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BASIC CONSIDERATIONS FOR THE EVALUATION OF TECHNOLOGY CONTRACTS IN DEVELOPING COUNTRIES*/

prepared by

the Secretariat of UNIDO

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CONTENTS

A. INTRODUCTION, TYPES OF TECHNOLOGY CONTRACTS

During the last ten years several developing countries have outlined selective policies for the regulation of technological transactions with foreign firms. During this period, international organizations have as well contributed to these efforts through the formulation of guidelines and criteria for the evaluation and approval of technology transfer and foreign investment proposals.

Specific agencies with the necessary authority and governmental support were also created to streamline licensing procedures and for the acquisition of foreign technologies in terms and conditions satisfactory to their own economies. At present, there are fifteen developing countries that have acquired experience in this area and have become better prepared to deal with the complexities of international licensing and through this effort they have developed systems to regulate the acquisition of foreign technologies from foreign sources.

The experience accumulated to date serves as well to confirm that in conjunction with regulatory policies there is a need to evolve new orientations and mechanisms in order that these offices could become more active participants and promoters of technological development efforts.*/

UNIDO, in close consultation with various governments and other United Nations organizations, has considered the need for assessing the impact of existing technology transfer policies vis-à-vis the strengthening of national technological capabilities and the development of priority sectors within the economy.

In order that other developing countries could also benefit from the experience gained by the countries participating at this meeting, some of the critical issues that relate to technological transactions are herein discussed and presented for consideration.

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*/ For a more comprehensive and detailed review of the role and functions of technology regulation agencies in technological development see Agenda Item II document.

For the examination of these basic issues, it is important to differentiate between three categories of technology contracts:

1. Contracts involving industrial property rights;

2. Contracts related to various kinds of technical services and managerial assistance;

3. Technology contracts of a composite nature.(These account for the large part of technology contracts entered with developing countries).

B. BASIC CONSIDERATIONS WITH REGARD TO CONTRACTS ON INDUSTRIAL PROPERTY RIGHTS AND TECHNICAL SERVICES

Industrial Property Rights - Patents and Trade Marks

Patent licence agreements generally relate to a specific process equipment or to the manufacture of a given product. This could include a certain type of equipment whose essential element is patented; or it could also be the refinement of a process which makes an existing product more salable. Sometimes it relates to a specific process or method of manufacture such as metal finishing, to achieve a more functional surface quality; or for example could also include a method of a more economical way to obtain a certain synthetic material.

The question of patents in technology licence agreements requires very careful consideration. Patents can be of great significance in agreements relating to transfer of manufacturing technology and those relating to composite know-how where patents in respect of process engineering and the like may be involved. In many cases, such an agreement may become necessary if the manufacturing technology is covered by a patent in the country concerned. Licensees should always take the following aspects of patents into full account:

1. The licensor should stipulate in the agreement that manufacturing rights in respect of all or any patents relating to the technology are transferred to the licensee. A list of such patents should be annexed to the agreement, but the stipulation should cover all patents relating to the technology, which may or may not be listed. It may be useful for the licensee to satisfy himself also that the patents listed do, in fact, pertain to the technology, as the total number of patents involved in an agreement can affect the cost of the technology;

2. The agreement should provide that, if a new technology is patented by the licensor during the period of the agreement, the licensee will be entitled to use it;

3. Where the life of a patent extends beyond the period of the agreement, the agreement should either provide for not exercising of the licensor's patent rights for the balance of such life or should prescribe the arrangements to cover such a period.

It is also desirable to incorporate in the agreement clauses concerning the infringement of third-party patent rights. For the licensee it is important to be adequately protected in respect of possible patent infringements.

More specifically we could refer to the criteria presently followed by various countries in the examination of patent licence agreements. In this connexion it is essential to consider the existence and scope of industrial property legislation as it relates to the various types of patents that may be covered, such as (i) patents on inventions; (ii) patents on improvements; and (iii) patents on industrial models or designs.

It is of equal importance to take into consideration the scope and duration granted for various patents under the national law. Other provisions relating to validity, exploitation and termination of patents should also be taken into account.

The general criteria referred to above consider among other things the following:

- When the contract relates to a patent that has been requested but not yet granted by the industrial property office; any payment for this concept will be conditioned to the granting of this patent.
- When the contract covers payments for the right to use several patents, it is important to determine the duration of all of them and to differentiate the so-called basic or secondary patents;
- It is also important to determine whether or not the patented know-how is being used in the manufacturing process;

- It is important to determine the degree of exploitation of the patents involved in the "territory" granted under the contract;
- The national office may insist that any possible infringement on licensor patent rights by a third party shall be the sole responsability of the licensor;
- Contractual provisions limiting the "field of use of a patent" in an unjustified manner cannot be accepted;
- The licensor should be responsible to defray all expenses related to the registration and maintenance of its patents in the developing country concerned.

A trade-mark licence is normally dealt with in documents other than those covering patents and know-how, and generally relates to a registered and well established proprietary identification and can be acquired by a recipient firm, with or without a patent licence or a know-how agreement.

The question of trade marks in technology licence agreements is as important as that of patents. It may be necessary to acquire certain technology in order to obtain the use of the trade mark which may have considerable impact on the marketability of products in the domestic market and abroad. The agreement should provide that the licensee may use the licensor's trade marks whenever necessary. If the use of a trade mark expands the market for a licensor's product, the licensor benefits. A foreign trade mark should often be used jointly with a local trade mark rather than alone, in which case it is also desirable to state that the product is manufactured under licence from the licensor concerned. This procedure helps to build up gradually the name and product of the local manufacturer so that when the agreement expires and the foreign trade mark can no longer be used, manufacture can continue under the local trade mark alone. When it is considered essential to continue using a foreign trade mark either for general sales or more particularly for exports, a renewal of the agreement may become necessary on this ground alone.

More specific considerations concerning the use of trade marks in a developing country could include the following:

It might become essential to gradually reduce the use of a foreign trade mark in the domestic market of a developing country when:

- The trade mark has not yet been established in the country;
- Its impact on the sale of products is of minor significance, due to the type of products or services involved.

On the other hand the use of new foreign trade marks may be encouraged:

When these are considered important for the export of products manufactured under licence;

When it brings alone a recognised technical prestige and is required under a particular market situation.

It is important to promote the creation and development of the recipient country's own trade marks in order to gradually identify the products both domestically and internationally, as products manufactured by a developing country enterprise

- When a licensor does not participate in the capital of the recipient company, payments for the use of trademarks should be maintained as low as possible.
- In many developing countries no payment for the use of a trade mark is authorised when the licensee is a wholly owned subsidiary of licensor.

Technical Services and Managerial Assistance

Under this heading we could discuss the type of contracts that cover specific technical services to be provided by the foreign enterprise. Where the technology contract extends beyond the area of manufacturing technology such as preparation of detail project reports, assistance in procuring machinery and equipment, engineering services of various kinds, etc. the type and duration of such a contract will be different and normally such services could be dealt with separately.

Even in respect of technology contracts, covering basic know-how, there are certain technical services that may be required by the recipient enterprise and these can be considered under 3 different headings:

- Training programmes for licensee's facilities;
- Specific technical services to be performed at licensor's facilities;
- Technical experts to be provided by licensor to licensee's plant during the period of the agreement.

In the area of training it will be desirable to clearly describe in the agreement the type of personnel to be trained at the specific fields of training. For the recipient developing country, it would be important to have local personnel adequately trained in the essential aspects of the production technology involved and to ensure that specific provisions to this effect are included in the agreement.

In respect to those services to be covered at the licensor's end, these would normally relate to preparation of drawings, specifications, tender documents and other related material required for the execution of this project. This document, normally is submitted separately from the technological information related to the process know-how. Usually, the cost of these specific technical services will be calculated on the basis of hourly or daily rates.

With regard to management contracts it has been found that these agreements have been used extensively in technology transactions with developing countries. The scope and nature of these services vary considerably, but it is to be noted that in many instances management contracts with foreign enterprises have enabled them to acquire a great deal of responsibility and involvement in the decision-making process and frequently managerial assistance has been the feature of many agreements between a parent company and a wholly-owned subsidiary.

From the view point of a developing country management contracts would have to be considered as a short-term assistance, during which time local personnel acquires the necessary skill to take over specific management functions. In this connection it is important to ensure that the interests of the recipient enterprise and of the host country are adequately represented and effectively participate in basic corporate decisions, particularly in relation to investment, production, recruitment and marketing.

The aspect of determining management services should be linked, as far as possible, to profitability, although it may be stated as a specific fact for the supply of these services. As already mentioned, what is essential would be to derive from these services adequate training for the local personnel to acquire direct responsibility in specific areas.

It may be pertinent at this stage to discuss some of the policies and guidelines currently followed by various developing countries concerning the approval of technical assistance and managerial contracts.

Some countries have looked at this problem by identifying specifically the type of technical services and managerial assistance in the following manner:

Technical Services

1. Pre-operational phase

(i) Pre-investment studies;

(ii) Technical assistance for the purchase of equipment;

(iii) Technical assistance in the erection and installation of plants;

(iv) Plant start up;

(v) Training of technical personnel in the above areas.

2. Operational phase

(i) Assistance in the purchase of spares, raw materials, parts, etc.;

(ii) Quality control;

(iii) Assistance in the operation of the plant including repair and maintenance, production efficiency and others;

(iv) Technical services to clients;

(v) Technical improvements of processes and products;

(vi) Training of technicians in licensor's or licensee's plant.

In connection with the above, government agencies aim at ensuring the following:

- that the contract clearly specifies the various services involved and the corresponding payment for them, in a separate manner;
- to determine the time required to efficiently cover the various services in the pre-operational phase;
- a definition of the scope of technical assistance to be obtained in the operational phase;

- to determine the relationship between the kind of assistance to be supplied by licensor and the complexity of the manufacturing process in its various phases;
- the degree of technical change in the sector of industry in question;
- the technical capability of licensee.

Managerial assistance

The kind and scope of these services will greatly depend on the functions to be covered. In general terms, these services are obtained over a limited period of time; covering among others, the following aspects:

(i) Planning and programming;
(ii) Research and development activities;
(iii) Inventory control and accounting;
(iv) Financing and purchasing;
(v) Promotion and marketing.

Managerial or administrative services have to be evaluated in consideration of the following:

(i) The sector in which they are applied;
(ii) The requirements of the recipient party;
(iii) The type and scope of the same.

In this context the following should be considered:

(i) A definition of the different services involved;
(ii) The provision for training programmes in order that the various functions can gradually be covered by licensee's staff;
(iii) Payments for this concept shall be viewed in relation with the economic benefits to the recipient company;
(iv) The responsibility and functions of licensor should be clearly delineated.

C. BASIC CONSIDERATIONS FOR THE EVALUATION OF TECHNOLOGY CONTRACTS OF A COMPOSITE NATURE

Background Information

The experience gained serves to confirm that the scope and nature of the technological requirements of developing countries extend beyond the specific transfer of patented or unpatented technologies which, in turn, implies a greater involvement of the supplier of technology in the planning and execution of industrial projects.

The degree of involvement of the foreign enterprise has been an issue that so far has not been treated in a systematic and comprehensive manner. A methodological approach is most needed to adequately co-ordinate national efforts towards arriving at a clearer definition of the technological requirements to be satisfied and a better understanding of the technical objectives that are being pursued.

Technology contracts between enterprises in industrialized countries are usually linked to the transfer of specific know-how and technology (either patented or secretly held) with a considerable level of knowledge and expertise on the part of the recipient. As already said, technology contracts with developing countries are much broader in nature and scope.

These broader technological requirements include in most cases the transfer of "composite know-how" covering all or several of the stages concerning the planning and execution of an industrial project. This is because the general level of knowledge and experience of the recipient enterprise in a developing country is usually lower, and consequently the transfer of any specific process or product technology would have to be associated with various kinds of technical assistance.

These different types of technical assistance, and managerial requirements can be broadly divided into four main areas:

(i) The pre-investment stage of a project:

- A feasibility study - which should increasingly be done by local organizations;

- A detailed project report (DPR) dealing with all the major technical and economic aspects of the project.

(ii) Basic and detailed engineering; including preparation of machinery specifications; plant designs; factory layout; etc. This could also include the selection and ordering of machinery; inspection of equipment; factory construction and erection and installation of equipment.

(iii) Product or process technology comprising specific manufacturing techniques and expertise, and including operating manuals etc. and covering all confidential information related to the manufacturing technology.

(iv) The post - installation stage of an enterprise and technical services related to the working of a plant. This includes training programmes for local personnel as well as assistance in management operations, marketing and distribution.

Although these stages overlap, it is necessary to delineate and define the various functions and responsibilities at each stage.

Process of Selection of Technology

The establishment of manufacturing enterprises in developing countries frequently requires foreign technological expertise at more than one of these stages. Even feasibility studies have to be done by foreign agencies in many cases, while basic engineering services and even relatively conventional process technology must usually be obtained from abroad. At the construction stage also, local expertise is often nonexistent, and plant and equipment are installed by foreigners.

The role of the suppliers of technology may, therefore, vary, depending on the nature of the process technology and the type of services required at each of the above-mentioned stages. Accordingly, the definition of the technological requirements at the level of the recipient developing country is a matter that deserves our utmost attention.

Although in some developing countries the experience to evaluate alternative technological options already exists, it is also evident that these capabilities have, so far, not been utilized to the fullest extent. Part of the problem lies in the fact that no co-ordination exists for the use of national capabilities and information mechanisms, that could support and enhance the decision-making process for the selection and application of foreign technologies.

Not withstanding the above, it is possible to report areas of progress which government institutions have successfully covered, such as that of strengthening the negotiating capabilities of recipient enterprises in developing countries. These efforts have resulted in the elimination of restrictive business practices from contractual agreements and also in the reduction of payments for technology. In this connection, several countries have gained substantial experience in dealing with the evaluation of technology contracts from the legal and economic points of view. However, with a few exemptions, these government institutions have not been in a position to undertake a thorough evaluation of projects in the technological sense.

Selection of Technology

The issue of selecting the most adequate or appropriate technology in response to specific requirements in the country still deserves greater attention on the part of government agencies, and that of international organizations.

Some of the main considerations in this area include:

- The relationship of the technology with locally available or potentially available inputs.
- The relationship of the technology with present and future market demands.
- The nature of the technology in terms of sofistication and economies of scale.

With a few exceptions production technology for most categories of products can generally be acquired from more than one source. In such selection, the recipient enterprise needs to determine the relationship of the technology with locally available or potentially available inputs,

determine the relationship of the technology with present and future market demand and define the nature and type of technology required in terms of capital resources.

It is also necessary to link technology, as far as possible with available raw materials and local skills. Often, foreign technology is accompanied by a substantial and continuing importation of components, parts or processed raw materials. To the extent that alternative technologies are available which would utilize domestic materials more fully, including industrial raw materials, the latter should be preferred. This is particularly so in industrial sectors such as chemicals, including drugs and pharmaceuticals, though it has equal relevance in engineering industries in respect of the supply of components. The increasing use of local skills is justified from the viewpoint of generating and maximizing local employment and also for effective absorption of imported know-how within the period of agreement. It is also necessary to link the type of technology to be acquired with the stage of industrial growth and with the extent of employment that can be generated without affecting efficiency of production.

Selection of Licensor

Apart from the selection of the most appropriate technology, it is also of importance to select the most suitable licensor. It is initially necessary to search for suitable licensors from those in possession of a particular technology. Once various possibilities have been drawn up, the main issues to be examined in selecting potential suppliers of technology and know-how, prior to negotiations regarding technology acquisition, are:

(i) adequate information regarding manufacturing and other industrial activities of potential licensors;

(ii) description of alternative manufacturing technology and/or process;

(iii) detailed information on the type of know-how and related patents for alternative techniques;

(iv) information regarding the licensing history of the process or product for which know-how is to be acquired;

(v) requirements of materials (intermediate products and/or components) required in the process;

(vi) necessary information for determination of manufacturing costs in the recipient enterprise.

Very few developing countries have successfully engaged in the selection, among various alternatives, of the foreign supplier of the technology. There are, however, available experiences that demonstrate that it is feasible to conduct a systematic search of technology suppliers at least in some of the priority sectors of the economy . This is an area where international organizations could assist through the development of information mechanisms and communication networks.

Selection of Potential Licensees

In considering the future role of the national offices of technology transfer it can be foreseen that in promoting the application and development of national technological capabilities these offices would have to undertake a selective approach for the identification of the most suitable licensees or recipients of technology at the national level. This could be accomplished over a certain period of time on the basis that national agencies will be in a position to identify future technological requirements through a close co-operation with technical institutions, engineering and consultancy firms and selected R+D departments. However, the conventional aim of import substitution policies should not necessarily serve this purpose.

Contractual Provisions

As already mentioned, a substantial amount of progress has been achieved by government agencies in the introduction of specific guidelines and criteria for the examination of contractual agreements.

International organizations including UNIDO and WIPO have also contributed in the preparation of guidelines for developing countries in this area. On a more general level, the debate, under the auspices of UNCTAD, towards the establishment of a code of conduct for the transfer of technology contributed in what may be called, the educational level. Nevertheless, the most important experience emerges from the practical work and empirical data accumulated at the level of the developing countries themselves.

It is not the intention within the context of this paper to restate what has already been covered through these efforts. Nevertheless, the UNIDO Secretariat wishes to submit that a meeting of government officials that have responsibility in these areas could help in bringing up-to-date these initiatives and in providing new enlightment as to critical issues that, so far, have not been covered in a comprehensive manner.

Confidentiality

Issues pertaining to confidentiality in contractual agreements deserve to be considered at two different levels:

(i) the recipient enterprise in the developing country;
(ii) the overall interest of the developing country.

With respect to the recipient enterprise, the issue of confidentiality largely relates to specific provisions in the technology contract; whereas with respect to the recipient developing country the issues relate primarily to the question of sharing and disseminating information and experience with the objective of broading the area of technological choice, know-how and expertise about the acquisition of foreign technologies in various production sectors.

A confidentiality provision with respect to the recipient enterprise implies that the technological know-how and information disclosed shall continue to be the property of the foreign supplier even to the extent that the know-how under consideration cannot be exploited after the expiration of the agreement or outside the field of use so defined , or even of the territory agreed upon between the parties.

The issue of confidentiality could also imply that the know-how cannot be freely communicated to third parties and furthermore, could extend to contractual obligations for the recipient enterprise and its employees to prevent and saveguard the use of this information.

All or some of the above issues could be in direct conflict with the developing country's interest for self-explanatory reasons.

The UNIDO Secretariat is of the opinion that the issue of confidentiality deserves further attention and analysis from the part of government agencies and international organizations in order to properly define the scope and duration as well as the special status and protection that non-patented know-how deserves.

This is particularly relevant in view of the fact that although non-patented know-how cannot obtain legal monopoly protection the suppliers of technology have de facto managed to unduly use that knowledge as a lever to impose obligations, restrictions and controls upon the use of this knowledge, through technology contracts.

A separate issue related to the obligation of confidentiality on the part of the recipient company, is that hinders and becomes an obstacle on efforts of co-operation among developing countries, including policy objectives for regional integration.

Case history demonstrates that practical difficulties exist in dealing with the issue of confidentiality; and that by introducing time limitations on secrecy obligations other problems do arise, such as that of ensuring that the recipient company could have access to technological improvements developed by licensor during the life of the agreement. Several developing countries have tried to overcome these difficulties but no conclusive results as to the effectiveness of these measures are yet known.

This is an area where a co-ordinated effort from the part of all developing countries is most needed, and where international organisations should promote research and study.

Remuneration and Payments for Technology

During the last few years substantial progress has been achieved by a number of developing countries with regard to the issue of technological remuneration through contracts.

The work of government agencies has proved to be highly beneficial in dealing with this subject and has succeeded in achieving important savings on the cost of foreign technologies. Various initiatives from the part of international organizations have also helped in formulating guidelines and criteria.

Within the context of this paper we will not discuss in close detail the already established criteria or negotiation strategies for dealing with this issue; however, it is felt that through an exchange of views and experiences among government experts, further understanding can be reached on the advantages and implications resulting from the reduction of payments for technology.

If we agree that the question of payments is primarily dependent on the technological know-how and the expected contribution from the foreign supplier, it becomes imperative for the developing country to acquire the capability for assessing the technological content of a particular transaction.

It is not sufficient to have general knowledge as to what would be the "on-going international price" in relation to specific technologies but rather to be in a position to determine the worth of the technology vis-à-vis the recipient company and the national economy. Accordingly, the emphasis should be in ensuring the maximum benefit that is to be derived from a particular transaction rather than the mere reductions of payments to the foreign supplier. On the other hand, the concept of a "fair return", as viewed by the supplier himself could also be a misleading concept for the government agency wishing to control the

cost of technology. As it has been demonstrated in practice, an excessive reduction of payment could also imply a lesser commitment or an unsatisfactory contribution from the supplier's side; and could give rise to a negative attitude towards maintaining the recipient company well informed and up-to-date in the technological field.

Another implication of an excessive reduction of payment will be that the services to be rendered and the type of personnel assigned by the supplier to a particular project could not be the optimum.

On the other hand, the government agency should also exercise a great deal of surveillance and initiative as to the manner in which substantial savings by the recipient company could be properly utilized; this is a matter that relates to a situation whereby, through government efforts, in the renegotiation of existing contracts important savings are obtained sometimes in the order of thousands or millions of dollars. Would these monies be channeled in technological activities such as allocation of resources for research and development work at the enterprise level?, Could these savings serve to make a product less expensive for the benefit of the consumer?, Or is this added benefit to be considered as an added or as an extra-profit for the recipient firm? etc. These important questions also emphasize the need to evolve policy guidelines geared to orient the proper allocation of resources in the technological field.

In the absence of a comprehensive policy framework and specific machinery to centralize the purchase of technology into a given country (as is the case of most of the developing countries) the existing mechanisms would have to respond to the rather imperfect market for technologies at the international level. Substantial progress is expected through the enhancement of national technological capabilities for the identification and selection of appropriate technologies and in particular through the

strengthening of information systems for the identification of technological alternatives and relevant information on the terms and conditions of contracts already approved by other developing countries.

Preliminary investigations conducted by UNIDO in selected sectors of industry conclusively indicate the disparities that exist on payments charged to different countries on specific items. For instance, daily fees for services of expatriates in sofisticated and large investment projects vary between 100 - 500 % as charged by the same supplier of technology (i.e. UOP versus Mexico and Saudi Arabia).

Another important aspect that requires further attention is the one that relates to remuneration for training purposes. By and large, technological contracts lack precision concerning the provision of training programmes and very often this subject is only treated in a very general manner. This relates to the identification of suitable training programmes in the planning and execution of industrial projects, and government agencies should exercise a higher degree of control to ensure that specific provisions for the training of personnel, are incorporated, including the training of licensees personnel at licensor's facilities. Selectivity is required in view of the fact that this may involve higher costs and careful planning from the part of the recipient enterprise.

Once the nature of technology and technological assistance has been defined, the remuneration of technology is one of the most important elements to be negotiated. Where a licence agreement is accompanied by capital participation, the extent of such participation should be taken into account in determining the overall payment for technology. Foreign investors argue that the two issues of returns on investment and payment for technology and know-how should be viewed independently. While this argument may have certain validity, it is necessary to evaluate the overall benefits and returns accruing to a licensor who is also an equity shareholder. While no hard and fast rules can be laid down, technology payments should be correspondingly lower with the degree of accompanying foreign investment. Thus, in the case of a wholly-owned subsidiary, there may be little justification for any payment for technology. Correspondingly, remuneration for technology and know-how

could be higher for a licence agreement with no equity participation.

Technology payments normally tend to take the form of (i) a fixed lump sum fee; (ii) a running royalty and (iii) a combination of a lump sum fee and a running royalty for a period of time. The payment for specific technical services should be considered separately for each item of such services. Lump sum payments are generally applicable in cases where the know-how can be fully and completely transferred in a specified period of time. This usually relates to contracts where no continuing support or assistance from the licensor is required. The more common form of payment is that of percentage royalty, usually related to the net sales value, though sometimes to production. In such cases, it is necessary that the value of imported intermediate products and components is deducted from the sales value used for royalty computation so that only the value-added is taken into account. Sometimes, royalty is sought to be calculated on production, in which case also only the value-added should be assessed for royalty. Two alternative approaches can also be considered, viz (i) linking royalty with unit production cost and (ii) calculating royalty as a percentage of profits.

In a number of licence agreements, technology payments are a combination of lump sum fees and a royalty percentage. The former is often treated either as an initial payment for basic documentation while the royalty is linked with production know-how. Where there is a royalty ceiling or where the duration of the agreement is for a short period (up to three years or so), the lump sum fee insisted on by licensors tends to be correspondingly higher. Ultimately, in determining the technolgy payment, the overall figure has to be considered. It is not practicable to formulate any uniform principles as to the size of the lump sum fee or the rate of royalty (except that such rate should not exceed 5% except in very exceptional circumstances) and this has to be negotiated on a case to case basis but what is essential is that the licensee should be fully aware of the implications and impact of such payments on the production structure of his enterprise and should also be aware, to the extent possible, of royalty payments in the same sector and for similar know-how asked for by alternative technology suppliers, either in

the same country or in other countries. It is only when the licensee is armed with such information and knowledge that he can best ensure that the licence payment is, by and large, in accordance with the market value for a particular process or know-how.

Duration of Agreements

An issue closely linked with the remuneration for technology is that of duration of contracts. The duration of the agreement would have to be carefully defined at the initial stages of negotiations taking into account training and other related programmes. From the practical point if view the duration of the contract should never be shorter than the time required to fully absorb the know-how under consideration; in other words, the duration is closely related to the type of process or technological know-how in question. The basic rational and criteria for establishing the most adequate duration of contracts has already been covered through various publications of UNIDO and other international agencies and perhaps more important specific criteria to deal with this issue already exist at the level of government agencies in several developing countries. In this connection, several countries have established, through legislative or administrative measures, maximum periods of duration of technology contracts.

What has to be furthermore studied is the important role that government agencies have to play in the monitoring of contract execution during the period of the agreement and particularly on the question of the absorption and adaptation of technology at the enterprise and the national levels.

An area that offers great potential for the strengthening of national mechanisms in this area is that of a systematic and continuous review of the use of foreign technologies in productive activities. This is an area in which a great deal of work is still to be initiated and where international organisations will be required to support national efforts.

The duration of contracts is also influenced by the existence of industrial property rights in technological agreements requiring as well a consistent criteria vis-à-vis technology transfer policies and those in the field of industrial property.

In actual practice it has been demonstrated that in the context of many developing countries, there are built-in constraints for the proper co-ordination of the work of technology transfer agencies and industrial property offices, and one cannot assume a simplistic attitude in dealing with this important question.

In this connection it appears to be important that at the level of international organizations proper co-ordination should also be developed between the World Intellectual Property Organization and adequate co-ordination in the implementation of technical assistance projects between WIPO and other UN organizations.

In connection with this issue UNIDO has an ongoing programme whereby information will be made available to government agencies with regard to the duration of contracts that had been approved by fifteen developing countries in specific sectors.

Access to Improvements and Grant-back Provisions

Through the examination of a large number of contracts entered with developing countries it has been found that grant-back provisions have been introduced requiring the recipient company to assign-back to the licensor any new patents, improvements or the result of technical developments, achieved by the licensee during the life of the agreement

The analysis of grant-back provisions can be divided into three parts:

1. Provisions in which the licensee is obliged to inform licensor of all the knowledge and experience which licensee has acquired in connection with the goods and services covered by the contract.

2. Provisions that oblige licensee to assign the rights (patent rights or rights arising from application thereof) related to any improvement, invention or application of inventions which the licensee has made.

3. Provisions that oblige licensee to grant to licensor a licence on any improvement, invention, or application of invention which the licensee has made.

The basic criteria followed by many developing countries consider that these provisions may not work against the interest of the enterprise or the developing country, if the supplier of technology is placed under the same kind of obligations and if the obligations of the supplier and the recipient company are properly balanced in nature. Furthermore, these criteria also consider that the obligations of the parties are "properly balanced in nature" if the obligations to both parties are similar in kind and established under reciprocal basis in relation to:

- royalty payments;
- duration of said obligation;
- the territory in which improvements will be exploited by either party;
- the degree of exclusivity applied to either party.

Grant-back provisions are closely related and can have a determining effect on the access to technological improvements by the recipient developing country. This is a most important issue and needs to be specifically provided for in any technology contract. In this connection it is necessary that a clear understanding between the two parties exist as to what is to constitute a technological improvement.

In general, innovations or improvements which are introduced in the operations of the licensor should be made available to the licensee during the life of the agreement. In special cases important technological improvements that could be considered a "break-through" may require a special negotiation in order for either party to obtain access to them.

However, it is essential in establishing a provision for the reciprocal exchange of information on improvements, to differentiate between the various types of suppliers of technology; f.i., a recipient company in a developing country could derive more benefits when the technology contract is entered with an operating company other than an engineering firm or a consultancy organization.

It is also advisable to secure the right of access to technological developments achieved by licensor even in the event that he does not consider this to be benefitial in its own operations.

With regard to industrial property matters"it is necessary that the recipient company should obtain the right to use patented techniques including the right to use new patent applications as well as registered patents."The filing of a patent on any improvement achieved by the recipient company should be the prerogative of the licensee and under normal conditions the title of ownership should be that of the licensee.

Tie-in Provisions

Tie-in provisions imply the requirement on the part of the recipient enterprise who wishes to acquire certain technology or goods from the supplier (licensor) to also purchase other products from the same licensor.

Such clauses are often considered a violation to various antitrust legislations, f. ex. the Clayton Act, Section 3 focuses attention on the sale of commodities "patented or unpatented for use, consumption, or sale within the United States". On the other hand the Sherman Act can be applied to sales outside the United States and it may be construed to be a violation where the United States' commerce might be affected.

The general criteria is that tie-in clauses are unreasonable whenever a party has sufficient economic power with respect to the tying product to appreciably restrain free competition in the market for the tied product. The legality of this is usually established when the tying product is patented, however, when no patent is involved but only a trade secret or process know-how, this requirement may be harder to prove. Additionally, there are precedents for regarding a technology licence in itself as a "tying product" upon which the licensor has economic power. Through national legislation in many developing countries tying clauses are per se not acceptable. But in practice, there may be some exceptions to that rule, in cases where there is a need for the tie-in product if this is considered to be essential to the protection of the patentee, or for the functioning of the patent itself. The experience of some countries shows that in the majority of cases it is possible to eliminate tie-in provisions from the contract. However, the elimination of a contractual provision may in itself not be sufficient to prevent a wholly owned subsidiary or a licensee with a majority foreign participation to de-facto exeroise this requirement.

The question of tie-in clauses relating to the supply of intermediate products or components exclusively from the licensor has been the focus of considerable attention and the question of 'transfer pricing' has figured prominently in recent literature. It is obvious that tie-in clauses may not be desirable and could constitute a serious disadvantage to the licensee. However, in practice, a licensee usually looks at the

licensor as a convenient source for the supply of intermediates and components. What has to be ensured is that the pricing of such components and intermediate products is not unreasonably high.

From the point of view of a developing country there is a need to ensure that domestic manufacture is utilized to the maximum extent, on an economical and commercial basis. This would reduce the magnitude of the problem and would avoid a common tendency on the part of licensors, especially in the field of engineering products to limit domestic manufacture in developing countries to assembly or semi-assembly operations for exessively long periods. However, even where an acceptable programme of domestic integration is defined, the problem of pricing of imported components and materials remains and negotiations in this regard could centre around certain specific aspects: (i) in respect of intermediate products and components bought out by licensors, the cost to the licensor plus any handling charges may be applied and such a provision is generally acceptable; (ii) where components are manufactured by licensor, the cost of such components should be the cost at which the components are priced in the next stage of production in the licensor's plant plus any handling and other costs that may be involved. Licensors would not normally be willing to open their accounts to licensees. The solution in terms of the contract provisions can perhaps be that (a) the licensee shall be free to obtain such items from any source, and that if the licensor supplies such products and components, he shall (b) supply such items at internationally competitive prices and (c) he shall accord a most favoured licensee treatment to licensees from developing countries.

Territorial Restrictions

National legislation or specific policy guidelines in several developing countries, do not allow territorial restrictions on the part of recipient enterprises unless certain limitations on exports do not work against the overall interest of the economy.

Case history demonstrates that there is a need for flexibility in this area, and that a sound criteria will be to eliminate any contractual provision that affects the possibilities of growth of the recipient enterprise or the overall external policy of the country. On the other hand, it should be noted that by simply eliminating contractual provisions that limit, condition or prohibit the export of licensed products, the recipient country not necessarily will be in a position to increase its exports; as this is basically governed by economic and commercial considerations that apply to the international market, i.e. cost, quality, delivery time, etc.

Under this type of analysis a developing country trying to effectively regulate technology contracts should make an effort to ascertain what justifications could exist for restrictions in this area and to determine as well how this would affect the economic viability of a project. In this connection some relevant factors that may be considered in this respect are:

- size of the licensor's and licensee's enterprise;
- the extent to which licensee is able to participate in the international market;
- the type of exclusivity involved;
- the duration and scope of the agreement;
- the type and cost of products, whether or not a cross-licensing is involved.

The general criteria in various developing countries is that the approval of a contract may be denied if:

- it contains a total prohibition for exports;
- it obliges the licensee not to export to certain geographical areas where the licensor has not granted exclusive rights for manufacture or sales to third countries;
- it establishes a ceiling concerning the volume of export sales;
- it obliges the licensee to export only through the licensor to the detriment of licensee's successful market penetration in third countries;

Certain limitations on exports may be accepted in cases where:

- the licensor has previously granted exclusive manufacturing rights under a patent in a particular country;
- the licensor is not authorized by legislation or decree in its own country to export directly or indirectly to certain geographic areas;
- a higher royalty on export sales is applied, but this contributes to the balance of payments, or to the development of marketing activities abroad of products where a high local content is involved.

The developing countries should guard against practices whereby licensors apply methods of imposing territorial restrictions without the existance of explicit clauses in licensing contracts, for instance:

(i) by not granting patent rights in licensor countries and by the risk of infringement suits;

(ii) by imposing prohibited higher royalties that would make uneconomic any export possibility;

(iii) by restricting the field-of-use of a particular patent or know-how; thereby reducing the quality or specification or products.

Price Fixing

Under antitrust laws price fixing provisions will be considered not acceptable. Once a patented product has been sold, the producer cannot fix resale prices, nor can the sales price of a unpatented product resulting from a patented machine be fixed by the patent holder. United States Case History shows that certain restrictions of this kind might be accepted if applied in a reasonable manner and for the purpose of protecting the patent holder's profits, that could rightfully be expected to derive from the patent monopoly.

In connection with price fixing provisions, a developing country should carefully assess the economic implications to the local company or companies operating in the same sector. In this connection it should be kept in mind that manufacturing costs in the developing countries are generally higher than in industrialized countries; additionally, there are other economic considerations that go beyond the control of the recipient company, such as higher costs of raw materials or equipment, market stability, inflationary trends, etc.. In view of this a price fixing arrangement could negatively affect the profitability of the project and the growth of the recipient enterprise.

On the other hand, guidelines of too general a nature on technology transfer might work against the interest of developing countries by not taking into account practical and economic considerations. To illustrate this, we could refer to the efforts of many developing countries to promote and encourage the establishment of sub-contracting agreements with foreign enterprises. In this arrangement the export element is a central one, and where certain price levels would have to be established in order that the licensor or a third party may be in a position to enter into a long-term/ high volume agreement for the purchase of parts and intermediates from the developing country.

This shows the need for flexibility and the knowledge to ascertain the various economic implications of price fixing arrangements.

On the other hand, from the point of view of the recipient enterprise or the developing country it is always desirable to eliminate price fixing provisions in contracts that may hinder the growth and financial stability of the recipient firm.

Guarantee Provisions

A careful review of a large number of cases has conclusively demonstrated that by and large guarantee provisions in technology agreements with developing countries were inadequate.

In this connection there is a need to evolve operating guidelines for specific sectors of industries; on the basis of documentation available in national offices for technology transfer. UNIDO has, at the request of some governments, assisted in the preparation of policy guidelines in various sectors, including f.e., petrochemicals and engineering industries, where the issue of guarantees was treated in a comprehensive manner.

Some of the general considerations related to this issue may include the following:

A technology contract should ensure that (i) the technology acquired would be suitable for the manufacture of the products covered by the agreement where such products are defined, (ii) the technology obtained would achieve a specified level of production, particularly in the case of manufacturing technology, (iii) the content of technology transferred is full and complete for the purposes of the contract and (iv) delivery of drawings, specifications and material constituting the technology is completed within the stipulated period.

The nature of a guarantee would differ considerably, depending on the nature of technical responsibilities assumed by the licensor in the contract. In the case of a turnkey project, for example, specific performance guarantees can and should be prescribed regarding the achievement of specified production levels, both in the plant as a whole

and also for each major unit of the plant. In cases where technology transfer comprises supply of basic engineering services, including plant design etc., it is also necessary to include specific guarantees in respect of such engineering defects free of cost; and for compensation in the form of liquidated damages if such defects cannot be rectified. However, where the contract only covers manufacturing technology the provisions relating to performance guarantees and compensation clauses for nonfulfilment, become more difficult to prescribe.

For the licenses, it is necessary that there must be as much protection as possible in the contract regarding the products and production realisable from a particular technology. To the extent possible, liquidated damages or specific compensation clauses should be incorporated, along with the conditions for fulfilment of such performance guarantees. Where this is not possible, there must at least be a clear definition of the likely output of production, quality of products and specification of products and the licensor's guarantees in this regard together with the necessary requirement on the licensee's part to bring the guarantes into effect.

Provision should also be made for the licensor to furnish technical assistance as may be necessary to achieve the production levels and quality of product as may defined. This is necessary to a much greater extent in respect of relatively new techniques and processes, which have not been widely used and where the licensor should assume greater responsibility for the know-how or technology involved than in the case of techniques which have been more extensively used by other manufacturers and licensees.

The wording of the guarantee clause is likely to vary from contract to contract, depending on the nature of the technological 'package' supplied by the licensor, the type of technology or process involved and the extent to which such technology is already in use.

Nevertheless, it is essential for the licensor to assume certain basic responsibilities and commitments regarding the manufacturing technology involved and this should be incorporated in the form of a specified guarantee. With regard to delivery of documentation, drawings and other material comprising the technology to be transferred, it is necessary to specify the period within which these should be delivered, together with the place and manner of delivery.

D. CONCLUDING OBSERVATIONS

This document focuses primarily on the basic considerations for the evaluation of technology contracts from the point of view of the developing countries. It discusses specific issues dealing with contracts involving industrial property rights and technical services and it goes into considerable detail to review the type of agreements of a composite nature required to fulfil the needs of the developing countries.

The role of national agencies of technology transfer is discussed with regard to their present experience and the operating criteria under which the acquisition of technology is being pursued by a selective number of developing countries.

It is felt that although several developing countries have acquired the experience to evaluate technological proposals from the legal and economic point of view, there is still a need to develop adequate mechanisms and criteria for the evaluation of alternative technological options and for a better utilization of the existing capabilities at the national level.

It is foreseen that as experience develops in the technological area, government agencies will be in a position to effectively orient the acquisition of foreign technology at the national level. Furthermore, it emerges from this analysis that the selective identification of technology sources would enable these agencies to play a more active role in identifying specific technological requirements in priority sectors.

In discussing some of the most important contractual provisions that primarily relate to technology contracts of a composite nature the discussions at this meeting could contribute to a better understanding of the implications of these selected issues and to set the basis for future work towards the elaboration of comprehensive guidelines for the evaluation of technology contracts. In this connection possible areas for study and research by international organizations are also highlighted.

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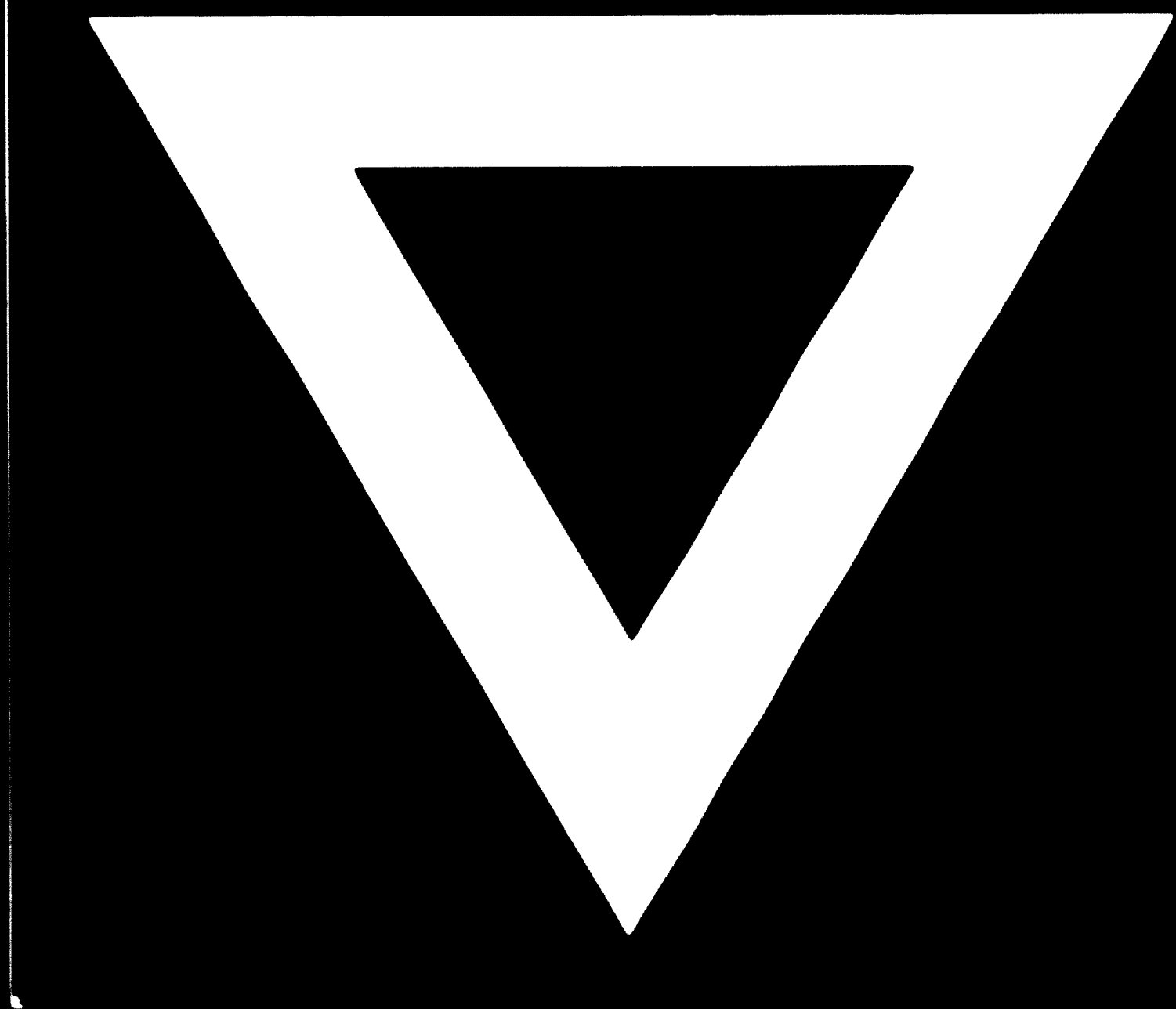

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