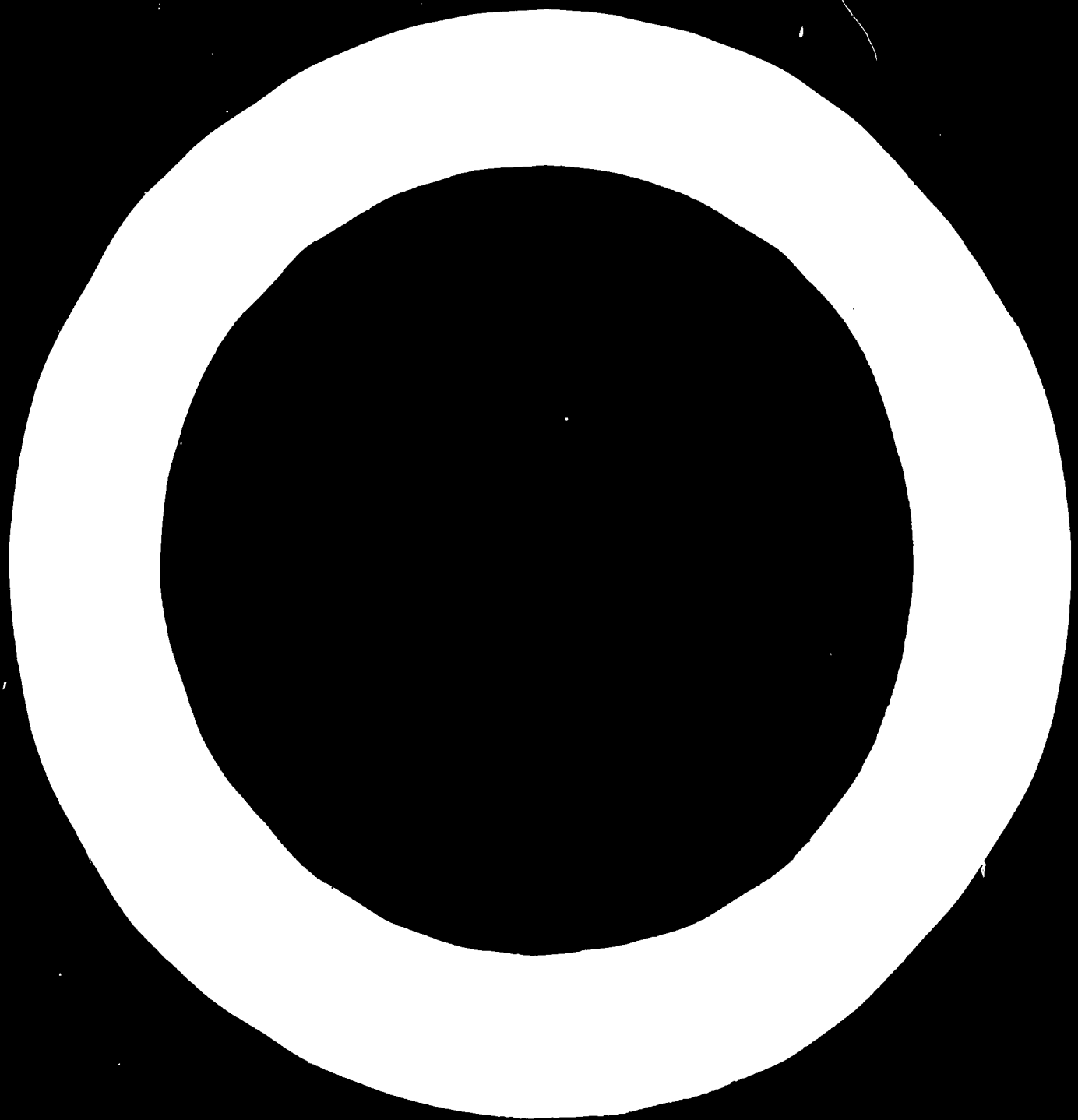
New York, N.Y. 2 - 5 May 1972

CHANGING ATTITUDES AND PERSPECTIVES IN ^{1/}
DEVELOPING COUNTRIES REGARDING TECHNOLOGY LICENSING

prepared by
the Secretariat of UNIDO

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id.72-2402



Introduction

A significant feature of the current international economic scene is the increasing flow of technology between nations. The transfer of technology has been very extensive and is rapidly increasing among corporations in industrialized countries, but such transfer is also taking place between the industrial enterprises of developed and developing countries. Technological development often accompanies new investment opportunities in developing countries, but the form of technology transfer that is assuming much greater significance is the mechanism of licensing.

A careful study of the experiences of developing countries in recent years shows that certain basic changes are taking place in the approach of these countries towards licensing of foreign technology. The widespread fear of foreign economic domination, which marked the 1950s and the 1960s, has diminished appreciably; the role that foreign investment and technology can play in the industrial growth of developing nations is now generally recognized. At the same time, there is a definite trend towards greater economic independence, a trend that is reflected in the increasing number of regulations affecting the extent of foreign investment permitted in various industrial sectors.

Foreign Investment and In-Flow of Technology

Traditionally, the inflow of technology in developing countries has been an integral part of direct foreign investment. Considerable capital has been invested, largely by multi-national corporations,

and together with this capital came a significant flow of technology mainly in the fields of extractive industries, consumer goods, intermediate products and a wide range of chemical and engineering goods. Among the motivating factors that led to these investments were the need for new markets to avoid tariff barriers and import restrictions, the exploitation of new sources of raw materials and the utilization of low-cost labour. Foreign corporations tended to operate through their own branches and subsidiaries, often through their own marketing and distribution companies.

During the last decade, however, many developing countries have become increasingly concerned about the inherent costs of such investments, not only in terms of outflow of profits and dividends, but also in the form of royalties, know-how fees and payments for goods and components imported from parent companies. This concern has given rise in many developing countries to a feeling that ownership and control should rest with local nationals as far as possible. This feeling is reflected in the growth of joint ventures with minority foreign participation. Accordingly, there is a trend towards a change in the form of foreign investment in these countries. It appears that foreign investment, in the next decade, will increasingly have to be in the form of joint participation in local industrial enterprises. Another trend with regard to foreign investment is the greater selectivity being exercised by most developing nations, particularly those that have achieved a higher level of industrial development.

All these considerations may result in a percentage limitation of foreign holdings in new projects or in a gradual reduction in the foreign equity holdings of existing foreign subsidiaries.

In several developing countries such as Mexico, Iran and India, majority foreign ownership is not normally permitted with respect to new investments. In India, for example, there is also a list of industrial projects where foreign technology would be welcome but where no foreign capital participation is allowed. In the member countries of the Andean Group, there is a considerable number of detailed restrictions on foreign investment, both new and existing. In the Philippines, majority investment is allowed in certain "pioneer" industries for approximately twenty years, within which time the foreign investment must be converted into a minority equity unless the period is extended. Thus, the pattern for foreign investment varies from country to country.

On this occasion it is not our intent to consider the qualitative implications of foreign investments in developing countries. However, it should be emphasized that a country's policy with regard to foreign investment is bound to have considerable impact on the manner in which foreign technology will be acquired in the future. In respect of technology agreements that are not linked to foreign investment, developing countries tend to exercise a higher degree of selectivity. For these countries, it is important to define how technology and know-how can best be acquired, absorbed and adapted to local conditions.

UNIDO's Assistance on Licensing

In this connexion, UNIDO is making great efforts to assist developing countries in establishing the conditions and institutional framework needed for the acquisition of foreign technology. More specifically, UNIDO's assistance in this field is oriented towards the creation of a mechanism to perform both a regulatory and a promotional function in the procurement of foreign technology through licensing. In this context, UNIDO has been requested to assist in a case-by-case evaluation and scrutiny of proposed license agreements.

In all of UNIDO's technical assistance projects in this field, a careful analysis of prevailing conditions and technological requirements have to be determined in advance. The spectrum of technological requirements naturally varies greatly from country to country, depending to a considerable extent on the stage and level of industrial growth.

Nature of Technological Requirements in Developing Countries

The technological requirements of developing countries generally involve the acquisition of composite or packaged technology. In industrialized nations, licensing agreements between enterprises are usually linked to the transfer of a specific know-how which assumes a high level of expertise on the side of the recipient party. The scope and nature of technological requirements of developing countries demand a much wider approach that extends far beyond the

direct transfer of patented or unpatented know-how. Accordingly, in the transfer of technology and know-how to developing countries, various technical requirements for the establishment as well as for the operation of industrial enterprises should be taken into account.

The technological requirements for manufacturing enterprises in developing countries include some or all of the following points:

- (a) Pre-investment studies including preparation of a detailed project report (DPR);
- (b) Basic and detailed engineering including preparation of machinery specifications, plant design, factory layout etc.
- (c) Selection of equipment, plant construction, erection and installation of machinery and a start-up of plant;
- (d) Process technology; and
- (e) Technical assistance during the post-installation period, including training programmes and various forms of management assistance.

As the industrial and technological base widens in the developing countries and extends to an increasingly diversified range of manufacturing activities, the requirements for technical processes become more intricate and varied. The inflow of technology then enters into a more complex dimension with each successive stage of industrial growth.

Objectives of Technology Transfer to Developing Countries

Through a comprehensive and well-oriented approach to the acquisition of foreign technology, the developing countries can ensure that the flow of technology is adequate to meet their basic needs for industrialization and can direct this flow to cover their major technological and production gaps. Moreover, they would be able to be more selective, choosing technologies that are appropriate to the needs of their economies and seeing that such technologies are acquired at a reasonable cost and on acceptable terms and conditions.

At the same time, the degree of technological dependence of developing countries has to be gradually reduced. Greater efforts will have to be made towards adaptation and development of acquired technology as well as towards the creation of a base for indigenous research and development activities.

All these objectives are difficult to meet, and some of them can be realized only after a long period of time. To attain these goals, even partially, a co-ordinated approach must be adopted by the governments of the developing countries. It is the responsibility of such governments to design a policy framework sufficiently comprehensive to cover all aspects of the acquisition of foreign technology.

Only relatively few developing nations, such as India and a few Latin American countries have considered this subject in some detail and have collected and analysed the necessary information. In most

developing countries, the commercial considerations for the acquisition of foreign technology play only a secondary role to policy issues relating to foreign investments or general contractual arrangements for the establishment of individual enterprises. Nonetheless, foreign technology as well as the mechanism through which it is transferred are issues of sufficient significance to merit a knowledge of the principal aspects involved.

In many instances licensing agreements in developing countries are conducted on an enterprise-to-enterprise basis. The prospective licensees, who are anxious to obtain modern technology on the most favourable terms, are more often than not quite knowledgeable about the market and its potential. However, the cost-benefit analysis applied by the local entrepreneur relates primarily to the economics of a particular enterprise, and the decision to finalize an agreement is usually based on the expected degree of profitability. These considerations are essential for the successful outcome of any business venture, but from the point of view of a government of a developing country, it is important that wider socio-economic considerations be taken into account.

This leads to a degree of regulatory control so that the acquisition of a particular technology, at a given cost and under certain terms and conditions, is in conformity to the overall interest of the national economy. It is therefore necessary that the government of a developing country adopt a co-ordinated approach to this question so that it can first identify certain technological gaps and then

formulate a policy framework within which individual technology contracts can be negotiated. If the governments in developing countries are to carry out this task, they must devote attention to defining the type of institutional framework and mechanism which would best be suited to deal with the various aspects of acquiring foreign technology through licensing. It is in this field that the assistance of UNIDO can be particularly effective.

The Institutional Mechanism for Regulatory Control

Many developing countries have established institutions along the lines of a board of foreign investment to co-ordinate the acquisition of foreign technology. In other countries, however, there are no separate agencies for this purpose; proposals are channelled through the various ministries of government. The advantage of having an institutional agency within the government is that foreign proposals can receive specific attention from a body which can gradually build up knowledge and expertise on the subject and which can formulate a basically uniform approach. The degree of authority enjoyed by the institutional agency has to be considered in the context of each country's situation; it could be a semi-autonomous body with considerable powers and authority, or a separate executive agency of the government, with primary advisory functions.

As already mentioned, the role of such an agency would have to be promotional as well as regulatory. On the promotional side, the responsibility of the agency would be to:

- (a) advise local entrepreneurs and domestic enterprises on foreign sources of technology;
- (b) identify major technological gaps, taking into account the existing manufacturing techniques or goods for which local factor endowments are favourable;
- (c) advise local entrepreneurs and domestic enterprises on negotiations and drafting of technology contracts and licensing agreements;
- (d) serve as a clearing house for information to potential licensors and investors on opportunities for the establishment of local enterprises.

To carry out these functions, the agency would need a number of technical and expert personnel having a detailed knowledge and an awareness of the growth and prospects in various industrial sectors. The agency would have to work in close co-operation with planning bodies in the country in order to co-ordinate its activities.

One of the specific roles of the agency is that related to negotiations with foreign licensors and suppliers of technology. Although the agency should provide advisory assistance to domestic enterprises on these matters, it would be desirable for actual negotiations to be conducted by the enterprise concerned and not by the agency because of the practical difficulties involved in negotiations requiring highly technical expertise in various industrial sectors. The main considerations of a license agreement generally

extend beyond the assessment and review of the payments involved and include some important contractual features such as aspects of technical assistance, restrictive and tie-in clauses which may be of particular concern to the government.

Another important promotional function of the institutional agency is to provide a linkage between domestic industry and foreign industrial groups by keeping the latter informed of developments and licensing opportunities in the country. Many developing nations maintain investment centres in industrialized countries for the purpose of promoting trade and investment in their countries. Such centres could be even more useful if they were expanded to cover the flow of technology through licensing, and to provide a feedback of information on technological developments in the industrially advanced countries.

With regard to the regulatory function to be exercised in the transfer of technology, the specific approval of the government or agency should be obtained before a technology contract is finalized. In some countries, prior approval is required for the release of foreign exchange for payments of royalties and know-how fees. In other countries such as the Andean Group, legal enactments provide for the specific approval of government being obtained before any technology contract can be acted upon. In a number of developing countries, however, this question is neglected and little or no control is exercised in this regard.

Important Features of Technology Agreements in Developing Countries

In countries where there are considerable limitations on foreign exchange, the regulatory function should be exercised in such a way as to ensure that the technology to be acquired would be based largely on local inputs. From the developing country's point of view, the objective is to maximize the local content of manufacture within the shortest period of time, and in some cases this aspect tends to be over-emphasized. However, foreign licensors should take into account the fact that the technology to be transferred should preferably be related to an increase in local manufacture. On numerous occasions, government officials of developing countries have expressed their concern about the unfavourable conditions they have to meet to obtain foreign technology and about the limited possibilities of selecting technologies that are well adapted to their local needs and conditions. Furthermore, they are troubled over various provisions such as restrictive and tie-in clauses regarding manufacture or sales that are normally incorporated in licensing agreements; and also for the quantum of payments. A number of developing countries have requested the advice and assistance of UNIDO on these subjects.

Through detailed studies conducted in various developing countries, it has been found that a common restriction — and perhaps the one most harmful to the economy — prohibits, limits or places conditions upon the export of products manufactured under a license agreement with a foreign company. As an example, a recent study

conducted by the United Nations Trade and Development Board can be cited that gives the following information on Mexico:

One hundred and nine contracts covering the use of patents, trademarks and unpatented know-how were examined; 104 of these contracts contained clauses limiting exports. In 53 of these cases, the restrictions took the form of absolute prohibition; in 13, prior export authorization was needed from the technology supplier; 12 had a provision that exports could only be effected through a given company; and 4 contracts had price-fixing provisions for exported products.

A similar situation was found in many other developing countries in which detailed studies were conducted by UNIDO.

Although it is difficult to ascertain the conditions under which exports should be permitted or even to draw general guidelines in this regard, we are of the opinion that foreign licensors could adopt a more liberal approach with regard to the areas where the licensee can export his products. There may be little practical relevance, for instance, in insisting on obtaining exclusive export sales rights to all countries for a sophisticated and highly technological product. A pragmatic approach in respect of providing non-exclusive sales rights for exports should be carefully considered, for this would greatly add to the sense of freedom of both government authorities and licensees in developing countries.

In the tie-in clauses commonly incorporated in many contracts, the licensee is required to obtain some or all supplies from the

licensor or the licensee must undertake to buy from the licensor certain parts and components that are listed in the agreement. Where the licensor has reason to believe that the government of the licensee may not permit a clause of this nature, as in the case of India, the agreement is formulated in such a way as to prescribe the general intention, with a separate supply contract for such items. In certain instances, the supply of particular components and intermediate products may become necessary when such products can be obtained only from the licensor. Although such cases are relatively rare, we would advise the licensee that a provision should be incorporated in the agreement for the continuous supply of these products at least for the duration of the agreement. With regard to the cost of such components and intermediate products, it may be desirable to obtain an agreement for specific prices at the time the contract is signed, allowing for fluctuations during the life of the agreement.

Furthermore, we would advise the licensee that:

- (a) The Technology contract should include a provision that if components and intermediates are to be supplied by the licensor, the cost of these items should be based on internationally competitive prices and that the manner of determining such prices should be carefully defined;

- (b) The "most favoured nation" clause should be incorporated in the agreement with regard to the pricing of components and intermediate products to be supplied by the licensor;
- (c) Where the licensor supplies bought-out components and intermediate products, provision should be made that the price charged to the licensee should be the same as the price paid by the licensor, plus reasonable handling charges;
- (d) In sub-contracting arrangements where the licensor is the manufacturer of components and/or intermediate products, provision should be made that the price to be charged to the licensee for such products shall not be higher than the cost at which such items are entered in the books and accounts of the licensor at the next stage of production in his own plant. In such cases, the cost entries in the book of the licensor should be duly certified by the company's auditors and this should be made available to the licensee.

Although by including the above provisions in the agreement the licensee may be able to obtain better prices for components and intermediates purchased directly from the licensor, his best protection is in obtaining complete information on alternative sources of supply, on international competitive prices and by, in principle, avoiding tie-in clauses when alternative sources are available.

By and large, the question of remuneration and payments for technology is still left to be determined by the licensor and the licensee. There is a need, however, to formulate broad principles and guidelines governing such payments. The guidelines should touch on such subjects as:

- The basis for royalty computation;
- The percentage of royalty considered to be reasonable in the various sectors of industry, taking into account past domestic experience as well as the experience of other countries; and
- The relationship between technology payments and the extent of capital holdings in an enterprise.

The conditions under which technology is transferred vary so greatly that a flexible approach is necessary. In respect of the relationship between payments for technology and the extent of foreign investment, for example, only general principles can be laid down.

Summary

To summarise, the developing countries' past experience with regard to technology licensing will have a definite bearing on the future pattern of international licensing. Through careful studies conducted by UNIDO and other UN organizations, we have observed that certain basic changes are taking place in the approach of developing countries to licensing of foreign technology.

Apart from the increasing awareness of the role of foreign technology and investment, many developing countries are examining the implications of the acquisition of foreign technology much more thoroughly than in the past. The primary matters of concern to the developing countries are the issues which have an affect on their national economy.

It is important for foreign companies interested in licensing their technology to be aware of the significance of these changes and to understand the points of view of the developing countries. To the extent that potential licensors are aware of such issues, license agreements are not only more practioable to enter into, but are also far easier to implement.

Although the flow of technology to developing countries can take place on an enterprise-to-enterprise basis through various means, it will still depend largely on the overall climate and policy framework for foreign investment, on the one hand, and on the nature of the technical knowledge required, on the other.

Such transactions can take place through various forms of licensing arrangements with or without capital participation, but the contemporary trend for joint ventures in these countries represents a combination of foreign investment and a contractual arrangement involving foreign technical know-how.

For the developing countries, a market for technology which is protected by patents, trademarks or any other form of semi-monopolistic control, is far from ideal. The relatively weaker position of prospective licensees is accentuated by the composite nature of the technology that is normally required.

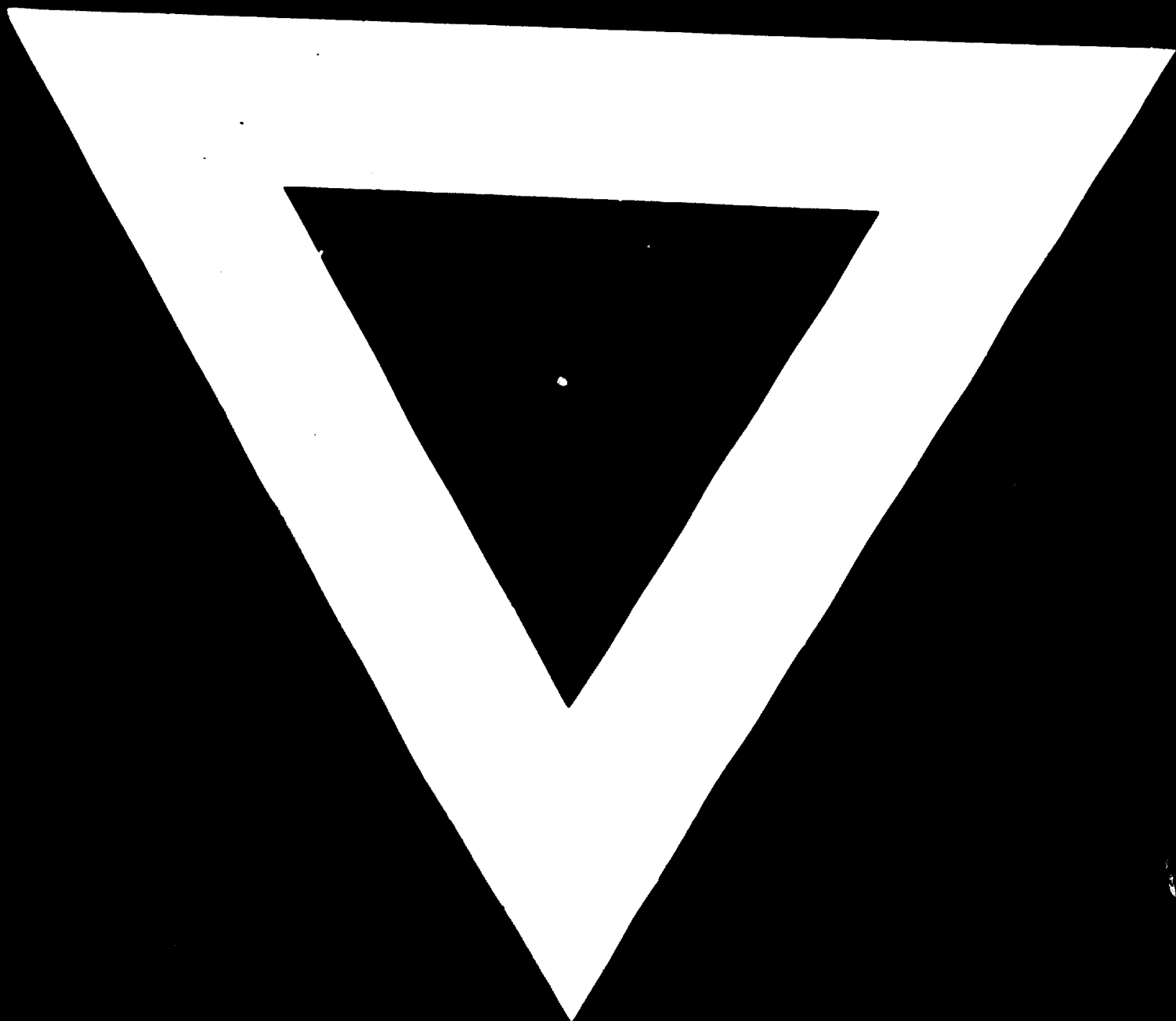
In respect of the acquisition of foreign technology, the role of the governments of the developing countries will be a determining factor in licensing transactions in the years ahead. Most likely institutional agencies will be created specifically to deal with this important question. UNIDO's efforts are geared to assist the developing countries in the establishment of such agencies and to help them to obtain a balance between their regulatory and promotional functions. More specifically, we think that the inflow of technology should be encouraged and promoted so as to cover the gaps existing in the technological field in developing countries.

The fact that selectivity is called for in respect of the nature and cost of such transfer should not detract from the basic principle that developing countries urgently need technological inflow in various sectors of industrial activity and that efforts

should be made to facilitate such transactions. Furthermore, it is important that decisions on foreign proposals be made as quickly as possible. While it may not be advisable to allow unrestricted technology transfer, it is essential that proposals be scrutinized in the shortest time.

We are convinced that the inflow of technology will play an important role in an accelerated growth of various industrial sectors. We recognize that the transfer of know-how and technology through licensing will be one of the determining factors for the industrialisation of developing countries.





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