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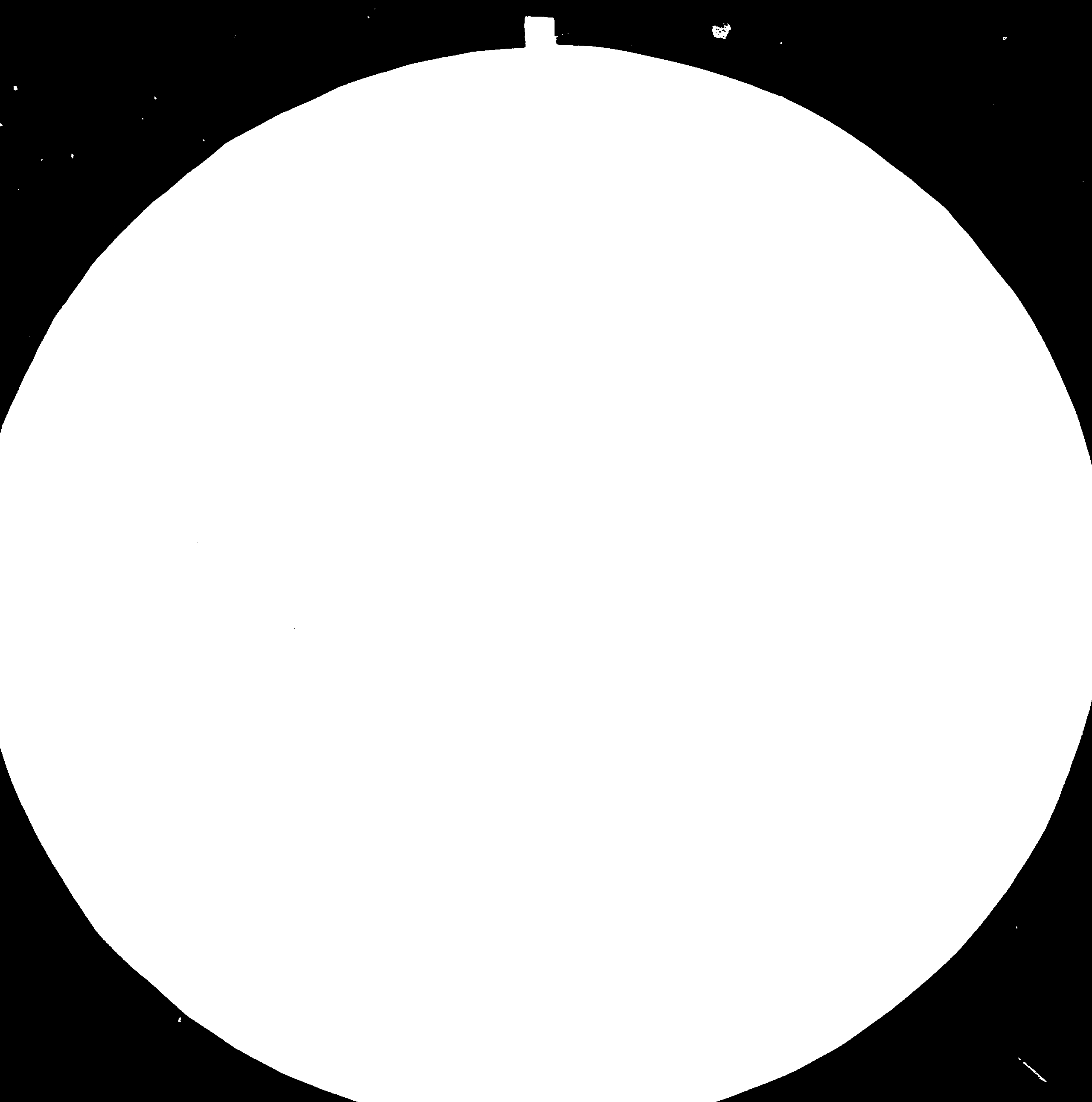

INTERNATIONAL CENTER FOR
PUBLIC ENTERPRISES IN
DEVELOPING COUNTRIES (ICPE)

14016

Guide on

Guaranty and Warranty Provisions in Technology Transfer Transactions, Particularly for the Developing Countries

(FINAL REPORT)

UC/INT/82/029

Ljubljana, August 1984

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PREFACE

This Guide has been developed in response to requests received by UNIDO from developing countries, particularly member countries of TIES system that a comprehensive document is prepared covering guarantee issues in technology transactions. It has been prepared as a result of a joint effort by UNIDO and ICPE[1], and both organisation contributed substantially and financially toward preparation and finalisation of the Guide.

The idea of a specific Guide addressed towards warranty and guarantee issues in technology transfer transactions, emerged in the Secretariat of UNIDO and of the International Centre for Public Enterprises, early in 1980 and was considered as a valuable contribution of both organizations towards strengthening the bargaining position in technology transfer process, of enterprises in developing countries.

The purpose of the Guide is to provide the readers - particularly government and business communities in developing countries - with broad and comprehensive manual on how to deal with such crucial issues in technology transaction as guarantees and warrantees.

The Guide consists of ten chapters in which are described all necessary and practical steps to be taken by both recipient and supplier of technology in ensuring that the proper measures are introduced in technology contract as to assure proper performance of both parties and successfull implementation of the agreement.

Those chapters combine legal and technical descriptions with practical remarks concerning ways and means of dealing with guarantee and warranty provisions in various technological agreements. Furthermore the Guide provides the description and illustrative list of major guarantee provisions.

In the Guide, substantial attention is given to the issues of interest to public enterprises in developing countries, as major recipients of technology in those countries.

The Guide format and scope has been reviewed and discussed at the expert group meeting organized jointly by UNIDO and ICPE held in Ljubliana, Yugoslavia in April 1983 and substantial contribution has been provided inter alia by: Mr. M. Besso, Switzerland, Mr. D. Smith, USA, MR. V. Strauch, FRG, Mr. C. Correra, Argentina, A. Basnayake of UNCITRAL, Mr. R. Macus of ICPE and others.

Substantial contribution of those authors is fully reflected in the text of the present Guide.

The draft guide has been reviewed in September 1983 by the UNIDO and ICPE Secretariats with participation of some of the experts.

As a result of this substantive review the present text has been compiled by Dr. Hubert A. Janiszewski.

In preparing the text of the present Guide extensive use was made of paper and documents prepared for ICPE and UNIDO by Mssr. M. Sesso. C. Correra, D. Smith and V. Strauch as well as existing documentation of ICPE, UNIDO, UNCTRAL, UNCTC, UNCTAD, WIPO and ICC.

CHAPTER I

PURPOSE AND SCOPE OF THE GUIDE, BASIC DEFINITION AND CONTENTS

Introduction and Summary

The present text of the Guide is the direct result of the work of the expert group meetings in which the author of the compilation had the pleasure to participate.

The main purpose of the Guide is the improvement of the negotiating and performance capabilities for managers of enterprises in developing countries, with special reference to public enterprises, which in certain countries do play an important role in industrial and economic development.

Moreover, the Guide is written in such a way, as to constitute a management tool for dealing with warranty and guaranty provisions in the context of technology transfer transactions.

It is also attempted, at the Guide, to apply a complex managerial approach towards guaranty and warranty provisions, combining therefore purely and separate legal, technical and economic approach, which used to characterize the "traditional" approach to those complex considerations.

Moreover, it was believed useful to introduce a four level approach towards guarantee/warranty issues based on:

(1) overall considerations for development objectives as a whole which can be found in general policy declarations, such as "national interest", "national economy". "self-reliance";

(2) general development objectives which are limited to the area of transfer of technology such as "strengthening local technological capabilities", or "adaptation of technologies";

(3) development objectives which are more specific, because they spell out the purpose in more detail, as far as the objectives themselves (e.g."training of personnel"), the type of technology transfer ("agreements for the transfer of technology") and/or the economic sector ("in the petroleum sector") are concerned;

(4) detailed provisions which specify the objective for certain areas such as: "Every contract for the transfer of

technology shall, when necessary, provide for training of personnel and shall be instructed in clear and comprehensive English" or "the supplier shall prepare a training programme which ensures that x% of the management professionals and supervisory positions and y% of all other positions will be occupied by local personnel within z years.

On this last level of objectives only, they become concrete directives to the enterprise. Therefore, the objectives of a more general nature should also be taken into account, and they are usually contained in development plans, preambles of relevant national laws or specific provisions of those laws which often set out criteria for evaluating and securing either agreements in general or transfer of technology agreements in particular.

The distinct difference in long term policy objectives between private and public enterprises will play certain role in the overall approach towards the technology transfer, therefore will also be reflected in the present Guide.

It is believed, however, that also private enterprises, should not shy away and take such considerations into account when planning their development strategies.

The purpose of the Guide will be to provide the managers of enterprises in developing countries with an overview of the various technology agreements like licensing (from patent and TM, know-how, franchise), turn-key supply agreements of various types with specific referance to guaranty and warranty provisions, both in terms of illustrative clauses as well as a review of activities and actions to be undertaken by the would-be recipient of technology and would-be supplier of technology, in order to achieve a successful transfer of technology, at the enterprise level, and thus "consume" the guarantees built into individual agreements.

Moreover, as the public enterprises play, in some developing countries, quite an important role in the national economy, the Guide addresses its points specifically to those enterprises adding other considerations than loss and profit balance. Moreover, the Guide attempts at drawing a border line between industry specific provisions with respect to guaranty/warranty provisions.

It is well known, that in process industries of various types, the guaranty provisions are not only complex but do influence substantially the performance of the contract which is not necessarily the case of the product industry.

In each case however, the guarantees can be considered as risk management tools.

After broad classification as to purpose of the Guide which can be summarized as an attempt of provision of a management tool for drawing and specifically implementation of large complex agreements, it is worth to summarize the content of the Guide.

The Guide in its ten chapters approaches the issue of guarantee/warranty in technology agreement at three levels:

Firstly providing the reader with broad and fairly detailed review of the meaning and scope of the guarantee/warranty provisions in modern, large and complex technology agreements with frequent legal considerations based on most recent cases and considerations both in and outside developing countries.

This part would be of particular interest to those with little exposure to guarantee/warranty issues, but even experienced practicioners may find those considerations of substantial interest.

Secondly, specifically in Chapter IV, V and VI detailed and practical approach to handling warranty/guarantee issues is described, providing the reader with rather comprehensive and detailed information how to deal with those problems at the corporation/project level.

It is presumed that this part of the Guide will be read by all those preparing for and implementing projects with heavy emphasis on guarantee/warranty problems.

Finally, towards the end of the Guide, it provides fairly detailed description of what measures can be taken - of preventive and remedy nature - if the guarantee fails.

By such approach - it was thought - the Secretariats of UNIDO and ICPE were in a position to offer readers particularly in developing countries a comprehensive and detailed text which can be used at the negotiation table, during preparation for negotiations and preparation for execution of contracts.

One consideration should also be included in these preliminary and introductory remarks, that by warranty/guarantee provisions alone one does not ensure smooth and satisfactory implementation of the project.

Consideration as to how to approach the guarantee/warranty provisions in order to make the contract work are included prominently in the Guide.The guarantee/warranty provisions belong to the risk category of the managing of the project and as such are related directly to the costs involved.

Careful balancing of risk and cost factors should be always in the mind of project management.

It is hoped that this text will provide not only useful tools to this effect, but also will assist in better understanding of provision of supplier and investor, thus contributing towards increased trade and well being of all parties involved.

OVERVIEW OF DEFINITIONS[2/]

For the purpose of the Guide, one will need to define and clarify the basic terms, that is, "guarantee" and "warranty", particularly the latter which does not have either translation or meaning in any other language but English.

1. GUARANTY AS "SURETY"

Very often "guaranty" is used to describe an agreement by one party to secure the performance of a third party: the guarantor is obliged to answer for the debt of a third party or to fulfill any other obligation of a third person, if the latter fails to fulfill the obligation himself, i.e. the guaranty is collateral to the original contract and does not impose primary liability on the guarantor.[3/]

The term "guaranty" is used in this sense also by the International Chamber of Commerce in its "Uniform Rules for Contract Guarantees".[4/] A term which could avoid misunderstanding and confusion would be the use of the term "financial guarantees".[5/] Guarantees in this meaning of the word will be discussed only marginally in this study.

2. GUARANTY AS AFFIRMATION OF FACT

The term is also used to describe a promise by one party to the other that a certain good will have no defects: it is the assurance by one party to a contract that certain representations as to facts or law are true, and if they are proven untrue, the party who has given the assurance has to indenify the other party.[6/] Guarantees of this kind would be called "warranties"[7/], "conditions"[8/] or just "obligations"[9/] in some legal systems.

Some laws stress the effects of non-fulfillment and treat the matter as a problem of "liability"[10/], "break of contract" or "securing the performannce"[11/].

A good demonstration of the different functions of guarantees in traditional legal concepts is Art. 2283 of the Mexican Civil Code which reads:

"The vendor is obliged:

(1) to deliver to the purchaser the thing sold;

(2) to guarantee the quality of the thing;

(3) to be liable in case of dispossession".

Subsection (1) describes one of the primary obligations of the supplier which would be called "obligation" in most legal systems. Subsection (2) describes an additional obligation which would be considered as an "implied warranty" by some laws and as a "guarantee" or "condition" by some other laws.

Subsection (3) stresses the legal consequences of non-fulfillment.

The term "guarantee" is used in a somewhat broader meaning in sales promotion activities for consumer products. Here, it may have one or more of the following functions:

- the level of quality or performance is higher than that stipulated by law;

- the quality is not only guaranteed for the time of delivery, but for the whole period of the guarantee;

- the burden of proof is shifted to the supplier;

- the liability for defects is extended beyond the legal requirements either in time of type and volume of remedies to be granted.

The use of the term "guarantee" as described in this section primarily refers to the sale of goods. The application of these rules to transfer of technology agreements meets a number of obstacles, because the transfer of technology mostly is not a sale of goods.[12/]

3. USE OF THE TERM "GUARANTEE" IN TECHNOLOGY TRANSACTIONS

Most national laws do not contain specific regulations on guarantees in technology transactions. Only some of the more recent laws regulating the transfer of technology expressly refer to guarantees, but substance and quantity of the regulations differ considerably. While some laws only contain one or two clauses expressly referring to guarantees[13/], some other contain a whole list of guarantees[14/]. Other laws treat the same question under different headings such as "obligations"[15/], "requirements"[16/], or "implicit clauses".[17/]

Other laws do not contain a specific heading for the provisions[18/] or refer to the substance which is dealt with in the provisions[19/].

In present licensing practice, the term "guarantee" often is used to mean a financial or bank guarantee[20/]. But it is also used for guarantee that the technology is free from claims of third parties[21/]; that the technology and the goods produced by it have no defects[22/]; that they will reach a certain quality level or achieve certain results[23/].

The term is used in a broader sense in the WIPO Licensing Guide. The "Check-List of Points" attached to the licensing Guide mentions "Guarantee for Know-How" and "Guarantee offered for Plant Performance"[24/]. While the latter comprises performance, equipment and plant guarantees[25/], the former includes correctness, completeness and adequacy of the technology, but also safety and environmental requirements as well as training services[26/].

The broadest coverage of guarantee aspects is contained in the Group of 77 proposals for a chapter on "guarantees" to be included in the International Code of Conduct on Transfer of Technology which has been negotiated by a UN Conference for the last years[27].

It comprises practically all of the areas which are regulated by one or the other national law. Under development aspects, the following areas are of particular relevance: use of locally available resources[28], unpackaging[29], information on official economic and social development objectives and on health, safety and environmental requirements[30], suitability and achievement of predetermined results[31], training of personnel[32] and calculation of payment levels[33].

Yet another although controversial characteristic should be quoted namely that guarantee is a statement related to expected results while warranty a statement of existing facts.

BRIEF OVERVIEW OF TYPES OF TRANSACTIONS AND POSSIBLE PARTIES TO THE AGREEMENTS

In order that this Guide covers the issue of guaranty and warranty provisions in full, it will address itself, taking into account specifics of different transactions, the following types of agreements:

(i) patent licence

(ii) know-how licence

(iii) TM licence

(iv) composite licence agreement

(v) agreement for turn-key supply

(vi) agreement "product at hand"

In addition, wherever possible, specific issues related to supply and provisions of technical assistance (i.e. management and consultancy services) will also be provided. By such rather broad coverage, it is hoped to provide the managers of enterprises in developing countries with a fairly comprehensive review of guaranty provisions in different transactions as well as their "relative" weight in relation to contract performance and implementation.

It is also believed, by such detailed specifications of types of transactions, to provide the readership with some insight into complexities and impact of guarantee provisions in different types of transactions.

In terms of parties to the agreements, one will deal predominantly with supplier of technology (that is the party who provides guarantee, or guarantor) and the recipient of the technology, or beneficiary of the guarantee.

In the case of simple licensing agreements, those parties will be simply called licensor or licencee.

Unfortunately, the situation in respect to parties to the agreement, particularly in respect to guarantees, is not that simple.

For example, in case of financial guarantees, the third party may also become a guarantor and a party to a specific transaction.

In the case of process technology supplier, one will usually deal with three parties to the agreement, that is:

- supplier of technology (usually process licensor)
- supplier of detailed engineering (usually engineering company)
- recipient of technology (licencee)

All three parties to the transaction will be involved, in different positions, in guaranty provisions of the specific transaction.

Furthermore, if a turn-key supply is involved, another party may become involved, and that is the contractor, or contracting company, which, usually will deliver and erect the physical facilities of the plant (in many cases the engineering company will perform duties of the contractor).

Finally, the trend can be observed in many of the developing countries, of the use of local enterprises in the implementation of industrial projects in the form of subcontractors or suppliers of civil engineering work (civil engineer).

All those, particularly in cases of unpackaging of supplied technology, will become parties to a given transaction.

Furthermore, the Guide will take up the issue of guarantees specific to industries, that is process versus product industries.

For example, performance guarantees in such product industries like electrical and mechanical machinery, consumer electronics, mechanical appliances, cosmetics, etc., are not of crucial importance as prototypes and samples can be tested by the recipient of technology prior to entering into the contract and thus, key technological areas can be studied and evaluated; national standards will establish measurements of quality criteria, etc.

On the contrary, in process industries like chemicals, plastics, pharmaceuticals, products made through use of fermentation, fertilizers, metallurgical industries (both, ferrous and non-ferrous) electronic products such as semiconductors and integrated circuits, performance guarantees in particular, will play a crucial role[34/] .

In this introductory part, one should also mention and stress the role of managers in setting the objectives and policies related to technology transfer.

It is obvious that top management of an enterprise will be charged, as usually is in charge of such important area as setting goals of long term company expansion.

In performing its task, the management, in co-operation with the R & D, Product Manager and usually the Sales Manager, will decide on the basis of assessment of long-term market forecasts and competitive situation, about the enterprise need for new products, etc.

Once such goals are determined, decisions are usually made whether to obtain such goals, technology is to be developed within the company or acquired elsewhere.

Here again, the top management will have a final say, letting however middle level management to carry out identified policy options.

It is usually a practice, at the enterprise level, to set up a team, who will not only review the available technological options, but also will carry the decision once it is made.

When the decision reaches the implementation stage, the team is expanded by economists and lawyers who will play an important role, for example in the process of the acquiring technology.

It should also be mentioned that in the case of public enterprises, in many instances, the long-term goals may be determined by policy objectives made at the Governmental level, which in turn should be translated into comapny objectives.

The team approach here will however remain the same, leaving the <u>manager</u> with the ultimate responsibility.

CHAPTER II

ROLE OF SUPPLIERS AND RECIPIENTS OF TECHNOLOGY IN THE PREPARATORY STAGE OF FORMULATION OF GUARANTEES AND WARRANTIES

It is without doubt that the co-operation of would-be parties of the contract is essential to its later execution.

The same might be stated in relation to guaranty provisions in so much that all parties should rely on each other information and clear understanding of the content of agreed and specific provisions, is a must.

As in case of the developing countries, we often deal in a situation of unequal position of the partner, both supplier and recipient of technology have additional responsibility in this respect.

First of all, it should be stressed that for the sake of avoiding future misunderstandings and secure a smooth project implementation, the supplier of technology should provide the recipient with at least the following specific information:

- information on critical parameters of the technology in question
- specification and characteristics of the raw materials needed
- information on utilities

- information on equipment/piping (depending on the nature of the project)

- information on legal restrictions in relation to the use of technology (patent rights, know-how, trade mark, rights, etc.)

Only when such information is exchanged, both parties may work together in order to establish critical parameters of the technology, already taking into account the prevailing local conditions and establishing guaranty parameters which will take those conditions into account.

Role of suppliers of technology in the preparatory stage of formulation of guarantees and warrantees[35]

In general, a study of guarantees is aided if one recognizes that a developing country (prospective) licensee is likely to encounter two quite different types of technology licensors. One is the non-manufacturing entity, i.e., research organization or a university or a broker or firm representing one or the other of these. While such organization often successfully conduct worthwhile basic research, they just as often are not equipped to commercialize or scale-up the results of a great deal of that research. There are exceptions, of course, but usually the incentive for the university (wherein professors supervise graduate students who conduct research) is in no way directed toward the construction of a manufacturing plant. Instead, such research is engaged in for different reasons, i.e. pure scientific understanding or educational purposes. Since new research results have little commercial value until proven in scale-up or in a commercial size unit, licensing in this first type of organization often is a vehicle utilized to realize an instant monetary return on the results of the research. Commercialization or further development will be left to the licensee. Equally evident, is the fact that new research results, (not proven commercially), usually cannot be licensed with guarantees which even come close to satisfying a cautious prospective developing country licensee.The university or the research firm itself probably does not know how the technology will perform once commercialized so they cannot offer guarantees. It is for these reasons that in this chapter we can be of the greatest help to developing countries if we concentrate on the second type of organization.

The second type is one engaged in manufacturing, in producing a product in a plant. That is its main business and research here is conducted with the intention of commercializing the same, i.e., with the intent to build a plant and produce a product based upon that research. Let the licensee be aware, however, for many manufacturing concerns do not license technology except to their affiliates and subsidiaries. And an even greater number will not license a given technology until it has been commercially demonstrated. This is true because building a plant and selling a product (commercialization) almost always is ,in a long run, a great deal more profitable than licensing. Even if licensing is contemplated, the technology probably will command a much higher royalty rate if it has been demonstrated on a commercial scale. Even further, the manufacturing firm which originates a new technology usually is the organization which is best equipped technically and scientifically to solve the many problems which will arise in scaling up from batch to pilot plant to commercial scale. During such scale-up operations, a licensee would be "more bother than it is worth" in the eyes of a manufacturing organization so answers to all licensing inquiries will be put off. The licensee which discovers it is pursuing such technology probably is wasting its time.

Within many large manufacturing firms (of the type which regularly carry on research activities), the developing country licensing personnel should realize there exist often negative attitudes toward licensing out or selling licenses in general. The primary reason is that the officers and employees of the manufacturing firm have a great pride in that which their own laboratory developes. This erodes the objectivity of economic comparisons with competitive technologies, i.e., "mine is best because it is mine" - "not invented here". Also, an adversary posture toward competitors often has been emphasized so much in the everyday business of the firm due to the anti-trust laws that licensing (providing) technology to "competitive" licensees somehow is thought of as aiding the enemy. The net effect of such negative attitudes is that the typical manufacturing company will not license at an early point in the development. Instead, they will license only after commercialization and then only into geographical areas which have no commercial interest to the licensor or its subsidiaries, i.e., a firm in the USA may agree to license to a firm in the Middle East or Africa but not to a firm in Canada or Mexico or Europe (where it has a subsidiary).

Let us now consider "breakthrough" and "mainstream" technology. Since profits which can be made from the use of truly breakthrough and mainstream technology by product manufacture and sale far outweigh the profits from licensing such technology, further negative attitudes toward licensing often are evident in these areas. The motivation to self exploit mainstream and breakthrough technology within the company is intense. The stockholders expect it and the performance rating (salaries and bonuses) of the officers demands it. However, all technology ages. In some ways, it is like a melting piece of ice - the value gets smaller and smaller as time goes by. There then comes a time when a manufacturing concern will ask itself (or should ask itself) the question of whether or not licensing of even mainstream technology is not now worthwhile. When the answer is "yes", we have the first point at which we begin the process of developing a business plan for licensing and facing up to what guarantees must be given with the licensing.

There is, of course, a middle or a third type of entity. This is the engineering contracting firm which also conducts some research and development. Such firms are rare, however, and seldom will be encountered (in a licensing sense) by developing countries. Even where a developing country holds preliminary licensing discussions with such a firm, it probably will be with respect to technology previously licensed to others so the guranteees will be "frozen" (almost non-negotiable because the engineering firm licensor will want to offer all customers after the first one the same guarantees). This is not necessarily bad for the obvious reason that "frozen" guarantees almost are certain to be met by the engineering firm.

Machinery and hard products vs. process industries

The UNIDO publication ID/233 "Guidelines for Evaluation of Transfer of Technology Agreements" makes an interesting distinction between two industrial areas rélative to the guarantees common when licensing within such industries. The first industrial area includes electrical, hydraulic, and mechanical machinery; instruments; consumer and industrial electronic devices; appliances; cosmetics; hardware; sewing machines; pipe and fittings; plumbing and kitchen fixtures; and the like. With respect to these industrial areas the cited guidelines observe that performance guarantees are not as critical in the license to the developing country for the following reasons:"

(a) prototypes and commercial samples can be seen and tested by the licensees before the contract is signed, or for items such as sewing machines or kitchen appliances, they can be disassembled and studied for key technological areas, i.e., the risk area can be identified (not possible for, say, a chemical product or a metal casting);

(b) national standards (NEMA for electrical machinery, DIN for electronic components, or FDA regulations for food products) may have to be met because of national legislation and these can be regarded as guarantees to be met by the licensor;

(c) purchased parts constitute a significant element of product make-up and cost, and the licensor merely has to write in their specifications, identify suppliers etc.; know-how of purchased parts is not an element of the licensor's know-how and thus subject to his guarantees;

(d) there is no difficulty in specifying raw materials;

(e) the product results from a sequence of sharply differentiated manufacturing steps; defective manufacturing areas in plants going on-stream are easy to detect, are usually localized, and can usually be corrected at low cost. The cost of correction can often be roughly estimated in advance;

(f) manufacturing machinery is not made by the licensor, but is obtained from standard machinery suppliers; failure in machine performance is corrected by the suppliers and not directly by the licensor;

(g) in most such areas, it is not necessary to start operations with a complete complex; backward and forward integration can reduce the licensee's risk and give him a chance of moving at the pace he chooses;

(h) significantly, in most areas (appliances, cosmetics) know-how is ancillary to trademark rights, the value of which to the licensee is the greater, that is, know-how is not sophisticated, but is orientated to ensuring consistent quality of the licensed product".

By contrast, the guidelines cite "process industries" such as chemicals; plastics; synthetic fibre; fertilizers; products of fermentation; metallurgical industries; basic electronic elements such as transistors; semiconductors; silicone chips; and integrated circuits. Generally, these are industries where backward engineering is difficult, i.e., the manner and sequence of steps followed in the process are not apparent from a mere examination of the finished product. With respect to these so called process industries, performance guarantees may be of critical importance to the licensee for the following reasons:

"(a) while a wide variety of alternative raw materials can be used the licensor may have experience in using only a few of them; raw material specifications (impurity levels) may have a great effect on process performance;

(b) the relative rates of consumption of raw materials and energy (fuel, power, steam) strongly affect products cost and, therefore, the licensee's competitiveness in a particular location;

(c) the question of measuring performance arises only at the conclusion of the project, since there is little possibility of measuring performances in stages as construction progresses;

(d) the key pieces of equipment are custom built, and the equipment maker assumes responsibility only for their mechanical performance, not for process performance;

(e) there are considerable problems of ensuring equipment safety, disposing of effluents etc., which vary with site, raw materials, process and national legislation;

(f) there is considerable use of proprietary catalysts and like materials whose cost is determined by their life, which depends, in turn, on the licensee's raw materials and the licensor's process route;

(g) gradual backward and forward integration is hardly

...ssible; initial investments are large and unified, which means a high risk;

(h) significantly, the know-how licensor, engineers firm and construction firm are often different organizations, with different responsibilites. Hence, responsibility for performance must be precisely stated for each of the several contractors".

One can agree in general with the above and, in this chapter, will concentrate on process licensing, the convenient type of licensing to illustrate the role of the licensor relative to the formualation of guarantees and warranties. Many large process licensing firms, in fact, are very experienced and knowledgeable and become very efficient in this area. Some even organize a "sales team" whose only function is to sell the firm's process technology via license. Some such licensing sales teams may make an effort to respond only to inquiries on the theory that this allows them to pick and choose prospective licensees. Some may go to the other extreme and advertise, call on prospective customers, use direct mail and telephone contacts, and generally promote the sale via license of the techology. In either event, it has become a fact of business life recognized by manufacturing firms that guaratees are a necessity and that a great variety of support personnel and facilities are required by a licensing sales department if such gaurantees are to be met. Also, once a license is sold, the presence of gaurantees means that for a short period of time, a great deal of engineering help will be needed, licensors's plant operators will need to be released from their regular jobs to train the licensee's workers and help at the start-up. Research or development help also may be required. Technical service, legal and patent assistance will be needed - in short - the large and expensive license sales department will require help from yet other departments. All of this is possible only if the license is profitable. Also, engineering assistance noramlly continues during design and construction so such items as a thorough training of licensee's personnel at licensor's facilities and start-up at the licensee's new plant facility will deplete the availability of engineers for the licensor's own operations. Sometimes the licensor will be expected even to give the licensee marketing assistance (in-so-far as product applications are known). In short, the establishment of a licensing sales department is a big business decision and is likely to call upon many "hidden" resources of the company.

One special type of firm is the large oil or chemical company. These sometimes have a multiplicity of process they are promoting through their technology "sales group". In this event, the sales staff usually will include personnel with both a technical and a legal or patent background and their knowledge of guarantees will become most expert indeed. There is little room for negotiation of guarantees when such a firm offers its "standard" terms.

One common alternative to the formation of a full blown licensing sales staff is to grant sublicensing rights to an engineering contractor or to a licensing consultant firm. In this way, the manufacturer is permitted to exert a minimum of effort yet to profit somewhat from its research efforts. Such a manufacturing firm usually depends upon the sales organization of the engineering contractor or the licensing consultant to develop inquiries and provide most of the technical support (including supervision of the start-up and thus the guarantees) for the licensing effort. The engineering contractor may even develop advertising brochures, republish and distribute technical articles, author new technical articles extolling the process, and make formal technical presentations at technical meetings, semianrs and the like. The guarantees written into the license, however, almost always will be subject to approval by the manufacturing firm at the time they originate and the developing country licensee should be aware of this, i.e., the engineering contractor may not have the authority to change the guarantees.

Once the first prospective licensee has evidenced interest, it then will become essential that the licensor (whether manufacturing firm or contractor) plan and study for the drafting of the license agreement itself. Several provisions in the license will deal with guarantees. For example, process licensors most often gaurantee that the process will produce at a given rate and yield and with a certain purity. This requires, of course, that the quality (purity) and quantity of the feedstock to the process be controlled and that the guarranted quality of the finished product be established. Also, this requires that standard or known test methods be utilized to measure these items. The careful licensee should be sure he understands such test methods and measurements.

Sophisticated licensors realize that exotic or high performance products often are the most difficult to guarantee. This is because the acceptability of the product may not be established until subsequent utilization. For example, the acceptability of a photographic base grade polyethylene film produced via an ethylene polymerization process cannot be determined at the polymer stage. It must wait until the photographic film itself is made. Also, a guarantee in such a case which required that the polyethylene polymerization product be adequate to produce therefrom photographic film grade polyethylene film would not be sufficiently specific to satisfy the licensee and would not be provable when the polymerization is taking place. In short, the guarantees in this license must relate directly to the product as it is produced under the license for then, both parties have something to measure and observe.

In process guarantees, the penalty to the licensor for failure to meet the guarantees normally is a reduction in royalty or a forfeiture of what some will term "liquidated damages". In order to insulate itself from factors which are beyond its control, the cautious licensor firm will restrict the guarantees to those which can be measured during a limited test run. Also, operation of the plant while measuring the guarantees must be in accordance with the licensor's instructions (usually an operation manual). The licensor should be willing to guarantee against process failures but not against equipment failures. The equipment usually is manufactured or assembled by a third party not under the management control of the licensor so the licensor cannot give guarantees. He can, of course, help the licensee at specifications. In addition, it is common for a maximum limitation on guarantee liability to be established since no prudent business firm would enter into an agreement which left no ceiling on the maximum liability possible. All of these factors are considered by the licensor during his planning sessions before writing the first draft guarantee.

The establishment of technical specification for a feed stock and end product and the test methods and procedures for the guarantee test run often is a very complex operation. Likewise, the license provisions in regard to these factors are complex since they attempt to deal with many possible variations and contingencies. At this point, it may be helpful if the reader will refer to the typical process guarantee provisions set forth in earlier in this Guide.

Preparation by the recipient of technology for contract negotiations, with special reference to guarantee provisions

Contract (license) negotiations and thus the preparation for such negotiations should be about the same whether between two multinational firms or between a multinational and a firm or the government of a developing country. In actual practice, of course, they are not the same. In addition, the absence or presence and the type of guarantee provisions negotiated into the license contract not only will vary considerably, and for good reason, but they may be the one most different type of provisions.

Consider first that many of the technicians, company officers, lawyers, licening executivs, and patent experts of two negotiating multinationals often will know (or know of) one another. Some will have attended the same university. Some will at one time or another have worked for the same firm or otherwise will have cause to be at least acquainted. This leads to an initial trust or at least to mutual efforts toward an understanding. Not so the two counterparts where one is from a firm in or works for the government of a developing country. The members of such negotiating teams will in most instances be strangers. They often will come from different experiences, and they even may have different goals. The developing country team may be very suspicious or even fearful of their multinational counterparts. And all of these factors will impact the guarantees and thus, as we shall see, will impact the other license terms such as royalties.

Since these guidelines are written as an aid to developing countries in their efforts to industrialize, we will start by making them aware of an important fact of life. If the licensed plant of a multinational or "same nation" licensee cannot product as expected or as guaranteed, the more likely curative effort will be that a company officer or someone fairly high up in the licensee firm will telphone his counterpart in the licensor firm and ask for help - and the odds are he will get it - IRRESPECTIVE of the guarantees and the limitations on the guarantees written into the contract. Hence the familiar saying among licensing executives that: "you cannot produce methanol (or any other product) with guarantees". Only an operative plant, not the written guarantees, will make product. Between large well established firms, guarantees thus are of much less importance.

Further, it should be apparent that the alert lic[illegible]r when asked to grant guarantees in the licnese, will seek protection against guarantee "mishaps".Such protection will be stronger as the guarantees demanded are more strict or tighter and weaker as the guarantees demanded are less strict or looser. For example, if the major guarantee relates to the quantity of product which will be produced by the licensed developing country plant, the licensor' s defense is to oversize the plant, to design a plant which is too large so as to have a "margin of error". If the major guarantee is the purity of chemical product, the licensor' s defense is to overdesign for purification. If the result of not meeting a guarantee could cost the licensor real money, the deense is to increase the royalty rate. As Sir Isaac Newton put it - "to every action there is an equl and opposite reaction". The same often is true in negotiations.

A additional preparation for negotiations, the developing country licensee should attempt to understand the licensor' s thought process (what went through the licensor' s mind as he drafted the process guarantees). Thus, the first decision the licensor probably had to make was the percentage of design factors which would be guaranteed. If, for expample, his developing country licensee is likely to want a guarantee that the plant will operate so as to produce at least 95% of design capacity, the licensor may alter the factors such that the design actually is at 105% of the guarranted amount. This 5% "cushion" against mishhap will increase the capital cost to the licensee. In his mind, of course, the result peace of mind to the licensee government or firm may be worth the increased capital cost.

Capacity and efficiency (yield, raw material, consumption, percent removal of certain impurities, etc.) are the two factors most often guaranteed in process type licenses. On the following pages, we shall examine actual license guarantee language covering these two factors in a typical process license. Suffice to say at this point, to test these two factors, a one, two or three day performance test run is normal. A run which is longer may defeat its own purpose since all operation during the test run most usually is required to be with design purity raw materials under design operating conditions. These require around the clock monitoring and a large number of tests (analyses) supervised by both the licensor and the licensee.

In chemical, plastic and other plants which use catalysts, guarantees on catalyst life sometimes are requested by a licensee. These, however are likely to extend over longer time periods i.e., one, two or even five years because that is the time expected between catalysts changes. Thus, there is a much greater likelihood that, as the process is operated, less than (lower) design conditions will be encountered by the catalyst during the long time period. This is even more likely when it is recognized that the plant operating personnel are in control while they at the same time also are in an operation learning phase. In fact, since licensor personnel probably will not be in the plant after the start up (i.e., the first few days or weeks), operation by licensee personnel at non-design conditions will be witnessed by licensee personnel only. Unless they report such conditions to their superiors who then notify the licensor, the licensor may never know, for example, that for one week in mid-life the catalyst either operated 100 degrees C over design or was poisoned in part because exposed to 20 times the design impurities. For all of the above reasons, most licensors are reluctant to guarantee catalyst life. And even if they do guarantee life, they will add such safeguard language that the guarantee as a practical matter will be useless to the licensee., i.e., guarantee one year life when actually the catalyst should last five years or guarantee the life only on the condition the feed is filtered at all times through expensive active carbon filters,etc.

The developing country licensee and his licensor CAN agree on one point, namely, that the most important single factor in guarantee provisions is the need for licensing language clarity, i.e., carefully drawn and agreed language stating in no uncertain terms what is and is not guaranteed. It thus is essential that the developing country licensee have at least one person on or available to his team familiar with license guarantee language and whose native language is that in which the license is written. Such a person can be a lawyer or, since many lawyers have limited licensing experience, an even better person may be an independent consultant with actual licensing and guarantee experience.

At this point, a distinction needs to be made. That is between process license guarantees and mechanical construction guarantees where both may apply to the same plant. No one will guarantee that over which he has no control. Thus, where the process is licensed but a second (different) party does the fabrication of parts and the erection of the plant, the latter party (often called an engineering contractor) usually will make the mechanical guarantees and the licensor will make the process guarantees. An example: The licensor specifies a certain heat exchanger capacity for the licensed plant. At the test run, there are problems. The capacity of the heat exchangers installed is measured (calculated). If the installed capacity is less than what was specified, the licensee's remedy is with the engineering contractor because it is a mechanical guarantee. If the installed capacity is equal to (or greater than) what was specified, we have a process guarantee so the licenseee will look to the licensor for satisfaction. In fact, the alert developing country will do well not only to be aware of this distrincion, but also to make certain the language in the license expressed the distinction to his advantage.

Having the above "facts of life" in mind, let us now examine a typical, well worded guarantee written relative to a widely licensed chemical process. Then let us use this guarantee as a reference to guide the prospective licensee in his preparation for the contract negotiation

First the guarantee:

"ARTICLE 9. GUARANTEES

9.01 LICENSOR guarantees the performance of Said Plant in the following respects and under the following terms and conditions:

(a) in a performance test run, hereinafer describted, during which Said Plant is free from mechanical defects substantially affecting process operability, Said Plant, if constructed in accordance with process designs and process specifications provided by LICENSOR pursuant to this license and approved by the LICENSOR for construction and if Said Plant is prepared for operation in accordance with LICENSOR's instructions and subsequently operated in accordance with such instructions of LICENSOR at not substantially greater than Designed Capacity (except as permitted by the said instructions) will meet the guarantees of Section 9.01 (b) of this ARTICLE 9 when employing:

(i) a ______________ feedstock meeting the following specifications:

Impurity of Component	Quantity (Maximum)	Test Method
______________	______________	__________
______________	______________	__________
______________	______________	__________

(ii) a ____________ feedstock meeting the following

Impurity or Property	Specification	Test Method
____________	__________	_________
____________	__________	_________
____________	__________	_________

If there are found to be any impurities present in the fees, other than those listed above, which are detrimental to the satisfactory operation of Said Plant, then both parties shall exercise their best cooperative technical efforts to eliminate such impurities. If such detrimental impurities and detrimental effects thereof cannot be eliminated by these cooperative efforts, then LICENSOR shall be relieved from liability under the performance guarantees hereof to the extent its failure to fulfill the guarantees is attributable to such other detrimental impurities.

(b) When Said Plant is operated in a test run to produce ____________

(i) production of ____________ will be at the rate of not less than ____________ million pounds per calendar year, when calculated over 330 stream days per calendar year; and (ii) yield to specification product as shown below will not be less than ____________ weight percent based on the total weight of feedstocks charge to Said Plant (iii) when so operated, the product shall meet the following quality specifications:

Impurity of Property	Specification	Test Method
____________	____________	____________
____________	____________	____________
____________	____________	____________

9.02 If LICENSEE elects to require LICENSOR to be bound by the provisions of this ARTICLE 9, it will give LICENSOR ninety (90) days prior written notice of the estimated date of completion of construction of Said Plant and agrees to start-up Said Plant only under the instructions and observation of representatives of LICENSOR. Start-up shall be made within sixty (60) days after completion of construction of Said Plant.

9.03. Unless LICENSEE elects to waive its rights under this ARTICLE 9, performance test runs for the purpose of establishing the ability of Said Plant to meet the guarantees set forth in Section 9.01 (b) above shall be as follows:

(a) Within sixty (60) days after the date of start-up of Said Plant by LICENSEE, or as soon thereafter as Said Plant is ready for such test, and upon a date agreeable to the representatives of LICENSOR and to LICENSEE, a continuous performance test run for a period of twenty-four (24) hours shall be conducted in accordace with instructions of, and in the presence of, representatives of LICENSOR. If LICENSEE elects to require LICENSOR to be bound by the provisions of this ARTICLE 9, then LICENSOR shall be entitled to have up to five (5) representatives present in order to provide for around-the-clock supervision of the performance test. If LICENSEE elects not to require LICENSOR to be bound, then LICENSOR shall be relieved from any and all liability under the guarantees provided for in this ARTICLE 9.

(b) if LICENSOR is required to be bound by the provisions of this ARTICLE 9, LICENSOR shall provide, at

LICENSOR's expense, the representatives specified in Section 9.03 (a) with respect to the first performance test run of Said Plant and any subsequent performance test runs the need for which is attributable in whole or in part to any causes reasonably related to plant performance other than incorrect process design and/or incorrect or inadequate disclosure of information under the provisions of this license. With respect to subsequent test runs meeting the conditions of the foregoing exception, LICENSOR shall provide the representatives specified in Section 9.03 (a) and LICENSEE shall reimburse LICENSOR for all necessary travel and reasonable living expenses of the representatives so provided, plus a fee of ________ dollars ($______) per representative for each working day that such representative is away from his normal place of employment. Any performance test hereunder shall be made during operation by LICENSEE of Said Plant and all necessary and adequate feedstock, utilities, supplies, catalyst approved for the test run by LICENSOR, and equipment for the operation of Said Plant shall be furnished by LICENSEE.

(c) In any performance test, the foodstock compositions, production rates, product purity, and percentage yield shall be determined according to the test procedures given in an Appendix to this Agreement, which is hereby incorporated into and made a part of this Agreement, and under the supervision of the representatives of

LICENSOR, and shall be averaged over the entire twenty-four (24) hour period.

(d) The representatives of LICENSOR shall have the power to declare any test run unsatisfactory at any time during or within a reasonable time after the test run if the unsatisfactory character thereof is due in whole or in part to any cause reasonably related to plant performance except incorrect process, design and/or incorrect or inadequate disclosure of information under the provisions of this license. LICENSEE agrees promptly to make at its own expense such repairs or alternations the need for which may be properly designated by LICENSOR and which may be necessary to correct such cause, or to waive the affected guarantees.

(e) Subject to the provisions of Section 9.04 of this ARTICLE 9, until Said Plant meets the guarantees as to production rate, quality, and percentage yield during any performance test, LICENSOR shall have the right at any time to have, upon reasonable notice to LICENSEE, and at a time satisfactory to LICENSEE, one or more additional continuous twenty-four (24) hour performance tests under the conditions set forth herein to demonstrate the ability of Said Plant to meet the guarantee.

(f) In the event that LICENSEE defaults in any obligation or fails to fulfill any condition pursuant to this ARTICLE 9 and such default or failure is not cured by LICENSEE without undue delay after written notice thereof from LICENSOR, or in the event that LICENSEE waives any guarantee hereunder, the LICENSOR shall, to the extent that the default or waiver affects the ability of Said Plant to meet a guarantee of production, quality, and/or percentage yield provided for in this ARTICLE 9.

(g) In the event Said Plant meets the guarantees as set forth in Section 9.01 (b) of this ARTICLE 9 in a performance run as herein provided, then LICENSOR shall thereafter be released from any and all liability under the guarantee or guarantees so met.

9.04. In the event that, on the first or a subsequent performance test run, Said Plant fails to meet one or more of the production or quality guarantees of Section 9.01 (b) (i) or 9.01 (b) (ii) of this ARTICLE 9 as a result of incorrect design of the Licensed Process as furnished to LICENSEE by LICENSOR is released from these guarantees, then within ninety (90) days from the said first performance test run of Said Plant by LICENSEE, LICENSOR shall undertake at its own expense to examine Said Plant and promptly to provide all necessary process designs, drawings and specifications for any modifications of Said Plant or otherwise to modify the said information so furnished to LICENSEE by LICENSOR, as deemed necessary by LICENSOR to insure that the conditions guaranteed by LICENSOR as aforesaid will be met; provided, however, that LICENSOR's obligations hereunder shall apply only to the extent that the failure of Said Plant to meet one or more of the guarantees results from incorrect design of the Licensed Process as furnished by LICENSOR and/or to inadequate or incorrect information furnished to LICENSEE by LICENSOR pursuant to this license. If any modification recommended by LICENSOR in accordance with this provision is carried out by LICENSEE, then LICENSOR shall credit against one-half (1/2) of the royalty paid and payable by LICENSEE with reference to Said Plant in accordance with ARTICLE 4 of this license, with appropriate refund if necessary, the cost of such modifications determined by LICENSOR to be necessary to enable Said Plant to perform in accordance with the unmet guarantees. The cost of such modifications shall be credited against one-half (1/2) of the royalty paid and payable by LICENSEE with reference to Said Plant in accordance with this license, with appropriate refund if necessary. LICENSEE shall be entitled to such credit for the cost of any such further modifications to Said Plant whether or not such modifications are made to Said Plant.

9.05. In the event that, on the first or a subsequent performance test run, Said Plant fails to meet the yield guarantee of Section 9.01 (b) (ii) of this ARTICLE 9 as a result of incorrect design of the Licensed Process as furnished to LICENSEE by LICENSOR pursuant to this license, and unless LICENSOR is released from this guarantee, then within ninety (90) days from the last such performance test run failure, LICENSOR shall adopt one of the following procedures, the particular procedure to be at LICENSOR's option:

(a) Allow LICENSEE a prorate credit against one-half (1/2) of the royalty paid and payable by LICENSEE with reference to Said Plant in accordance with this license with appropriate refund if necessary, or one-tenth (1/10) of the amount of total royalty attributable to Said Plant for each one percent (1%) of yield deficiency.

(b) Have LICENSEE install additional equipment or catalysts, or modify the then existing equipment or catalyst, whereby yield is increased to the percentage yield provided in Section 9.01 (b) (ii), and credit against one-half (1/2) of the royalty paid and payable by LICENSEE with reference to Said Plant in accordance with this license, with appropriate refund if necessary, the cost of such additions and/or modifications determined by LICENSOR to be necessary to enable Said Plant to perform in accordance with such yield guarantee. Such additions and/or modifications shall be subject to approval by LICENSEE, which approval shall not be unreasonably withheld; provided, however, that LICENSEE may elect not to make such additions and/or modifications and in such event the foregoing credit of this Section 9.05 (b) shall be accepted by LICENSEE in lieu thereof and, subject to said credit, LICENSOR shall then be relieved of the unmet yield guarantee. If this option is elected, LICENSOR shall have a period of six months from the completion of the said additions and/or modifications in which to conduct additional performance test runs provided in Section 9.03 above, and, if the percentage yield realized during a subsequent performance test run is higher than the yield guaranteed in Section 9.01 (b) (ii), the credit specified in this Section 9.05 (b) shall be reduced pro rata by one-tenth (1/10) of the amount of total royalty attributable to Said Plant for each one percent (1%) by which the yield exceeds the yield guaranteed in Section 9.01 (b) (ii). If the percentage yield on such subsequent performance test run is less than the yield guaranteed in Section 9.01 (b) (ii), LICENSEE shall be entitled to credit against one-half (1/2) the royalty paid and payable by LICENSEE with reference to Said Plant not only the amount expended for such additions and/or modifications but also to credit pro rata one-tenth (1/10) of the amount of total royalty attributable to Said Plant (after credit for the additions and/or modifications) for each one percent (1%) of yield deficiency.

9.06. Any provision in this license to the contrary notwithstanding, the total credits available to LICENSEE under this ARTICLE 9 shall in no event exceed one- half

(1/2) of the royalty then paid or which thereafter becomes payable under this Agreement with respect to Said Plant".

Note first of all that by 9.06 the MAXIMUM total (cumulative) money credit available to the lecensee is only one-half of the royalty paid by the licensee. This is fairly common in process licensing and is done so that even if the most severe guarantee penalty arises, the licensor can at least cover his out-of-pocket costs via the one-half (1/2) royalty. If the licensed plant, when completed, fails to produce the guaranteed amount of product, the licensor can by the license terms, walk away and keep one-half of the royalty. This may seem unfair to the licensee, but, absent other factors, most courts would agree the licensor may keep the one-half. Certainly courts in the United States, Canada, England and those with a system of law based upon the old English common law would agree. Why ? Because the licensor and the licensee have bargained (negotiated) at arms length and have reduced their agreement to writing. They have signed a license contract which has language which specifies what happens when the plant fails to meet the guarantees. They have agreed on a definition of "failure" (the guarantees) and have agreed as to a maximum remedy (one-half the royalty). There is in such a case no need for the court to go beyond the express language of the license i.e., no outside evidence will be heard by the court, unless, of course, the injured party can show fraud or the like. The developing country licensee should realize that this type of provison is common in licensing and the result can be as above stated.

The purpose of starting our examination with 9.06 is to point out to the developing countries the fact that guarantees are a two edged sword. They often are examined by the developing country from the viewpoint of benefit to the licensee per se. Yet there also are benefits to the licensor. These include ceilings or maximums on r liability and a most careful recitation of what constitutes performance and what constitutes failure. It is for this reason that the license language itself can become so important to the developing country licensee. This in turn causes us to raise a reminder flag that when he forms the licensee's team, an experienced licensing person should be included and one of his important functions should be to read every word of the license and interpret it so it is understood.

For other clues as to what is needed in the licensee's preparation for license negotiations, we return to 9.01 and follow the sequence which the cautious licensor has constructed. In 9.01 (a), note the licensor safeguards and how these require a technical person on the developing country licensing team. Firstly, the performance test run can be made only if the plant is "free from mechanical defects" which would affect the process. A complex modern chemical, plastic or synthetic fiber plant seldom is completed and, with a first test run, found to be 100% free from "mechanical defects". The licensor and licensee both know this. The result is that the licensee must be patient while his engineering contractor "debugs" the plant and after other tests, at last declares it to be free of all mechanical defects. Secondly, the plant must be constructed in accordance with process designs and specifications provided by the licensor (or design engineer) in which case they must be approved by the licensor. This again calls for an alert engineering (technical function) for the developing country licensee.

As the plant is being constructed, if for example, such a licensee engineer wishes to vary from the process specifications provided by the licensor, he should be certain he gets approval which later will stand up if attacked (a letter or a signature on the specification sheet or the like). Thirdly, the plant must be operated during the test run close to "Designed Capacity". At the least, the developing country licensee operating personnel must assure sufficient raw materials (feedstocks) are on hand for a run at designed capacity for the number of days specified. The longer the test run, the more onerous this provision can become to both licensee and licensor. Lastly, in 9.01 (a) note the precision with which feedstock impurities are listed. To clarify this point, one impurity example might be: Chlorides and other halides, 100 ppm maximum in total, American Society of Chemical Engineers Test Method number such and such or color, clear to light amber using a given standard test method. The licencee's technical advisor must understand test method. The licencee's technical advisor must understand these recitations in full. If, for example, feedstocks of the required purity are not available in the developing country where the plant is going to be built, the reason for such strict requirements should be explored with the licensor's counterpart technical advisor. Perhaps the specifications can be changed. If not, perhaps the licensee will be advised how the feedstock can be cleaned up to achieve specified quality prior to the point where it is fed to the developing country plant.

Selection of technology by the recipient

Now that we have examined portions of a typical guaranty and seen how these can impact various diciplines, we are ready to outline the developing country licensee's basic needs in preparing for the license negotiations (and the negotiations with the engineering contractor as well where these two touch on guarantees). Primarily, his needs lie in three areas, (1) technical, (2) legal, (3) economic (where the latter includes not only marketing of a final product produced in the licensed plant but also procurement of raw materials, catalysts, and equipment). These three normally are found either in person or represented by a consultant on the knowledgeable developing country licensee's team, i.e. the team approach to preparation for negotiations is common and will be seen by what follows to be logical. First, however, a word of explanation. Large firms have available large numbers of trained employees, i.e., technically trained, legally trained and business trained. Small firms and many developing countries often do not have such availability. Accordingly, where the explanation to follow mentions a particular experience or discipline (training), it will be recognized that often a developing country will employ consultants and/or lawyers or patent experts in private practice. It is the task of these outsiders to "fill in" and to supplement the in-house expertise of the licensee. That which is accomplished for the developing country, however, should be the same whether done by a consultant or an employee.

Technical considerations

Broadly, the task of the technical discipline relative to preparing for negotiations concerning guarantees includes six elements, namely (1) those associated with selection of the technology, (2) those associated with negotiations of the license (and where as usual it is a separate document, the engineering contract), (3) those associated with fabrication of the mechanical elements, (4) those associated with assembly and erection of the plant, (5) those associated with the plant start-up (including the test run or runs), and (6) those associated with the long term operation of the licensed plant. Technical trouble shooting, of course, can be associated with any of these 6 elements.

(1) Selecting the technology

The most important part of the technical function relative to the guaranty provisions in technology transfer agreements for developing countries, occurs during planning (even before any negotiations are entered into), i.e., during the selection of the type of technology to be utilized in the licensed plant. Quite obviously, if the correct technology is selected, guaranty provisions will be a minor point and may not even be needed. This is for the simple reason that the technology then may be so well proven over many plants and licenses that nothing is likely to go wrong. On the other hand, if an incorrect selection is made, very detailed guarantees may be needed in an attempt to protect the licensee. Further, the prospective licensee in the developing country should draw a distinction between the acquisition of technology from those firms which utilize the technology themselves, (i.e., the acquisition of chemical technology from a chemical manufacturing company), and acquiring technology from a non-manufacturing engineering type firm, (i.e., an engineering contractor with great experience building chemical plants but a contractor who does not himself make chemicals). Thus, if the engineer in the developing country were to be asked where he might obtain nylon, polyester, polymer or fiber technology, he might name first and foremost several different Japanese or European or USA fiber producers. This might be a grossly insufficient list, however, since there are several non-producer contractors who have the expertise to build such plants. As this chapter is being written, there is currently running in a large number of textile magazines, an ad by Lurgi (a German engineering contractor). This advertisement states "Polymer and fiber technology available; polymerization plants for nylon 6 and nylon 66, polyester, polypropylene, and polyacrylanitral. Spinning plants for staple fibers. Staple fiber and tow plants. High speed spinning plants for textile filaments. Texturing plants. Spinning plants for technical filaments. Spinning plants for carpet yarn. Tufting plants for carpets. Spinning plants for tire cord. Spun bonded and non-woven plants, needled floor coverings, heat sealed low weight webs. Plants for other polymer and fiber-like materials. Lurgi has built a hundred polymer and synthetic fiber plants in 23 different countries".Obviously, having built over 100 plants of the above type, Lurgi will offer a set of guarantees many times tried and tested in the market place. There will be little, if any, chance for the developing country licensee to change the guarantee provisions. The best he can do is attempt to find out if all 100 have had the same guarantee. If not, he should try for guarantees equal to the best Lurgi ever has granted to any previous licensee. in this type of a situation, the technical function during selection of the technology should be instructed to gain an adequate understanding and appreciation from Lurgi (or the other contracting engineer) as to the scope and content of the guarantees offered. Armed with this initial information, the technical function will be prepared to explore the content of the other 100.

Contrast the above with the purchase of a license from say DuPont or ICI for technology for the manufacture of the same polyester polymer and for spinning fibers from such polymer. In the latter case, a separate engineering contractor will have to be procured by the developing country licensee and the process guarantees will be up to the licensor manufacturing company, i.e., DuPont or ICI. In this event let us assume that the selection of the technology process is between those two firms. It will include a detailed technical evaluation and study. The developing country engineer probably will visit the plants of the licensor DuPont or ICI. he may employ technical consultants and may review patent literature, technical literature, consult with university professors, and the like. He then may recommend via his report to management which licensor he believes is best for his firm or government from a technical viewpoint.

It quite often is helpful to the technical function when selecting the proper technology and obtaining the proper guarantees if a world-wide listing of firms practicing a particular technology is available, or, if not available, is assembled. With respect to each firm on the list, capacities, number of plants, type of technology practiced, and the like can be listed. Obviously, if the only plant which a particular licensor has built or licensed will produce only 100 tons a day and the new plant contemplated by the developing country licensee is to have a capacity of say 1,000 tons, great caution should be expressed by the technical function. Scale-up is not always accurate or easy. On the contrary, if the technology to be licensed never has been utilized commercially by others, the technical function should express caution. Even with very detailed perfect guarantees, such technology may not perform as expected by the developing country prospective licensee.

One of the major questions the recipient of technology may sometimes face is that whether to acquire proven versus no non-proven technology. The issue at stake here will have three major aspects:

- implications on reliability of the technology (guarantees)

- implications on price

- implications on R + D effort by the recipient of technology

The price implications are quite clear in the same that non-proven technology is, and usually would be, less expensive to obtain.

It should be stressed that scaling-up/down the technology may also affect the price as well as the costs of putting the technology into operation, particularly in the chemical field, where often 2 + 2 do not necessarily equal 4.

Another option might be taken into account by developing countries, that is the so called technologies in "public domain" or "absolete" technologies.

Usually such technologies although "freely" available (that is their legal protection expired), require for commercial application the acquisition of know-how, which in some cases might be of proprietary character, therefore at cost.

(2) Negotiation of the license.

Negotiation has been defined as a highly refined process of exchange between the licensee and, at one stage, the licensor or at another stage the engineering contractor for the licensee. Such negotiation is required because the contractual provisions of the relative "values" are not fixed, i.e., some agreement or settlement is needed, i.e., if all license terms are fixed, the parties need not negotiate. The technical function is best served for the developing country if technical problems with the process or plant relative to the guarantees are avoided later on. It thus, should be the primary purpose of the technical function during negotiation to settle the technical license terms upon mutually acceptable terms.

Moreover, the cost of having it operating (delays, repetitive tests, additional R + D, etc.) may prove ultimately that the cost of the technology is not that low and actually, it could be even higher.

Furthermore, in case of non-proven technologies only very general guarantees usually can be obtained, if at all. Therefore, in a critical situation when for example the technology has been tested only on the laboratory scale, usually guarantees at full commercial scale may not be available.

Those are therefore the consideration which should be very carefully reviewed when dealing with manpower technology.

Naturally, when the recipient of technology has sufficient R+D base and intends to develop a technology jointly with the supplier, then the non-proven technology may be attractive, however with a few exceptions, this is not the case of developing countries.

Developmental and adaptation works in such cases are usually costly and time consuming, and although they, in certain circumstances, may be attractive, it is suggested, in general, that developing countries rather choose commercially proven technologies, probably from the supplier who licensed the technology to many recipients, and possess necessary expertise.

Simultaneously, their technical person should understand that what is being established probably will be a long term business relationship. Neither side (neither engineer) should over/reach nor should either the licensor or the licensee technical function expect to win a surplus beyond a certain critical point. In preparatio for a license negotiation, the licensee's technical function should identify and list all of the licensee's technical objectives. He then should attempt to place values on those which are most important, the technical effort should concentrate on this factor. It is in this type of planning ahead for the negotiation itself. Also, on a more personal level, the technical person for the developing country licensee should attempt to meet and to get to know the technical person for the licensor. These two can and should discuss the guarantees informally: this is but a first step toward fully understanding what the guarantees will mean when they appear in writing in the final license agreement.

Further, if during the actual negotiation, a particular technical or language point is not understood, the developing country technical person should not be afraid to seek clarification. For example, he can ask for a causus away from the other side so as to be able to discuss in private among the members of his own developing country team the points which he does not understand. This approach, of course, requires a very disciplined negotiating team and one with trust in its own engineer (technician).

The process of evaluating and selecting technology and leading meaningfully to the negotiation process presumes that a certain level of varying expertise exists within the negotiating team. This, in turn presumes that the developing country has access to various experts. As a practical matter, however, many institutions and enterprises (to say nothing of individuals) in developing countries lack sufficient information concerning the sources of technology, the negotiation process with respect to the acquisition of technology and the manner in which guarantees can be used. If this is a fact in a particular country and if additional institutions within this particular country offer insufficient assistance, the technical function may best serve the licensee by recommending that a technically competent consultant be hired. At the very least, such a consultatnt should have licensing and negotiating experience if, in fact, a portion of his duties are to include consultation relative to the guarantees.

(3) Fabrication of the plant elements

The guarantees expressed in the license agreement often refer back to the elements incorporated within the plant, i.e., the reactor, the heat exchanger, the distillation tower, etc. In the earlier quoted guaranty, 9.01 stated that the performance test run must be made while the plant is "free from mechanical defects". It is during the fabrication of parts or elements that such mechanical defects most often arise. Thus, the technical function performs an important service to the developing country licensee, if, during fabrication, it checks repeatedly each of the elements of the plant. Such checks commonly are performed by technical expediters or engineering assistants. In fact, they sometimes even have an office or a desk in the fabrication shops for the more vital elements. If a reactor, for example, is to be built in Germany, the technical function from the developing country should if possible try to have an employee or a trusted representative located in Germany. This person periodically will check on progress and inform the licensee whether specifications are being met. This becomes even more critical when the bolts or metal used (and other factors in the fabrication of parts) may be hidden from view once the reactor is completely assembled.

In the procurement of the various elements or parts of the plant, the procurement contract should state what guarantees, if any, will be given. These can supplement those given in the license agreement. Often, these guarantees will run from the fabrication to the engineering contractor if the latter is doing the procurement for the developing country licensee. However, because the licensee has a large stake in these guarantees, the technical function should approve and be fully informed concerning the fabricator's guarantees.

(4) Erection of the plant.

During field erection of a complete licensed plant, it is almost impossible for the developing country licensee's engineer to witness every single step. This is one of the reasons that a test run following erection normally is utilized to determine whether or not the guarantees will be met. What does occur during erection, however, is that changes may arise and these may affect the guarantee povisions. The alert technician or engineer for the developing country licensee should follow these changes and make sure that the licensee management is informed so that the licensor can be informed and the license or the contractor guarantees can be altered accordingly.

It is common for the actual erection of the licensed plant to be accomplished either by direct labor or by a firm which is different from the firm which drew the plans and designed the licensed process. To the extent this is true, the performance of the actual construction group or the construction firm may determine whether or not the guarantees eventually will be met. The technical function of the developing country licensee thus will best be served if the group or firm is made aware of the extent of the guarantees given by the licensor and/or by the other firm. The actual construction group that becomes a team member (with the licensee technical function) to help assure that insofar as is possible the plans are followed and the plant is properly erected so as eventually to meet the guarantees.

(5) Start up, test run.

The technical function for the developing country licensee is most critical during start-up. Normally, the actual start-up will be under the supervision of the licensor's technical representatives. In fact, it previously has been shown via ARTICLE 9 how the guarantees are dependent upon the licensor having its personnel effect on the star-up and supervise the first test run. The engineer for the licensee can be a witness and even may be allowed to help. It is most important, however, that he be aware that once the licensor personnel complete the start-up, they will leave and return to their homes. It then will be up to the licensee personnel to operate the plant. Such operation, it will be anticipated by the licensee's management, will continue to meet the guarantees set forth in the license agreement. Thus, a curious and intelligent engineer for the licensee can be most valuable during the start-up period.

Such an engineer will not hesitate to ask questions and absorb as much of the technology as possible by utilizing a "hands on" approach under the supervision of the licensor. If the test run is to be 24 hours or more in lenght, practical difficulties will arise such as staying awake and alert through a long period of time. At the same time, the taking of all samples and the testing of these samples will be critical for it is these elements which determine whether or not the guarantee has been met.

(6) Long term operation

Lastly, the technical function for the developing country licensee will be responsible for operating the licensed plant at the "guarantee level" after the licensor's personnel return to their home base. Faced with this eventual responsibility, the licensee's engineer (technical function) has all the more incentive to be present during negotiation of the guarantees.

Legal considerations

A person with sufficient legal training and experience is indispensable to the drafting and negotiation of the guarantees in a license agreement. In this area, two questions should be asked: (1) have the guarantees been worded with sufficient clarity and exactitude that they can be understood by both parties without recourse to legal action ? (2) if it becomes necessary to bring a lawsuit to enforce the guarantees, have sufficient provisions been incorporated in the other portions of the license agreement to allow legal action successfully to be pursued by the licensee. For example, ask the following - what law governs; under what conditions is a lawsuit permitted; is the language of the license precise and does it cover the important parts; does the license require arbitration instead of a full-blown lawsuit; and do the guarantees run to other than performance factors, (i.e., to patent infringement, for example, in which case a patent lawyer or agent as well as a general lawyer or agent should be consulted)?

The most experienced business people and executives prefer to employ a legally trained licensing specialist rather than a general lawyer for the reason that the drafting of the guarantee provisions can be very technical. Generl lawyers seldom have trained at technical schools and it is a wise one which recognizes his limitations. As we have seen earlier, the guarantee provisions such as ARTICLE 9 may contain test methods and detailed scientific elements which only a technically trained person adequately can understand.

The legal function often can be best served relative to guarantees if the developing country licensing specialist or lawyer first assembler a number of guarantee provisions from other licenses. His friends, UNIDO and WIPO are but a few sources of sample guarantees. These provide comparison and allow compilation of a check list of factors to be covered in the license to be negotiated. They also allow the lawyer or licensing specialist for the licensee to obtain an appreciation of the types of liquidated damages or royalty credit factors which have been made available to others in other license if within the prescribed test period there was no successful completion of the performance test.

After the guarantee provisions have been negotiated and reduced to writing, a cautious lawyer or licensing specialist for a developing country licensee will conduct a study session with the engineers and technical consultants for the licensee. For example, the written language relative to the test run can be examined and an imaginary test run conducted with the enigneers stating the many ways they can imagine the test run could possibly go wrong. The lawyer then can see if the language utilized in the guarantee provisions has taken all such possible failures into account.

One other legal function can be to alert the team leader or manager of the developing country licensee to the trade-offs which are possible between guarantees and royalties. In some areas, no guarantees may be necessary and the deletion of the guarantees in those areas could possibly provide ammunition for a trade-off which would result in a lower royalty being paid by the licensee. On the other hand, the licensee should be aware that as the guarantees are tightened, the natural reaction of the licensor may be to ask for an increased royalty. An experienced lawyer or licensing specialist should alert his team to that possibility.

In the preparation by the developing country licensee for contract negotiations on guarantees, we now have seen that the most important single factor is the need for clarity ,i.e., for language which states exactly what is guaranteed and what is not guaranteed and under what conditions breaches of the warranty will result in liquidated damages or other penalties. The developing country licensee who has at least one person on his negotiation team familiar with guarantee language and perhaps with great experience at negotiating guarantees, most often will obtain the best guarantees and, more importantly, the best finished plant. Whether the person advising the licensee on such points is an employee of the licensee firm or government or whether he is an independent consultant is of small matter. What really matters is the prior training and experience which this person has.

Economic considerations

Among the functions performed by the economic manager in preparing for negotiations relative to guarantees, are marketing, quality control, import of parts and/or raw materials, export of manufactured product, prices including royalties, and personnel to be used. One of the most important guarantee provisions to the marketing manager can be that which assures a certain purity of product or, in a more general nature, quality control. A purity of product which will sell in some markets may not sell in others. Even the most perfect production plant is virtually useless if the output from that plant cannot be sold as planned. It thus is important that the economic function for the developing country understand these factors when preparing to negotiate the license and contractor guarantees.

In many licensed plants, imported raw materials, catalysts, and parts will be utilized. The guarantees which are given in the license agreement often are dependent on certain of these being utilized. It thus is incumbent upon the business or economic manager to appreciate the relationship of the warranties to the materials utilized. It would be very short-sighted to save money on a purchased raw material, if as a result, the plant does not produce to the guaranteed level.

As we earlier have seen, many guarantees offer as a remedy for breach a certain refund or forgiveness of a portion of the royalty. The amount of royalty usually should be such that it will not have a major impact on the price at which the product produced should be sold. However, it still should be one economic function of the licensee to be sure that management understands the relationship of sale price to royalty to level of guarantee. Also, it is common for a licensee to import and resell product while the licensed plant is under construction. In such a case, it is imperative that the economic function be assured that from the guarantee that the very same product being resold can be purchased in the licensed plant. The developing country firm will, in effect, have introduced the purchasing public to a product of a certain quality which can be obtained for a certain price. If the plant, when completed, does not duplicate this product and if the guarantees do not assure that it will duplicate the product, the marketing manager may have difficulty maintaining the sales level which had been achieved, let alone continuing a growth of such sales.

Preparations for tender

Once a decision, of investment character, has been made, the enterprise, particularly the public enterprise, will in certain instances, go for tender in order to obtain a couple of offers among which the final supplier will be selected.

Tenders are the usual way of doing business by many public or governmental agencies, where it is considered essential to obtain several bids.

It should be stressed, however, that at the stage of tender preparations or essential and critical technolgies and investment, parameters are to be established.

The tender, in principle, fixes the conditions and parameters of the investment, which in view of the investor are to be met by the potential suppliers.

It is therefore essential and imperative that all the paramenters described in detail in the previous chapter are completed, inclusive of direct contracts with potential suppliers, prior to the preparation of the tender documents.

In case of tenders, one may opt for the so called "open tender", that is an unlimited number of offers may be submitted, or "closed tender" that is a selected number of suppliers only are invited to bid.

Each way has its merits and the investor should decide which means will be used in each individual case.

As the preparation of tender documents assumes the completion of the activities described earlier, in some instances, it may be the engineering company who assists the investor in their preparations, as well as the selection of the final supplier on a basis of a comparative analysis of the offers received.

Of course such task may increase slightly the cost of investment, yet the experience of the consultants may pay off, by a proper selection of the supplier and critical offer evaluation.

In some cases, it is known that tender conditions specified the guarantees desired by the investor; such practise may be safely pursued, as it eliminates at the outset improven technologies and sets the conditions under which the offer is going to be considered.

Moreover, the tender conditions specify local environmental aspects, usually important to both, to the investment as well as to the scope of the guarantees desired.

The check list reproduced as Annex III to the Guide, provides detailed information as to the content of the tender conditions, which can be used as a guide in preparing the tender documentation.

CHAPTER III

CHARACTERISTICS OF TECHNOLOGY TRANSFER TO DEVELOPING COUNTRIES

This chapter is intended to provide a review of technology transfer into developing countries in the last 15 years, to map certain visible trends in this process, single out major actors of technology transfer among suppliers and recipients of technology, outline and describe basic problems which still exist in this area and attempt at charting key issues and directions of technology flows in years to come, which might be of interest to the users of the Guide and emphasize the role of public enterprises in this area.

The material which has been used to prepare this chapter has been obtained, in the majority of the cases, through the Technological Information Exchange System (TIES) operated by UNIDO, from the experience of UNIDO's Technological Advisory Service (TAS) and from information supplied directly by developing countries, as well as materials from ICPE.

To the extent possible, some data published in Les Nouvelles, Journal of the Licensing Executive Society, are also used in this chapter.

Overview of Technology Transfer to Developing Countries

The flows of technology to developing countries in principle, are effected by the way of direct foreign investments, the supply of equipment, machinery and turn-key plants (embodied technology), setting of joint ventures and licensing of patents or non-patented know-how.

While probably the majority of the flows of technology are taking place by way of supply of equipment and machinery and by way of direct foreign investment, the supply of know-how or licensing, both in terms of absolute volumes as well as its importance as an effective vehicle for direct transfer of technology increased considerably in recent period.

For example, major technology importers among developing countries (Argentina,

Brasil, Mexico, Venezuela, India, Republic of South Korea, Philippines and Portugal) paid for technology in ways of royalties,in 1965 approximately 230 mln US$, while in 1981 already ,estimated amount of 1.3 bln. US$.

As can be clearly seen from this example developing countries imported in 1965 technology worth of ca. 300 milion US$ while their imports increased in 1975 to the amount of ca. 1 billion and in 1980 reached the sum of ca. 2.5 billion US$.

This heavy concentration of inflows of technology in few of developing countries is one of the characteristics of flows of technology to those countries.

While in 1965 their share in the world turnover of technology accounted barely to 8%[36/], in 1980 it has reached the impressive 14% and is expected to accelerate even faster in years to come. This rapid growth can be attributed on one side to the overall economic growth, and on the other to industrialization efforts undertaken by the Government in those countries. Yet another factor is gradual shift from N - N flows into N - S and S - S flows of technology.

Another important feature of technology flows to developing countries is the fact that those flows are in major parts coming from transnational corporations (TNC).

It is estimated that while TNC's share in the world technology turnover oscillates between 60-70% , it represents around 90% of the flows to developing countries. This partly can be attributed to the fact that large share of technology flows is directed to companies in developing countries.

While originally in the process of technology transfer we used to deal with licencee and licensor, since early in the 1970's , one should add a new and important actor, that is the Government.

This holds true for all major developing countries, although one witnessed an increasing role of Governments in technology development and transfer as well as in industrialized countries.

The presence of Governments in the technology transfer process constitutes an important feature of technology transfer in the late seventies and appears to be even more visible throughout the eighties.

The Role of Governments in the Technology Transfer and Special Features of Acquisition of Technology by Public Enterprise

As mentioned earlier, the Government became an important factor in technology flows to developing countries.

One should however not overlook that the role of Government, as an important economic stimulator, has been introduced both in Europe and the USA in the years of the Great Crisis 1930's and since then its role only increased.

There is also no doubt that Governments played a significant role in the rapid technological development of the USA and Western Europe and the years following the Second World War (not mentioning the centrally planned economies of the Soviet Union and other COMECON countries).

Postwar Japan went through a very strict control over the imports of technology, which only recently, some years ago, has been gradually removed.

Again it was the USA that by the end of the XIX century introduced the first antitrust legislation which, at present, is being rigorously applied to regulate the conditions under which the transfer of technology takes place in the US. The same may be said about member countries of EEC and Japan.

As the developing countries began to realize that their strive for a better standard of living of their people and accelarated social and economic progress required a mobilization of resources by their Governments, they began to gradually introduce such policy instruments which ultimately led into a growing state intervention in the economy. Such growing role of the Governments led, logically, into the regulation of both, foreign capital inflows and foreign technology inflows.

While at the beginning of those various regulatory measures they aimed primarily at the protection of the national industry, with the passage of time and width the experience, they gradually evolved into more complex technological policy, aimed at the development of a national technological base.

Another feature of the Government's role in flows of technology is substantial and growing public sector in some of the developing countries.

If one takes, for example, such countries as India or Pakistan, one can clearly see that Governments there embarked, purposely, on a two way economic development, that is development of the public sector for strategic purposes with support of private enterprises in other vital areas of the economy and industry.[37]

In less developed, among developing countries, the public or Government sector was purposely established and promoted as the only possible way of mobilising financial and other means needed to embark on accelerated industrialization. The public sector, therefore, plays usually a three-fold role:

- as means of industrialization
- as carrier of Government economic and social development policy
- as warranty of the Government's control over strategic sectors of the economy (i.e., military industry, etc.)

Out of these three-fold role, special features of public enterprises in the process of technology acquisition, will arise.

Those features will include, inter alia:

- need to secure implementation of long term development and social goals of the Goverment
- need to provide for the Goverment, solid economic base and means for further development

In carrying out those duties, usually the public sector will look beyond the simple profit/loss estimation and will usually require securement, in acquiring technology, fulfillment of additional promises like creation of employment, training of additional manpower, possibility of creation of foreign exchange by export, unpackaging of technology and similar considerations.

Part of those "additional" considerations will be directly or indirectly reflected in various guaranty provisions.Although the question of profit/loss does not necessarily always represent a predominant factor in the acquisition of technology by the public sector, yet it does not mean that those issues are not considered by public enterprises.

The State, which established the public sector, usually wishes those to be as effective and profitable as any private industry. The fact, however, is that in carrying their mission, they are usually burdened by other considerations which often cannot be translated into simple financial statements.

Finally, when characterizing the technology flows to developing countries, one should not overlook two factors:

(1) difference of setting and bargaining power of entrepreneurs in developing and industrialized countries and,

(2) manpower situation and requirements in developing countries

The first issue or factor has been, to a degree, covered in the present chapter, with indication of heavy concentration of surplus of technology among TNCs.

This concentration and experience of TNCs, puts the enterprise in the developing country at a certain disadvantage.

Interpretation of the Term "Guarantee" in the Context of Technology Transfer to Public Enterprises in Developing Countries

The prevailing use of the term guarantee still reflects a number of restrictions and imperfections which must arise, when a term which was developed and established for the needs of technology transfer between privately owned enterprises in developed market economy countries is transposed to a different situation like that of technology transfer between privately owned enterprises in developed market economy countries on one side and public enterprises in developing countries with a more or less different economic system, on the other side. The different set-up will be shortly characterized in this section.[38/]

(a) Technology Transactions Between Parties in Developed Market Economy Countries

The technological and economic situation in which a technology transfer between private enterprises in developed countries take place and which requires a corresponding legal regulation generally show, among others, the following features:

- Both supplier and recipient are basically on a comparable technological level; the technical infrastructure of both enterprises shows similar features: both parties usually have already run plants with similar techniques; they are familiar with the basic features of the technology; they have adequately trained personnel which may only require some adjustment training; they know the supply markets and distribution channels; both of them entertain research and development divisions. When acquiring a new technology, the recipient therefore has no need to acquire a whole technological infrastructure within the enterprise to put the new technology to work. All the acquirer needs is the assurance that the technology is actually able to do what the supplier maintains it can do and that the technology can be used without legal interference by third parties. In other words, the technology must not have factual or legal defects. In cases like this, guarantees can be restricted to the assurance of the supplier that the technology transferred is legally valid, that it actually meets the description and that it has certain mechanical capabilities.

- The supplier very often is at the same time a potential recipient of technology and vice versa. Certain inconveniences which the recipient must suffer because of the legal protection of the technology, such as export restrictions may turn around to his advange, when he is supplying technology himself.[39]

- Both supplier and recipient act in a comparable economic, technological and social environment. The countries of both parties have a similar level of technological experience and achievement; they have an infrastructure which provides access to most of the necessary inputs and to adequately skilled manpower. Both parties meet comparable factor allocation problems. The demand and consumption patterns, the income distribution, the socio-cultural and legal structures have basic similarities. Therefore problems concerning the provision of inputs, the access to outlets, the usefulness of the products or their compatiblity with the general situation in the country require relatively little attention of the parties. The "appropriateness" of the technology is a given factor or will at least be evaluated with the help of a set of criteria which is common to both parties.

- Both supplier and recipient operate in countries which are basically founded on market economy principles. This requires them to pursue, within the general legal framework, their own personal interests. National development policies are, in principle, outside their interest, unless national policies are identical with their own interests or unless national policies have been incorporated into binding legal provisions or other forms directly influencing their behaviour. Thus, national resources will only be utilized, if this is economically advantageous. If this is not the case, they will only be used, if government makes the use economically advantageous by granting direct or indirect subsidies or by direct legal interference with as import restrictions for foreign resources or obligation to use national resources.

(b) Technology Transactions From Enterprises in Developed Countries to Enterprises in Developing Countries

The scope of guarantees necessary to correspond to the conditions described above can be quite narrow. The situation, however, is different when an enterprise in a developing country, especially a public enterprise, acquires technology:

- The enterprise in a developing country will often be on a different technological level; its whole technical infrastructure will be different. Thus, the technology can only be implemented, if technology and technological infrastructure of the enterprise are brought together, either by adapting the technology to the existing infrastructure or by adapting the infrastructure to the technology, or both. Depending on the gap between technological requirements of the technology to be acquired and the existing infrastructure, the acquisition of the technology itself must be accompanied by complementary measures to put it into effective working such as training of personnel, provision of inputs, modification of the technology.

- The enterprise in the developing country will primarily remain a recipient of technology vis-a-vis technology suppliers of developed countries for some more time. Therefore, it will mainly suffer from legal restrictions ascribed to technology and seldom benefit from them. Even where the enterprise in the developing country benefits from some of the legal restrictions, frequently public enterprises (should) pursue different objectives. Thus a recipient may profit from exclusivity rights and mutual confidentiality obligations, because they give him an exclusive position in the relevant area. But this will be contrary to the function of the public enterprise to disperse the acquired technology in the country after the public enterprise has fulfilled its pilot function of gathering the necessary experience with the technology. Exclusivity arrangements and extensive confidentiality guarantees therefore would run counter the interests of a technology acquiring public enterprise in a developing country.

- The economic, technological and social environment in the developing country is different from that existing in developed country. The access to necessary inputs, the impact of a technology on existing skills and production units, but also consumption patterns and income distribution will differ considerably from that in a developed country. Factor allocation problems encountered in the country of the supplier and in that of the recipient will differ, as well. Therefore, the appropriateness of the technology requires far more attention than in the case of technology transfers between parties in developed market economy countries and the set of criteria to assess the appropriateness must differ, as well.

It may be the interest of the recipient in the developing country to take into account some of these aspects where the effective working of the technology depends on the fulfillment of such requirements. On the other hand, certain aspects of the technological and economic conditions and needs of a developing country may not be of direct interest and concern to the recipient. As a matter of fact the "convergence of interests between the state and local potential recipients is likely to be, in many cases, no more then a deceptive fiction".[40/]

The recipient , e.g., may be reluctant to undertake the effort of searching for, and using local resources. The willingness to use locally available resources or to provide for training of personnel may also be primarily a question of economic profitability to a private enterprise, and here again, it may value short-term profits higher than mdeium or long-term profits. In this area, public enterprises will show more readiness to incorporate national development objectives into their business policy. This applies, in particular, to those objectives, which do not incure additional costs or where additional costs are off-set by benefits at once or in the long run. Thus, the use of local resources may require some preparatory work, but may otherwise be fully suited for use both from the technical and economic point of view.[41]

Special considerations for managers in developing countries in respect to guarantee issues

Previous parts of the present Chapter provided the reader with the broad review and picture of the significance and macro issues related to technology transfer.

From the point of view of the manager, however, specially manager in the developing country, relation and significance of guaranty provision will play a predominant role, often a crucial one.

It was mentioned earlier that the guarantee provisions are part of the risks involved in the individual project.

As such therefore each manager will only naturally tend to lower those risks to the minimum, thus increasing the chances for the successful implementation of the given investment.

Considering therefore, the guarantees as risk management tools - ultimate ones for that matter, it is worth to devote some attention to possible measures which can be introduced or used in reducing them.

First of all a major measure will be access to information related to the investment.

This information will be of technical nature as well as commercial, legal and economic.

Technical information will provide the manager with data about actual parameters of the technology, its performance elsewhere, problems related to technology development by the supplier, quality of the product, special requirements (if any) etc.

Information of this character may be crucial for definition and securement of guarantees, and ultimately for successful performance of the project.

Part of this information is freely available from professional magazines such as "Chemical Engineering", "Business Week", "Fortune" or "Financial Times", part of it can be secured from the licensees of the suppliers or from his competitors.

The point is that such information should be secured and made available at the right time that is in the stage of identification of technology and supplier and during contract negotiation. Moreover, information should be kept updated all the time.

The same scope of information should be attempted to be made available in respect to the commercial, economic and legal issues, though some of it can be obtained only from the supplier.

In case available local expertise and information is not up to required standard, it is advisable to hire professional expertise either from private source or through UN channels.

In some instances use of the outside expertise may increase the cost of the project, yet experience shows that increases are insignificant in relation to savings in terms of securement of timely successful project execution and avoidance of pitfalls or problems in the future.

It goes without saying that when using outside expertise - particularly in large project - utmost care should be exersized in selection of such expertise, its level and integrity.

In no respect, use of the outside expertise should release local management from attempts of obtaining information and expertise on its own !

By undertaking of the above simple steps risks involved in project implementation will be greatly reduced, thus the need to resort to the guarantees will be also reduced.

Another worthy consideration related to risks involved in major investment is so called allocation of risks in the contract[42], on a basis of the concept of risk sharings among investors, designers (engineers) and contractors, by which optimum allocation of risks will be done among parties to the given investment.

As it is known the typical contract package will consist of:

(a) invitation and instructions to Tenders,

(b) Form of Tender,

(c) General Conditions of Contract,

(d) Specifications,

(e) Drawings,

(f) Bills of Quantities or Schedule of Rates.

Such a package is usually put together by the investor (or on his behalf by the engineering consultant).

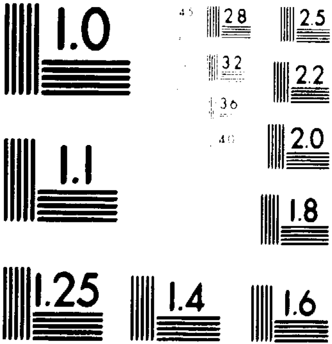
By preparations of the above package the investor is - to a great extend - in control of allocating risks arising out from the given contract. For information lets briefly review some of more typical risks and ways of their allocation by the investor.

First, the so-called General Conditions of the Contract, in which case usually standard forms like FIDIC or UNIDO are used with modifications introduced either by the investor or supplier of technology/engineering company and where already reasonable consensus was reached as to risk allocation.

Risks arising out of design of the works are reasonably taken care of in such standard contract forms as used by UNIDO and to a certain extend in FIDIC (FIDIC turn-key Red Book).

Another typical risk is related to contract price fluctuation arising either out from inflation or exchange rate changes.

There again FIDIC standard forms can be advisable or



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

ICE (THE INSTITUTION OF CIVIL ENGINEERS) Contract Price Fluctuation Clause (see Annex III to the present Guide).

Taking into account the above specif considerations one can conclude that realistic (and equal) approach to allocation of risks will reduce the costs and claims.

Large investments and construction projects are complex and often are planned in ignorance of certain pertinent factors which may affect their cost and schedule of implementations.

Risk allocation, effected in reasonable manner, should and would be reflected in guarantee provisions and being realistic will provide with minimalisation of costs and smooth delivery and completion.

CHAPTER IV

Formulation of Objectives by Technology Recipients and Suppliers from the Point of View of Guaranty Provisions

1. National Development Objectives and Goals

The industrial enterprise, be it private or public, is placed within the borders or limits of the functioning of the national economy and as such in its activities, will take into account the national development objectives or goals.

If one eliminates such extremes like "command economy" and very strict and direct central planning systems (which are only exercised in a very few contries, not necessarily developing), one obtains a fairly common situation, where the technology recipient (industrial corporation) will adapt its strategy to the national development, and in some instances, may attempt at influencing national development goals by its own long-term planning. There is no doubt that often the objectives of the single corporation may not be necessarily compatible with those of the national economy, yet the economic system is usually flexible enough to accommodate both and streamline them towards common long term goals.

For example, a quite characteristic short-term national goal may be the elimination or drastic reductions of negative balance of trade by way of let's say, direct reduction of imports.

Such a decision may run contrary to expansion plans of a production unit, which is basing its development on imports of certain spare parts or components.

Another typical example may be that the policy of evaluation and approval authorities is to keep the royalty levels at the low level; long-term national policy goals are however, to improve the balance of trade by way of increased exports, thus both export enterprise and approval authority may have a common goal in allowing higher royalty rates for exports.

Yet in another case, let's assume that creation of employment might be the long-term national objective; for the industrial enterprise, it will mean the need often, to adapt imported technology in such a way as to create more jobs, which may not be necessarily compatible with the nature of the technology imported nor the immediate objectives of the given corporation.

These few examples of different objectives and goals at the enterprise and national level, illustrate the need and obvious interaction among the three actors involved in the process of technology transfer: supplier of technology; recipient of technology; the Government.

In connection with the above listing of three major actors, one should not overlook, as stated earlier in Chapters I and II, that recipient of technology might be a private entity with goals and objectives of its own, or it might be a public entity, which should carry out the Government's objectives at the enterprise/production level.

Such responsibility of the public sector gives then a special place and role in economic development as direct carrier of the Government's economic policies.

2. Overview of major Economic Objectives at the Enterprise Level

The major and only objective of the enterprise is to produce the goods/services the people need.

In this one statement, are included the basic objectives of the production process, carried, either by the private or public corporation.

Naturally, this statement is oversimplified, yet it is illustrating that the economy revolves around the process of production and sales.

The usual goal of the production enterprise would be therefore to sell or deliver as many goods or services into the market place.

In considering these goals, common to all production enterprises, the corporation , naturally, will look into specific objectives.

It is without doubt that the maximalization of profit would be one among, if not the most important economic objective, of the production corporation.

We may therefore, among other economic considerations, directly name profit maximalization as a major economic objective by the enterprise.

The profit maximalization, which is the objective, may be achieved usually by many different means, and among them:

- increased production, (economy of scale effect);
- lowering of raw materials, and component consumption;
- exchange of used raw materials for less expensive, yet of the same quality and properties;
- increased productivity per employed (management effect);
- decrease of employment (organization and management effect);
- increased price (due to higher quality, longer

durability, special features, etc.);

- application of higher levels of technology (technological effect);

- decreased costs of utilities, consumption, etc.;

As can be seen, the profit maximalization objective can be achieved principally by three major tools:

- market,

- technology,

- management.

While market considerations and market place itself, will play an extremely important role in profit results, yet its influence is of limited character, in the sense that any market has its ultimate size determined by income and number of units sold and bought.

While management tools may contribute sincerely towards increased profits, it is only technology where still possibilities are in a high sense unlimited, providing not only for higher quality of the product (qualitative increase) but also enabling drastically to cut costs.

Let's take into account, for example, the market of consumer electronic equipment, i.e., radios. In the early 50's, those were built based upon diode lamp technology, used to weigh ca. 10 kgs. and more and were fairly expensive, although they were available in almost all households in industrialized countries. Fifteen years later, with the transistor revolution followed by the application of various chips, not only radios became very small but their quality and reliability increased tremendously, with the price being cut to even 2-3 $ for fairly sophisticated 2-band piece, available throughout the world.

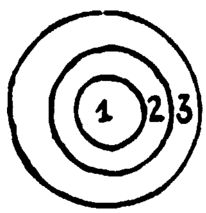
Without the introduction of the new technology, the market would have been saturated a long time ago, the new technology opened and expanded extremely the market possibilities; similar changes one can observe also in other areas.

In addition to the above described major economic objectives, one should add developmental objectives, characteristic for economy as such, which in turn can be achieved either by market or technological tools (see Chapter II in particular).

3. Nature of Guarantee and Objectives of the Enterprise

It is necessary at this stage to slightly revert our considerations and for a moment return to the linkage of the guarantees and objectives of the enterprise as such linkage should and would be often decisive for many investment decisions.

First of all lets analyse the figure reproduced below.



The three circles numbered 1,2 and 3 reflect the nature and scope of guarantees arising out of three different levels of consideration , thus, to extend, reflecting potential or possible objectives.

Level (circle) 1 are guarantees strictly related to technology per se therefore predominantly of technical nature (yield, quality, quantity).

Circle 2 will arise out of specific applications of given technology in a given plant, and therefore may relate to specification and guarantees regarding consumption of utilities, consumption of raw materials, partially quantity output, etc.

Circle 3, usually extending beyond consideration of a single investor will arise and affect factors of national character, like environment (polution), supply of utilities, etc.

It is therefore important to realize those three "circles" of guarantee which arise firstly in preparing for negotiations, and secondly when stating objectives of technical, plant and national character.

4. Role of Pre and Feasibility Studies in the Formulation of Economic and Other Objectives.[43]

The formulation of economic and other objectives is facilitated by various studies undertaken in different phases of industrial investments.

The following Table 2 provides an illustration of investment cycle, each of cycle phases being briefly described.

Pre-investment Phase

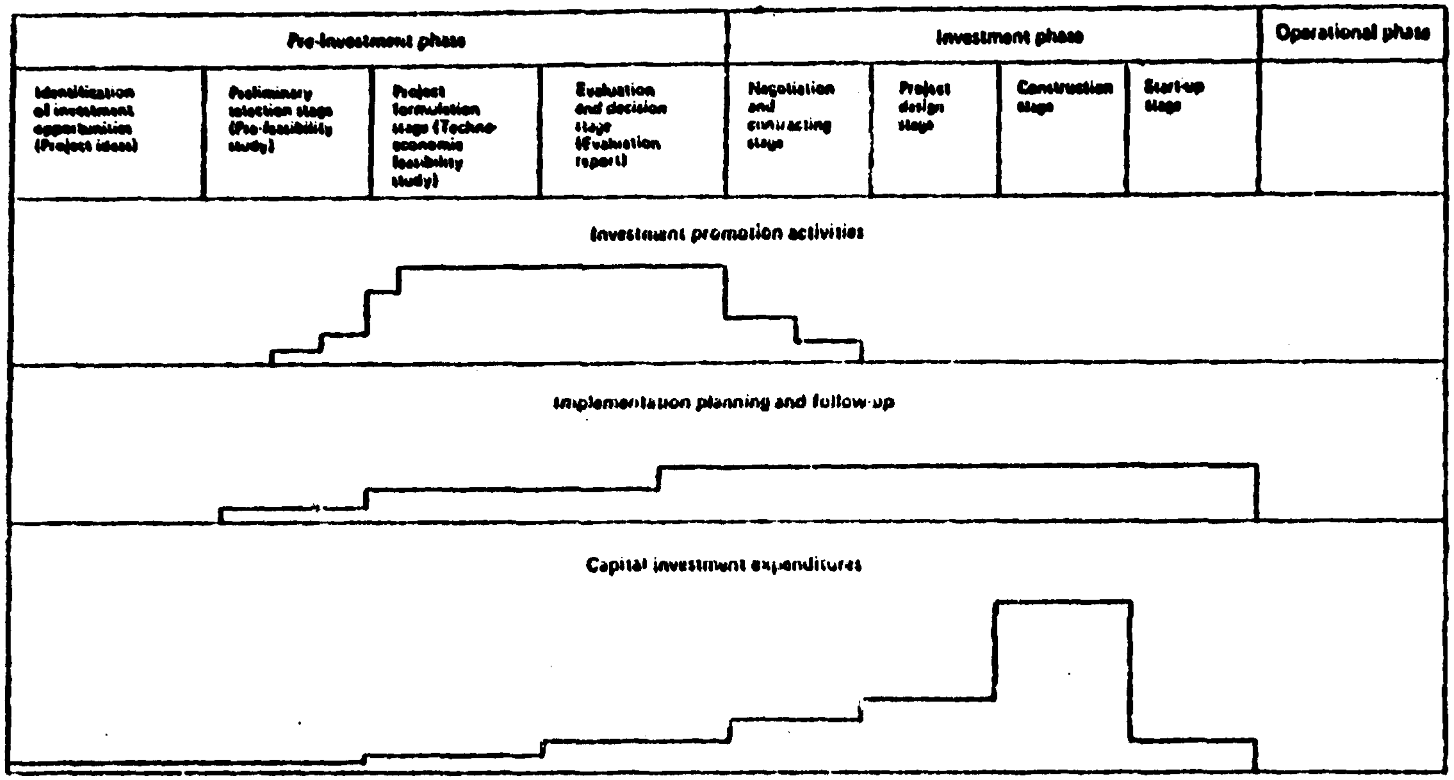
The pre-investment phase comprises several stages: identification of investment opportunities (opportunity studies); preliminary project selection and definition (pre-feasibility studies); project formulation (feasibility studies); the final evaluation and investment decision. Support or functional studies are a part of the project formulation stage. Such studies assist a potential investor in th decision-making process and provide the base for project decison and implementation.

To differentiate between an opportunity, a pre-feasibility and feasibility study is not an easy task in view of the frequent, inaccurate use of these terms.

Opportunity Studies

Unlike the situation in developed countires, the identification of industrial opportunities that can be developed into investment projects is a major constraint in a number of developing countries, especially those in the earlier stage of industrial growth. With increasing industrialization, more and more of such identification is being undertaken by the business sector, both public and private, but there is still a need for governmental and institutional agencies to identify the opportunities that may exist at different stages of development.Selectivity in

TABLE 2 - PROJECT DEVELOPMENT CYCLE*



* -- Table reproduced from UNIDO/ID. 206 Sales E.78 II B.5

defining investment opportunities can be exercised and industrial investments sought and channelled into sectors having priority or into probable production gaps. In certain developing countries, where the business sector is not strong, mere publication of list of investment opportunities, however, may not prove sufficient and more specific data may be required before adequate business interest can be evoked.

An opportunity study should identify investment opportunities or project ideas, which will be subject to further scrutinity once the proposition has been proved viable, by analysing the following:

(a) natural resources with potential for processing and manufacture such as timber for wood-based industries;

(b) the existing agricultural pattern that serves as a basis for agro-based industries;

(c) the future demand for certain consumer goods that have growth potential as a result of increased population or purchasing power or for newly-developed goods such as synthetic fabrics or domestic electrical products;

(d) imports in order to identify areas for import substitution;

(e) manufacturing sectors successful in other countries with similar levels of development, capital, labour, natural resources and economic background;

(f) possible interlinkages with other industries, indigenous or international;

(g) possible extension of existing lines of manufacture by backward or forward integration such as a downstream petrochemical industry for a refinery or an electrical arc steel plant for a steel rolling mill;

(h) possibilities for diversification such as a pharmaceutical industry for a petrochemical complex;

(i) the possible expansion of existing industrial capacity to attain economies of scale;

(j) the general investment climate;

(k) industrial policies;

(l) cost and availability of production factors;

(m) export possibilities.

Opportunity studies are rather sketchy in nature and rely more on aggregate estimates than on detailed analysis. Cost data are usually taken from comparable existing projects and not from quotations of equipment suppliers and the like. Depending on the prevailing conditions under investigation, either general opportunity or specific project opportunity studies, or both, have to be undertaken.

A specific project opportunity study, which is more common than a general opportunity study, may be defined as the transformation of a project idea into a broad investment proposition. Since the objective is to stimulate investor response, a specific project opportunity study must include certain basic information the mere listing of products that may have potential for domestic manufacture is not sufficient. While such a list-derived from general economic indicators such as past imports, growing consumer demand or from one of the general opportunity studies relating to areas, sectors or resources -can serve as a starting point, it is necessary, first, to be selective as to the products so identified, and secondly, to incorporate data relating to each product so that a potential investor, either domestic or foreign, can consider whether the possibilities are attractive enough to proceed to the next stage of project preparation. Such data can be supplemented with information on basic policies and procedures that may be relevant to the production of the particular product. A broad investment profile would then emerge that would be adequate for the purpose of stimulating investor response.

<u>Pre-feasibility Studies</u>

The project idea must be elaborated in a more detailed study. However, formulation of a techno-economic feasibility study that enables a definite decision to be made on the project is a costly and time-consuming task. Therefore, before assigning funds for such a study, a preliminary assessment of the project idea must are to determine whether:

(a) The investment opportunity is so promising that an investment decision can be taken on the basis of the information elaborated at the pre-feasibility stage;

(b) The project concept justifies a detailed analysis by a feasibility study.

(c) Any aspects of the project are critical to its feasibility and necessitate in-depth investigation through functional or support studies such as market surveys, laboratory tests, pilot plant tests;

(d) The information is adequate to decide that the project idea is not either a viable proposition or attractive enough for a particular investor or investor group.

A pre-feasibility study should be viewed as an intermediate stage between a project opportunity study and a detailed feasibility study, the difference being primarily the detail of the information obtained. Accordingly, it is necessary even at the pre-feasibility stage to examine, perhaps broadly, the economic alternatives of:

(a) Market and plan capacity: demand and market study, sales and marketing, production programme, and plant capacity;

(b) Material inputs;

(c) Location and site;

(d) Project engineering: technologies and equipment, and civil engineering works;

(e) Overheads: factory, administrative and sales;

(f) Manpower: labour and staff;

(g) Project implementation:

(h) Financial analysis: investment costs, project financing, production costs, and commercial profitability.

Then a project opportunity study is conducted in respect of an investment possibility, the pre-feasibility stage of the project is often dispensable. The pre-feasibility stage is also occasionally by-passed when a sector or resource opportunity study contains sufficient project data to either proceed to the feasibility stage or determine its discontinuance. A pre-feasibility study is, however, conducted if the economics of the project are doubtful unless a certain aspect of the study has been investigated in depth by a detailed market study, or some other functional study, to determine the viability. Short-cuts may be used to determine minor components of investment outlay and production costs but not to determine major cost components. The latter must be estimated for the project as a part of the pre-feasibility study, but it is not necessary to depend solely on firm quotations.

Support (functional) Studies

Support (functional) studies in industrial programming cover one or more but not all aspects of an investment project and are required as prerequisites for, or in support of, pre-feasibility studes, particularly large-scale investment proposals. They are classified as follows:

(a)Market studies of the products to be manufactured, including demand projections in the market to be served together with anticipated market penetration;

(b) Raw material and input studies, covering present and projected availability of raw materials and inputs basic to the project, and the present and projected price trends of such materials and inputs;

(c) Laboratory and pilot plant tests, which are carried out to the extent necessary to determine the suitability of particular raw materials;

(d) Location studies, particularly for potential projects where transport costs would constitute a major determinant;

(e) Economies of scale studies, which are generally conducted as a part of technology selection studies. These are separately commissioned when several technologies and market sizes are involved, but the problems are confined to the economies of scale and do not extend to the intricacies of technology. The principal task of these studies is to evaluate the size of plant that would be most economic after considering alternative technologies, investment costs, production costs and prices. The studies noramlly take several capacities of plant for analysis and develop the broad characteristics of the project, computing reslutes for each capacity size;

(f) Equipment selection studies, which are required when large plants with numerous divisions are involved and the sources of supplies and the costs are widely divergent. Equipment indenting, including preparation of bids, invitations for bids, their evaluation, indenting and deliveries, is noramlly carried out during the investment or implementation phase. When very large investments are involved, the structure and economics of the project depend heavily on the type of the equipment and its capital and operational costs; even the operational efficiency of the project is a direct function of the selected equipment.

In such cases, where standardized costs cannot be obtained, equipment selection studies become imperative as a support to techno-economic feasibility studies.

The contents of the support study vary, depending on the nature of the study and the projects contemplated. Since, however, it relates to a vital aspect of the project, the conclusions should be clear enough to give a direction to the subsequent stage of project preparation.

In most cases, the abridged contents of a support pre-investment study, when undertaken either befor or together with a feasibility study, form an integral part of the latter and lessen its burden. A support study is undertaken after completion of a feasibility study when it is discovered in the course of the study that it would be safer to identify a particular aspect of the project in much greater.

The term feasibility study is often misunderstood and often deliberately misused by suppliers of equipment or technology. Frequently, an outline of a project primarily oriented to the supply of equipment or the choice of particular techniques is called a feasibility study. Sometimes, production or sales estimates are based on experience gained in an industrialized country and bear little relation to the conditions within which a project has to operate in a developing country. As these studies are unrelated or unadapted to local production factors, they can be misleading and can result in the misapplication of resources, as has often occurred in developing countires. A feasibility study must be related to available production factors, local market and production conditions and this involves an analysis which has to be translated into costs and income.

A feasibility study may be either market-oriented or based on material inputs, i.e., it derives its initiative from an assumed or exisiting demand or from available material inputs such as raw materials or energy. In either case, the sequence of chapters in the preceding table of contents can be maintained. In view of the determinant position of the demand and market analysis within the feasibility study, it is ranked before material inputs. It should be kept in mind, however, that all chapters of the feasibility study are interrelated and that their ranking within the study is not indicative of the actual sequence of their preparation.

A feasibility study is not an end in itself, but only a means to arrive at an investment decision that need not agree with the conclusions of the study. In fact, it would be rare to find investor response so flexible as to fully conform to the results of such a study.

Investment (implementation) Phase

The project investment or implementation phase for a large steel plant bears little relation to the setting-up of a small-scale unit for the production of castings or precision parts and components. Assuming, however, that a projected industrial activity involves the construction of a factory and the installation of machinery and equipment, the project investment phase could be divided in the following broad stages: (a) project and engineering designs; (b) negotiations and contracting; (c) construction; (d) training; and (e) plant commissioning.

The preparation of project and engineering designs includes time-scheduling, site prospecting and probing, preparation of blueprints and plant designs, detailed plant engineering and a final selection of technology and equipment.

Negotiations and contracting define the legal obligations in respect to project financing, acquisition of technology, construction of buildings and services, and supply of machinery and equipment for the operational phase.

In the investment phase, major consideration, particularly in project and engineering designs and negotiation stages will be given to guarantee issue, and in stages of construction and plant commissions to guarantee performace.

It covers the signing of contracts between the investor, on the one hand, and the financial institutions, consultants, architects and contractors, equipment suppliers, patent holders and licensors, and collaborators and suppliers of input materials and utilities on the other. This stage involves a host of procedures that often present serious problems for developing countries. Negotiations and contracting take place at all stages of the base for the activities of the investment phase. The decisions at the investment phase, however, do not necessarily follow the recommendations of the pre-investment studies. Direct negotiations and contracting reveal the need for modifications and provide new ideas for project improvement that often lead to unforeseen increase in investment costs.

The construction stage involves site preparation, construction of buildings and other civil works together with the erection and installation of equipment in accordance with proper programming, scheduling and guarantee provisions.

The training stage, which should proceed simultaneously with the construction stage, may prove very relevant to the rapid growth of productivity and efficiency in plant operations.

The plant commissioning or start-up (delivery stage) is normally a brief but technically critical span in project development. It links the preceding phase and the following operational pase. The success achieved at this point demonstrates the effectiveness of the planning and execution of the project and is a portent of the future performance of the programme.

This is a crucial moment for the meeting of the guarantee negotiated earlier and overall performance of the contract and technology.

The investment phase involves heavy financial commitments and major modifications of the project have serious financial implications. Bad scheduling, delays in construction and delivery, start-up, etc. inevitably result in an increase of investment costs and affect the viability of the project. In the pre-investment phase, the quality and dependability of the project are more important than the time factor but in the investment phase, the time factor is critical.

Operational Phase

The problems of the operational phase need to be considered from both a short and a long-term viewpoint. The short-term view relates to the initial period after commencement of production when a number of problems may arise concerning such matters as the application of production techniques, operation of equipment or inadequate labour productivity as well as the lack of qualified staff and labour. Most of these problems should, however, be considered in relation to the implementation phase and necessary corrective measures should pertain principally to project implementation. The long-term view related to production costs, on the one hand, and income from sales, on the other, and these have a direct relationship with the projections made at the pre-investment phase. If such projections prove faulty, the techno-economic feasibility of an industrial activity will inevitably be jeopardized and if such short-comings are identified only at the operational phase, remedial measures will not only be difficult but may prove highly expensive.

The above outline of the investment and the operational phases of an industrial project is undoubtedly an over-simplification for many projects and, in fact, certain other aspects may be revealed that have even greater short or long-term impact. The wide range of issues that needs to be covered during these phases highlights the complexities of the pre-investment phase which constitutes the base for the subsequent phases. The adequacy of pre-investment study and analysis largely determines the ultimate success or failure of an industrial activity provided there are no serious deficiencies at the implementation and the operational phases. If the pre-investment study is ill-based, the techno-economic rectification of the project will be very difficult however well it may have been executed and operated.

5. Establishment of Critical Objectives and Their Rating

In the evaluation of the project, on a basis of pre-investment studies like, opportunity study, pre-feasibility or regular feasibility, the recipient of technology, or investor, will have to decide on the establishment of critical objectives or parameters of the project, some of which will be acually transformed into guaranty or warranty provisions.

It is considered essential that all those objectives are established prior the investment decision is taken, as their establishment and possibilities of fulfillment will greatly influence the investment decision itself.

In the previous sub-chapters, it was agreed that primary general economic objective will be the generation of profit as a result of the production activity.

It is time now in this sub-chapter to translate this overall objective into more immediate ones, which in cumulating effect should result in its overall fulfillment.

Those sub-objectives may principally be divided into economic and technical objectives.

Into economic objectives, one can include the following:

-increased sales

-increased market share/maintenance of the market share

-increased exports

-increased employment

-improved product quality

-increased competitiveness of the product (low prices, increased quality, etc.)

-use of the available raw materials

-location of the investment

All those economic parameters should be taken into consideration at the pre-contractual or pre-investment stages of the project, as they will determine the size and feasibility of a given investment.

On the basis of the above listed general economic objectives, which is rather illustrative than comprehensive, the technical parameters/or objectives will be formulated.

Among them, the crucial ones will include:

- capacity - scope of the investment

- quality of the product

- use of raw materials

- consumption of raw materials

- consumption of utilities

- yields of various character

Those critical technical parameters are usually decided only after the investment decision as such is taken and the feasibility study proves that the financial conditions of the given investment are secured.

It is therefore, the contractual or investment stage when technical objectives related to a given investment are formulated.

It should be stressed here that technical objectives are usually translated into full fledge technical guarantees, included in contractual documentation.

Finally, it should be underlined that while certain parameters, both economic and technical, may be common to all investments, usually specific objectives (yield, guaranty, etc.) will vary significantly from investment to investment as well as from industry to industry.

This is particularly true, as mentioned earlier, for process and product industries.

MAJOR TECHNICAL OBJECTIVES

Establishment of technical objectives is one of the most crucial and exciting activities to be undertaken by the would-be investor/recipient of technology in relation to the individual project.

It is complex task which will involve predominantly, technical personnel and it will determine the technical parameters of the project.

The establishment of technical objectives of the project is not only crucial for the technical determination of the project as such, but will also enable the formulation of proper technical guarantees in the contract itself.

It should be borne in mind that the nature of the project will determine the nature of the technical objectives or parameters to be achieved and simultaneously will establish their rating in the sense of the priority. Here specifically, the nature of the investment, and its overall environment will be decisive.

On the basis of UNIDO's "Guidelines for Evaluation of Transfer of Technology Agreements"44/ the following might be the technical objectives.

1. Product Quality - 99.9 per cent minimum pure acetic with less than 5 ppm Pb; "will be equal to or better than Indian Standards Specification 240B (1977)", 98 per cent of product below 200 mesh, 100 per cent below 100 mesh; identical in all respects to licensor's own manufactured products.

2. Yield - units of product per unit of raw material, i.e., 6,000 washer per kg of 2 cm round bar; minimum 60 per cent recovery of all argon in feed gas; 85 per cent conversion of feed naphthalene to alpha-naphthol product.

3. Production Capacity - 250 rice cookers of 3litre capacity or 200 units of 4-litre capacity per 8-hour shift;

20,000 tons of hydrogen of 99.9 per cent purity per annum of 8,000 hours.

4. Utilities Consumption - not more than 4 kg of 4 bar saturated steam per kg product.

5. Rejection Rate - not more than one reject per 100 units of completed product tested under quality control test Y.

6. Scrap Loss - not more than 3 per cent of 100 kg poured molten zinc.

7. Shelf Life - not more than 1 per cent loss of volatiles per 100 cc vial in 30 days when stored at 35 degrees of Calsius and 90 per cent relative humidity.

8. Effluent - BOD5 of waste water less than 30 at all times, but average over 24 hours, tested hourly, below 20.

9. Productivity - 85,000 pieces per hour passing DIN specification 652.

10. Catalyst Consumption - 6,000 kg of product per kg of fresh catalyst charged.

11. Mechanical Warranty - if machine Z was operated in accordance with Operating Manual OM-630 and maintenance is conduced as per Maintenance Manual MM-631, Machine Z will not consume more than 30kg/a of Lubricant W; a 300-kg weight placed at point X of distillation tray will not permanently deflect beam Y by more than 2 mm at that point.

These factors are, of course, interdependent. For example, a licensee may want X kg of product per year with purity Y with steam consumption of not more than Z kg per unit of product. For the licensor they constitute the "design condition" on which to engineer the project. For guarantees purposes, however, the licensee must view the economic loss he would suffer if there was deviation from the guaranteed conditions (say, purity and steam consumption in the above example). Thus, a 1 per cent loss in product purity might cause the licensee to lose, through the price discount he has to offer, $ 100,000 a year. However, if steam consumption were to be 10 per cent higher, the licensee's incremental operating cost might be only $ 30,000. Consequently, by applying the criterion of parameter criticality the licensee would bargain more closely with the licensor on product purity than on steam consumption.

Once the major technical objectives or parameters are established those might be discussed with the potential supplier of technology in order:

1. To determine their feasibility;

2. Determine and formulate likely obligations of the parties in view of the agreed or suggested technical paramets.

In relation to the establishment of variety of the economic and technical parameters/objectives of a given project, it is necessary to mention their rating, in this sense, that not all of such parameters will have equ[al] bearing or importance in a given project or investment.

For example, in a given project, the technology is supposed to meet the following objectives:

- improve product quality,
- increase use of the local raw materials,
- increase local employment,
- increase overall sales of a final product.

Each of the above parameters could be considered as crucial for the investor, yet they should be considered jointly in terms of attempt to set the rating of these parameters.

The rating of the parameters should be established by the investor, as it is him, who is in a position which among above parameters is of a more paramount importance.

For example, if the quality of the product is causing the investor market losses, therefore, in his rating he will put on top of the list objective of improved product quality, followed by increased sales, than probably equally important use of local raw materials and employment creation.

In other situation, when a given country is short of foreign exchange, the objective of use of the local raw materials would attain the overriding importance and other objectives will be rated accordingly.

The same rating will apply also to technical parameters of the given project.

If, for example, plant is loosing money on account of low yield and high utilities consumption, the critical parameters in the choice of the technology would be these two factors with other, in their rating following.

The rating of the critical parameters usually will be reflected in the guarantees to the extend possible. The same will be reflected in the penalty clauses included in a given contract.

In certain instances when establishing parameters rating and their translation into guarantee and penalty provisions one can retort to the application of sensitive or probability analysis.

Both methods[45] will show the changes in the project performance with the different values, according to variable rating of critical parameters.

For illustration the following list of major general and specific objects is provided for.

I. OVERALL OBJECTIVES

1. Primarily international

Cooperation with foreign countries, especially developing countries

Peaceful international cooperation on the basis of equality of rights

Participation in the inernational devision of labour on an equal footing

Fair and honest business practices

Avoidance of inequality between parties

Free trade

Avoidance of restrictive practices

2. Primarily national

National interest

Economic and social development objectives

National economy

More stable economic development

Advancement and improved economy

Conformity with economic plans

Sector of activity

Foreign exchange balance (export promotion)

(Use of local resources)

(Payment)

(Technological advances)

II. OBJECTIVES DIRECTLY RELATING TO THE MERE TECHNOLOGY TRANSFER

1. The parties

Reputation and capacity of the supplier

Technical capacity

R and D capacity

Professional standing

Economic standing

Financial standing

Qualifiction of the recipient

2. The technology

Characteristics of the technology

Running costs

(payments)

(local resources)

Functional characteristics

Technical merits

Technological complexity

Proven process

Dynamic character of technology

No obsolescense

Quality

Upgrading of quality

(Technological innovation)

(Technological improvements)

(Compatibility with local products /standards/)

(Availability in the country)

(Technical capacity of supplier)

(Adaptation, assimilation of technology)

3. Terms and conditions

Price

- Absolute amount
- Payment related to benefits
- Payment related to sales
- Payment related to export sales
- Payment related to technical value

- Cost effectiveness
- (Correlation to local inputs)

(Foreign exchange)

(Running costs)

Alternative terms available

(Local resources)

(Availability)

(Alternative technologies)

Delivery date/time of execution

III OBJECTIVE WITH A VIEW OF EFFECTIVELY IMPLANTING THE TECHNOLOGY ON THE ENTERPRISE LEVEL

1. Production

Greater efficiency in production

Better utilization of resources

Better utilization of capacities

Better utilization of raw materials

Better utilization of energy

(Mass production)

(Labour productivity)

Quality of the product

Technical assistance

After-sales service

2. Marketing

New commodities

Better supply of the market

(Present projected demands)

(Export promotion)

(Import substitution)

IV. OBJECTIVES WITH A VIEW OF OBTAINING OVERALL BENEFITS FOR THE COUNTRY AS A WHOLE

1. Technological objectives

Need for the technology

Essentiality of the technology

(Local resources)

(Foreign exchange)

Appropriateness of technology

(Compatibility)

(Local resources)

Availability of the technology

No repetitive imports

In case of import: healthy competition,

No closure of existing units

Search for existing technologies with the help of national technology information services

Assimilation of technology

Duration of the assimilation

(Local resources)

Technological development

Technological innovation involved

No obsolescense

Access to improvements

Development of R and D

Use of local technological resources

- Compatibility with local technologies/standards
- Use of local consultancy firms
- Preferential treatment for local technologies

(Characteristics of the technology)

2. Economic objectives

Foreign exchange balance

- Export promotion
- Import substitution
- (Terms and conditions)
- (Use of local resources)

Use of local resources

- Preferential treatment for national personnel
- Use of existing skills
- (Labour intensity)
- Correlation to local inputs
- Use of local raw materials
- (Better utilization of capacities, raw materials, energy)
- (Compatibility with local skills and standards)

Productivity

- Labour productivity
- Use of existing production units
- Advancing production: mass production

- (Better utilization of capacities, raw materials, energy)

Sector of industry.

3. Socio-economic objectives

Labour intensity of the technology

Regional dispersal of industries

Environmental protection

Demands for products

- Present projected demands

- (Mass production)

- (New commodities)

Effects on existing skills and production units.

The list reflects the areas of concern for the drafters of some laws and policy guidelines. Nevertheless it is still far from' complete for two simple reasons: Firstly, the overall objectives such as "national interest" cover numerous specific objectives which are not spelt out in the laws in detail nor project consideration. Secondly, some objectives are not spelt out explicitly, but are only reflected in the formulation of specific prohibitions or prescriptions which are not contained in this list.

It is that out of those objectives, at different levels as indicated in earlier chapters, the definite criteria for the scope of guarantees for individual projects will be formulated and established.

PROBLEMS OF TRANSLATION OF OBJECTIVES (TECHNICAL AND ECONOMIC) INTO GUARANTEES AND MEASURABLE PARAMETERS

Once the economic and technical objectives in relation to the acquisition of technology are established, the project team of the recipient enterprise, will face the need of translating those objectives into measurable parameters and eventually guarantees.

In many respects, this will become quite a trying task, and particularly in the cases where the recipient of technology does not have access to detailed informatin about the technology (in respect to technical parameters).

As far as regard the economic objectives, some of them might be translated into measurable parameters and others could not.

For example, if the major economic objective is to generate export earnings, they can only be measurable by way of the provision that the supplier of the technology will buy back certain quantity of the final product with the opportunity to export.

Similarly can be handled other economic objectives, which usually <u>do not fall</u> under the category of guarantees.

The notable exception might be the time for completion of the delivery (in case of turn and semi turn-key supplies), where, on time completion may be crucial for achievement of economic objectives of the project, like its overall profitability, possibility of generation of employment, use of local raw materials and similar.

The technical objectives of the project, which relate to the performance of the technology would be a much easier prove for translation into measurable parameters.

Such technical objectives like: capacity, yield, quality, quantity, raw materials, consumption, utilities consumption, mechanical warranty, etc. are rather easy to measure and once established they can be put into guaranty provisions in the agreement.

It is recommended that technical discussions which will deal into the establishment of guarantees based on technical objectives are carried between the technical staff of the recipient and the supplier of technology with a clear understanding' of demands, local conditions and possiblities. One should also always remember that too demanding and strict guaranty provisions (usually based on test runs and pilot results in potimum conditions) may (and usually do) lead the supplier of technology to overdesign, with the result that the cost of the overdesign is borne by the recipient.

For example, a plant of 100,000 t/y capacity will provide a guaranteed capacity of 100,000 t/y and be designed usually at 102,000 t/y. Unreasonable insistance about guaranteed capacity, may however, force the supplier to design the capacity of the plant at 105,000 t/y.

A similar situation may result out of guarantees related to <u>utilities consumption</u>, <u>raw materials consumption</u>, or <u>catalyst consumption</u>.

It is therefore urged that long and extensive discussions be held between the project team of both, would-be parties, regarding the technical objectives and their reflection in the guaranty provisions.

In brief it should be made clear that specific guarantee condistions usually are reflected in the overall cost of the project and the cost of the technology as such.

ALTERNATIVES TO GUARANTEES AND APPROPRIATENESS OF TECHNOLOGY

There is no doubt that the purpose of the guaranty provisions is to secure the smooth operation of technology in the plant of its recipient.

The recipient, usually having invested heavily in the project (cost of technology) is interested primarily in the fact that the technology performs without interruption and problems, and as a result, a high quality product is being manufactured.

In this light of his interest in production, he may work, in addition or as alternatives, to consider other measures which will secure obtaining such objectives.

Usually, in addition to the technology agreement, we may enter with the supplier of technology or independent technical consultant into the technical assistance agreement, which may serve two purposes: one, to receive continuous technical assistance, after the delivery of the technology, and second (if a TA agreement is signed with an independent consultant) to supervise and assist in the assessment of performance of the supplier of technology.

Yet, another possibility might be entering into the follow-up agreement with the supplier, who, in such cases, will be involved in assisting the recipient in running the plant and provision of improvements, etc.

When deciding on economic as well as technical objectives, the recipient of technology (sometimes jointly with the supplier) have to decide on the appropriateness of the technology in the broad sense.

The appropriate technology can be understood as such technology which in an optimum manner fulfills the objectives under a given set of conditions.[46/]

In other words, the appropriateness of the technology will be determined by specific objectives of a given project.

QUALITY STANDARD CONSIDERATION

Quality is usually one of the critical parameters according to which the performance of technology is measured and guaranteed.

Therefore quality standard consideration should have a due place in the overall technical considerations by the recipient of technology.

A view is often expressed that the recipient of technology, particularly in developing countries, should adopt a position of two sets of quality standards, one for the domestic market another for the export purposes.

In the view of the author of this Guide, such position is totally wrong and usually leads towards an overall decrease of the quality of the final product;

Moreover, it does create bad habits of sloppy work both, among the management and the workers in a given plant.

The quality of the product should have only one standard, possibly the highest and equal to the one produced actually by the supplier of the technology.

In selecting the quality standards, one should attempt to adopt the quality standards acceptable world wide, that is ISO (International Standard Organization) or DIN (Deutsche Industrie Norme) or GOS (USSR Quality Standards).

It should also be kept in mind, particularly in the case of exports, that export markets might request adoption of goods to their local quality standards.

In such cases, suitable provisions are to be incorporated in the main agreement with the supplier, so that the product manufacatured will meet also such requirements.

Another consideration, is the lack of national standards, therefore the adoption of international ones (or worldwide acceptable) pays off handsomily in the long run.

Finally, one should bear in mind in cases of technology for consumer goods, that usually the transfer of technology is accompanied by the right of use of a trade mark, which often in common understanding, is synonymus (in case of well known brand names) with the high quality of the product.

The supplier of trade or band mark usually will have the right to withdraw his trade mark unless the product fully meets his standards and specifications.

Finally, again, it is reasonable in terms of the need to establish a balance between quality requirements and cost of achievement of quality standards.

For example, extra purification of fine chemicals may be counter-productive on account of high cost and therefore parties may settle for reasonable and acceptable quality standards thus avoiding unnecessary expenditures.

The legal consideration, which will play substantial role in drawing of the contract will be dealt with in Chapter VI of the present Guide.

CHAPTER V

CRITERIA FOR ESTABLISHING THE SCOPE OF GUARANTEES IN TECHNOLOGY AGREEMENTS[47]

It is generally accepted that the inclusion of major guarantees for the recipient in transfer of technology agreements constitutes a major advantage for the recipient. With them, the latter could ensure the responsibility of the supplier for the proper fulfillment of its obligations and hence the securement of the aims that the recipient had at the time of subscribing the contract.

While in theory this approach is correct, it should not be disregarded that, in actual practice, the provision of performance guarantees calls for the contractual regulation of the supplier's lability for his failure in attaining the guaranteed parameters. As presented in more detail below, this usual system consists of stipulating liquidated damages, the payment of which releases the supplier from the compliance of the guaranteed obligation. Generally the amount paid (or deducted from the supplier's fee) is insufficient to cover the actual loss suffered by the recipient by virtue of deficiency in capacity of production, quality of the product, yield, etc., or of the delay in the completion of works. The penalties are in most cases disproportionate to its economic implications for the recipient, such as when the full operation of the plant is delayed for a long period.[48]

In addition, according to the contractual practice, the agreement sets a maximum liability for the supplier, generally measured as a percentage of the total value of the contract.

In case of know-how agreements where the supplier is remunerated on the basis of a lump sum, the usual consequence of the failure to comply with performance guarantees is that the supplier loses up to 10% of 20% of the stipulated fee.

When the construction of new productive facilities is involved, in general constructors only accept a maximum liability ranging from 3 to 10% of the contract's value.[49] In cases where public enterprises are involved, regulations applicable to the awarding and execution of the contracts[50] contemplate the granting of "guarantees of execution" which, at least in the Latin American case, oscillate around 5% of the value of the contract. Exceptionally, however, higher guarantees are required amounting up to 20% of that value.[51]

Further, supplier's liability is normally limited only with regard to its amount, but also with respect to the type of consequences covered. Usually, most agreements circumscribe them to the direct losses, and expressly exclude any consequential loss of damage as well as the loss of anticipated profits.

Apart from the description between the losses of the recipient and the compensation or penalties borne by the supplier, a key weakness of the current modalities of performance guarantees is that they permit the supplier to replace an <u>obligation of doing</u>, which is the real interest of the recipient, by an <u>obligation of giving money</u>, which, even if it were sufficiently compensatory, does not solve the real recipient's problem: to put the technology or plant into efficient operation within a reasonable time. Having failed the supplier, the recipient is generally in a very bad position to rectify the existing defects. When the setting up of new plants is involved, in particular, once the stage of performance tests has been attained an "irreversible situation has been created"[54/] and the courses of action available to the recipient are consequently subject to serious constraints.

In sum, according to the current practice, the stipulation of performance guarantees imply a limitation in the amount and scope of the supplier's liability and permits the supplier to eventually replace he fulfillment of its specific obligations by the payment of a certain amount of money. As indicated by Salem and Sanson Hermitte, such a situation represents a derogation of the general principles that govern the responsibility: "En effect, selon les principes de la responsabilite contractuelle, le debiteur est tenu d'executer ses obligations en nature ou, si cette execution est impossible, de verser des dommages-interest representant la totalite du prejudice subi, c'est a dire au moins l'equivalent de lat perte, et eventuellement les prejudices resultant directement de l'inexecution" 53/.

In considering all these factors it is legitimate to question whether in its actual shape, the provision of performance guarantees constitutes a real conquest of technology recipients or, on the contrary, they are only a subtle trap for diluting supplier's responsibilites.

Though a categoric and unique reply is not possible, it seems clear that such provision does not provide at all, in many instances, the protection that the recipient seeks for, and that, on the contrary, they may help the supplier to attenuate and limit his liabilities. However, if well drafted and inserted in an appropriate context (particularly as regards to liability clauses) such provisions may play an important role in securing the obtention of the recipient's objectives, as defined in the agreement. The ways of drafting and the desirable content of such clauses are dealt with below in this study.

<u>Performance Guarantees in Different Types of Contracts</u>

The feasibility and implications of inserting performance guarantees in contractual arrangements as well as the means for their enforcement, vary in accordance with the subject matter and modalities thereof, that is different types of agreement and parties involved. Brief characteristics of those are therefore provided for below.

a) Licensing agreements

In contracts for the licence of patents and/or the transmission of know-how, the supplier normally does not take responsibilities concerning the procurement of the equipment necessary for the use of the technology, or for the erection or adaptation of the recipient's plant. This fact does not constitute an obstacle to the provision of performance guarantees regarding the technology.

Such a provision is generally possible and desirable (subject to the reservation made below). It has nevertheless to be adapted to the circumstances of the contract, and particularly consider whether the recipient operates a plant for that purpose. In the later case, the supplier may be requested to provide the basic engineering and approve or check the detailed engineering of the plant (see the following sub-section).

In any case, the supplier may be requested to supervise and/or assist in the verification of the mechanical completion and start up of the plant, or simply to certify, in due time, that all the conditions for the performance tests have been met. The recipient should ensure, on his part, that there will be an adequate supply of raw materials and utilities, availability of competent personnel for the trials and that the instructions of the supplier will be strictly followed.

In some contracts two sets of performance tests are provided for, in addition to the tests carried out at the recipient's plant, it is requested that, previously, tests be conducted (and the same guaranteed parameters demonstrated) at the supplier's own plant. This safeguard has two main advantages for the recipient: i) it permits him to check the technology at an early stage of the contract's lifetime, and interrupt payments or terminate the contract if the tests are unsatisfactory; ii) it gives the recipient's personnel an opportunity to obtain training in actual operation before the starting up in the recipient's plant.

It has been noted that the importance of performance guarantees in agreements on know-how strongly depends on the type of technology involved. In some industries, such as electrical and mechanical machinery, consumer electronics, mechanical appliances and cosmetics, the performance consideration is not deemed "critical" 54/, while in others, like chemicals, plastics, pharmaceuticals, fertilizers, metallurgies, electronics, semiconductors and integrated circuits, "the licensee has a great need for protection regarding performance of know-how" 55/. One may conclude that in straight licence agreements the licensee will have to secure inclusion of firstly performance guarantee, secondly guarantee on the good engineering standards (i.e.

supplied engineering) while other types of guarantees will seldom occur.

b) <u>Large industrial works</u>

Performance guarantees assume a peculiar significance in large industrial works, such as the erection of new plants. On the one side, the purchaser's investments and risks are much higher than in licensing agreements, and so is his need for appropriate protection against non-compliance. On the other, the relevance of such guarantees is not mainly circumscribed to process industries but extends to other areas, e.g., electrical or atomic plants.56/

The degree of concentration of tasks and responsibilities for the execution of large industrial works varies considerably according to the option chosen by the recipient. At one extreme, the purchaser may enter into various separate contracats, for instance , dividing up responsibilities among different parties for the supply of technology: equipment, building and civil engineering; detailed engineering, supervision of erection, etc. In this hypothesis, the purchaser may assume himself part of the tasks (e.g. detailed engineering, building and civil engineering) and the coordination or rely for the latter on a consulting engineer.

At the other extreme, in turn-key operations, a sole contractor or "holder" of the turn-key contract assumes vis-a-vis the client's responsibility for construction of the industrial works and takes the client's place vis-a-vis the other participants in the project.[57] When combined with technical assistance and training for management of the plant, after the provisional reception thereof, the contract becomes a "product-in-hand" type of arrangement.

As indicated before, full turn-key agreements are rather exceptional, since certain unpackaging frequently exists. Between the two extremes referred to, a number of variations exist, including "cost-reimbursable" and "semi-turn-key" contracts, among other forms.

The division of responsibilities may strongly affect the formulation and likely impact of performance guarantees. The simplest case is that of full turn-key contract, whereunder the contractor is responsible for the whole project. The most complex situation arises out when separate contracts are established for different supplies and works. As regards to the guarantees specifically related to the technology. In these cases, the technology supplier will normally not accept a responsibility exceeding a percentage of his fee for the transfer of technology. Such an amount will be less than satisfactory for the purchaser to cover the damages and losses that he may eventually suffer in case of partial or total failure of the technology.

Such a lack of balance has not an easy solution. Certainly, it is not advisable, as suggested by the EEC, to promote the "packaging" of the transaction in order to increase the level of guarantees granted by the Licensor.[58]

Such a recommendation contradicts the policies of many developing countries which encourage the unpackaging with an aim to reduce costs, foster the participation of national suppliers of goods, services and technology and facilitate the latter's absorption[59]. An alternative is offered by the realization of demonstration tests at the supplier's plant, at an early stage of the transaction. This procedure, applicable in particular in process industries, may at least permit a timely verification of the technology's suitability to attain the guaranteed parameters, and reduces the risk of a desastrous failure of the project.

Further, the purchaser's risks may also be reduced by requesting the technology supplier to approve the detailed engineering of the plant or the detailed design of any major items of equipment which may affect the performance guarantees agreed upon. In some instances, technology suppliers may be reluctant to admit such an obligation and would try to substitute it by the duty to check (but not to approve) the elements referred to.

Finally, a more extensive use of the "performance bond guarantees", as practiced in the United States, might be explored. Under that type of guarantee, the surety company undertakes the obligation to complete the contract or to obtain bids for completing it under the terms agreed upon if the supplier or contractor is declared to be in default thereunder 60/. This guarantee does not entail the replacement of the original obligations by the mere payment of a sum of money.

Without entering here into more details, it is evident that the greater the unpackaging is, the more difficult and complex is the negotiation, and later enforcement, of performance guarantees. This question therefore calls for a prudent balance of all the interests at stake and careful formulation of guarantee clauses and related rights and obligations. This point has been mostly disregarded by the policies and methodologies set out in some developing countries to unpackage big industrial projects, and may partially explain the limited practical success that can be attributed to such policies 61/.

This seems particularly true with respect to projects handled by public enterprises in developing countries, where the willingness of officials for minimizing risks is a well defined feature 62/.

In dealing with guarantee clauses and liability, technology suppliers normally are extremely cautious. These are critical aspects in most transfer of technology agreements, especially in those related to large industrial works.

The latter's strategy will obviously tend to limit its liability as far as possible, either directly (by means of contractual clauses) or indirectly (e.g. overdesigning the plant). Presumably, purchasers' very high demands will dissuade potential suppliers from entering into a prospective transaction.

The proposal of establishing an overall guarantee by the supplier's State 63/

, though admitedly attractive for developing countries, does not seem to have any change of being materialized, at least under the current structure and distribution of economic and politic power in the world.

It is quite clearly seen from the above considerations that in large industrial works scope and types of guarantees varies considerably from those in straight licence arrangements. Large industrial works will require not only complex guarantees - both related to process and performance as well as to process of erection and designing of a given plant.

It is therefore a substantial job of the would be investor to set basic criteria for the scope of guarantees in such agreements.

<u>Securement of the Objectives by the Parties</u>

In the preceeding chapter we have considered establishment of the objectives, which may be reflected in the guarantee provisions.

It will be time to devote a few thoughts as to ways and means of securement of those objectives, specifically by contractual and out of contract means and measures.

Some of those measures were already described in earlier chapters of this Guide while Annex I to the Guide provides rather exhaustive listing of activities which are to be undertaken by various parties of the agreement in securement of successful project implementation, and thus securement of objectives of the parties to the agreement.

In this sub-chapter - using the activities decribed in Annex I - basic tips will be given as to precautions to be taken which will enable the parties to meet their objectives.

First of all it is necessary to draw a list of activities to be undertaken in project implementation in the sequence of order. Prior to this - as frequently mentioned in this Guide - formation of the project team should be effected, with clear-cut division of responsibilites/activities under strong leadership of project manager designated by the parties.

Then careful and detailed evaluation of the objectives - inclusive of their rating - should be done followed by translation of the objectives with initial drafting of individual contract provisions where those objectives will be placed. Here close cooperation of the technical and legal staff will have to be secured.

Drafting of the text of individual clauses is so much important, as it should reflect achievement of all and each individual objective. It is therefore essential that the text of the agreement is self contained and integral.

While preparing the draft text - with maximum objectives - text which will be later negotiated - one should prepare alternatives in a sense of minimizing objectives and their possible formulation in view of other parties requirements and objectives.

There should therefore be established a list of minimum objectives (it is useful to have them formulated in a contract form) which will lead into successful project implementation and which achievement will decide about conclusion of the contract and thus project implementation.

The same in terms of translation and establishemnt of the objectives will count for guarantee and warranty provisions where the project team will establish their rating and alternative formulations.

If the yield for example will constitute single most important issue on account of lets say economy of the project, formulation of both yield guarantee and damage provision should fully reflect its importance.

It is advised also to inform potential supplier about such crucial objectives in order to secure both his understanding and cooperation.

As it is all other objectives could be taken up by way of contractual and out of contractual measures.

ESTABLISHMENT OF CRITERIA FOR SCOPE OF GUARANTEES IN TECHNOLOGY AGREEMENTS

The establishment of criteria and objectives for the scope of guarantees, as agreed, is a complex task. For this purpose, this sub-chapter will review briefly a list of development objectives that are often of such a general nature that the consequences for the formulation of an individual contract could be interpreted in many ways. On the other hand, the degree of generality can differ considerably. The following levels may be distinguished:

1) Overall consideration for development objectives as a whole which can be found in general policy declarations such as "national interest", "national economy" or "self-reliance".

2) General development objectives which are linked to the area of transfer of technology such as "strengthening local technological capabilities" or "adaptation of technologies".

3) Development objectives which are more specific, because they spell out the purpose in more detail, as far as the objective itself (e.g.: "training of personnel"), the type of technology transfer ("agreements for the transfer of foreign technology") and/or the economic sector ("in the petroleum sector") is concerned.

4) Detailed provisions which specify the objectives for a certain area such as: "Every contract for the transfer of

technology shall, where necessary, provide for training of personnel which shall be instructed in clear and comprehensive English" or "The supplier shall prepare a training programme which ensures that x% of the management, professional and supervisory positions and y% of all other positions can be occupied by local personnel within z years.

On this last level the objectives have become concrete directives to the enterprises. But given the variety of instatnces, directives of such nature only exist for a limited number of instances and even then often leave room for judgement by the enterprises.

Therefore, the objectives of a more general nature must be taken into account, as well. Usually these objectives are contained in development plans preambles of relevant laws or specific provisions of these laws which set out the criteria for evaluating and screening either agreements in general or transfer of technology agreements in particular. While private enterprises may await the opinion of the authority in charge, public enterprises have to incorporate these objectives into their business policy regardless of a possible screening procedure or not.

The following general list is a compilation of objectives found in the laws which were discussed in the study. Included are only objectives or criterias which govern the technology transaction as a whole. This comprises provisions which are formulated as exemptions to several clauses, because these exemptions usually also express more general criteria. Objectives which can be deducted from concrete directives (such as mentioned under 4 above) are not included, because they are taken up elsewhere. Those objectives are outlined in detail in the Chapter IV of the present Guide.

The objectives are roughly divided into four groups:

I) General overall objectives;

II) Objectives directly relating to the mere technology transfer;

III) Objectives with a view of effectivly implanting the technology on the enterprise level;

IV) Objectives with a view of attaining overall benefits for the country as a whole.

Such structure takes up a grouping which has been suggested for the guarantee provision as well.

As mentioned earlier one would therefore seek to establish a strategy as to how to go about achievement of each of the main four groups of the objectives.

In view of the concentration of the Guide on issues of the concern of the manager of the corporations we will limit our consideration to the objectives relating directly to the technology and those related to the effective implantation of the technology in a given enterprise.

The listing of objectives - put in order of the importance as provided for in Chapter IV - will enable us to establish as well the criteria for the scope of the guarantees sought.

Those criteria will be determined by the individual and specific needs and situation of the enterprise.

For example, the enterprise in question has difficulties or limited supplies of raw materials and its expansion in terms of available land are non existent.

Above limitations - or rather objective conditions - will determine criteria for establishment of the guarantees scope moreover they will establish the basic rating of those guarantees, and their priority.

It is therefore of utmost importance to be perfectly clear and informed about one objective condition and limitations.

Lets take another example and assume that an enterprise is going for the project which will require long term, low value but critical supply of very special components or raw materials from the supplier.

There, one should very carefully consider what will happen if sometime in the future the supply of such crucial elements will dry out on account of lack of foreign exchange, boycott, war or bancrupcy.

Perhaps access to such raw materials could be secured from alternative source ? Or building of the emergency stock ? Or undertaking of local production should be considered at the time of project finalization ?

Such considerations therefore have to be included in the formulation of the scope of guarantees.

Another important condition which may as well be incorporated into guarantee provision is the availability of the skilled labour locally.

In case the skilled labour is difficult to come, necessary guarantees as to training of the local labour are to be developed.

Such guarantees will include training of not only of skilled labourers, but also foremen, shift leaders, technicians of various type (including laboratory technicians if necessary) as well as engineering personnel and often sales and management personnel (depending on the nature of the project).

There, the local investor should bear in his mind two factors: first that training is arranged according to the schedule of project implementation that is thorough and sufficient and that he will be in a position to keep trained labour at his plant. There are known cases, that in view of delay of project implementation, skeleton crew trained by suppliers dispersed to other jobs prior to plant start-up.

It is also up to the supplier who in strict cooperation with the investor will have to prepare tailor made training programmes for local staff.

There is no doubt also that results of training will have crucial impact on the level of absorption and implantation of the technology in the new location, thus contributing to the success of the project.

Yet another consideration in relation to the objectives and guarantee scope are considerations related to the case of local suppliers in project implementations.

The local supplier may provide for civil works, they may however as well provide elements of equipment and quite often carry part or a whole of the detailed engineering.

As usually in case of developing countries, local suppliers may be unknown quality for the foreign supplier, there might in certain instances occur reluctance of the foreign contractor to grant his usuall guarantees in such cases.

In his paper 64/ Valeiras described in quite detailed manner measures taken in Argentina in contracting nuclear technology with extensive use of local suppliers.

Conclusions from this illustrative case may be applied in other cases, where local industry and engineering capacities are sufficiently developed.

What is important, is the need to acquaint foreign supplier with the level and quality of local productions in order to convince him about possibility of meeting his requirements.

The important issue however, will be the split and division of responsibilities arising out from guarantees among foreign and local suppliers and the need to secure their performance jointly and separately.

CHAPTER VI

OVERVIEW OF GUARANTY AND WARRANTEE PROVISIONS

This chapter is considered as the crucial and the one in which practical remarks are contained to provide the reader with selfcontained outline and description of legal and drafting considerations of guaranty and warranty provisions, overview of illustrative list of guarantee provisions and certain practical remarks regarding preparation of the investors - particularly from developing countries - towards evolvement of guaratree clauses in technology agreements.

LEGAL ASPECTS OF GUARANTEE CLAUSES

Most of the provisions contained in a contract will never be used, if the contract is properly executed. As a matter of fact, many provisions only exist in order to avoid dispute from the outset. Guarantee provisions should therefore be drafted with a view to anticipate future disputes and find a formulation which would leave no room for later disputes. It seems that the present formulation of guarantee provisions fulfills this purpose, but for other reasons than intended. They are often so ambiguous or made subject to so many conditions and safeguards imposed by the supplier that the recipient will not even try to enforce them unless there is a complete failure of equipment.[65]

When dispute actually arises, the supplier will defend himself with a number of arguments particular to the specific agreement. But apart from that, a defense will be usually based on a pattern of legal considerations which reoccur independently of the individual contract, because the defense is based on structural formal weaknesses of the formulation. Some typical course of action is provided herewith for illustrative purposes:

1) <u>"The contract has been fulfilled"</u>

This argument may arise when certain terms are ambiguous or when different national laws and international commercial practice give different definitions of the term. Therefore operative terms should be checked whether they have been clearly defined by law or courts and whether they are basically undisputed in doctrine. In case of doubt, a term should be defined in the contract itself. This seems even more advisable in view of the fact that certain terms such as know-how are presently subject of a lively discussion as to their legal meaning.

The argument of proper fulfillment may also arise, when certain elements of fulfillment have not been stipulated in the contract at all. In this case, the dispositive norms of applicable law will fill in the gap. But since most countries do not have specialized legislation, it will be often unclear whether the law provides for the application of dispositive norms at all or denies any implicit warranty or guarantee.[66/]

In order to avoid such ambiguities or lack of contractual provisions, the following precautions may be taken into consideration:

- clear descriptive language,
- a separate section on definitions for expressions which are used throughout the contract,
- statement of all factors which may have a bearing on the fulfillment of the obligation,
- "Recital" or "Whereas" clauses stating the purpose of the contract,
- Rules of interpretation for the contract,
- agreement on the applicable law.

Clear definitions are essential, because many terms used in technology transfer are defined or interpreted differently by national legislation, jurisdiction and commercial practice. In addition, the meaning of basic terms such as "know-how" is in fluid. "Whereas" - clauses have a growing importance for the interpretation of ambiguous terms and of gaps overseen by the negotiators.[67/]

In some cases, additional rules of interpretation for the case of ambiguities, contradictions in the text or non-regulated questions will be helpful. Nevertheless the various obligations under the contract should be defined as completely as possible.

An obligation of a licensor, e.g., to "furnish all drawings ... enabling the article to be manufactured or used" which "shall be accompanied by a complete technical dossier including ..." 68/ may give rise to a number of disputes. Such obligation does not state the language of the documents, the measurements used, the reproducibility, the size of the documents and their up-to-date and correct content. All these points can give, and in actual license practice have given, rise to dispute. 69/ A case presented by the International Chamber of Commerce to UNCSTAD may illustrate this: the workshop of the supplier has detected an obvious mistake in one document and corrects it in the working document, but not in the master drawing from which the copies are drawn. The head of the workshop wanted to do this, but before he was able to do so, he was injured, went to hospital and forgot to report the mistake. The licensee got a copy of the incorrect master drawing, but because of his lacking familiarity with the technology he did not recognise the mistake and produced deficient goods for a longer time. The ICC maintains that the licensor had no liability whatsoever[70] . It may possibly have an argument if the ORGALIME model clause was used. But if the specification of the documents to be supplied would have required an "up-to-date correct set of drawings" the licensor "would doubtless be in fault" in the ICC example[71]

2) "It has not been proven that the guarantee has not been met"

Often it is unclear who has to prove a certain fact and, if this is settled, in which way the proof has to be obtained. Provisions therefore should be phrased in a language which clarifies who has to bear the burden of proof and - more important - which requirements are to be met. This applies for example to time limits, notification requirements and to the means and procedure of proof such as number of necessary samples, testing institution and procedures, etc.

3) "It is not my responsibility"

The defendant may argue that an obvious defect is due to a fault of the other party. In performance tests, e.g., the defendant may argue that inputs furnished by the recipient were the reason for non-compliance with test parameters. Similarly, the extent of responsibility of supervising engineers, contractors and sub-contractors for the fault of the others may not be clearly defined. It is therefore essential to divide up the spheres of risk and responsibility as clearly and distinctly as possible. Thus, in a performance guarantee the parties should specify exactly the quality parameters of the inputs used.

Disclaiming responsibility may also take the form of accusing the other party not to have fulfilled its co-operation or information requirements. The more information about arrival dates, unusual events, defects and other incidents, the supplier gets at the earliest possible date, the more difficult will his disclaimer of responsibility be.

4) "It's force majeure condition"

What just has been said, also applies to this point. Especially, when climatic conditions, working habits and social traditions in the countries of the supplier and the recipient differ considerably, both parties may have a different understanding of the term 72/ .

In addition the notion of "force majeure" or "frustration" has a different meaning in various legal systems 73/ .

5) "It's too late"

The legal provisions for limitation may often be inadequate for complex contracts which are performed over a longer time period. Also it may be unclear at what date the period of limitation commences, if the technology is supplied successively. On the other hand, maximum periods for notification may be insufficiently short, if qualified testing personnel or adequate testing equipment is not at site or cannot be brought there in time. In case of know-how, the completeness and correctness often will only show up, when the know-how has been used for some time. Again, the most important precaution of parties is to define all limitation and notification periods for the different elements to be supplied and eventual defects in the contract. In so doing, limitation periods will have to take account of the complexity of the technology and the continued supply of parts of the technology over a longer time period. Notification periods will have to reflect possible differences in transportation and communication facilities in the recipient country, the availability of necessary testing equipment, etc.

6) <u>"There are no damages"</u>

Even if a supplier accepts his liability in principle, he may argue that the damages incurred are lower or that the effects of non-fulfillment go not that far. In these cases the possibility to liquidate damages without dispute will depend on objective calculation methods which can be easily applied or on some kind of penalty system which makes proof of actual damages all together superfluous.

The arguments listed above show that any guarantee provision must fulfill a number of requirements to be fully operative. Not all requirements must be contained in each individual clause, but may be formulated in a more general phrase which is to be applied to the whole or part of the contract. In these cases, particular attention should be paid to the question whether general rules (e.g., on burden of proof, limitation, notification, etc.) will really be satisfactory to all clauses or whether a modification of the general rules is necessary for certain clauses.

Each clause, either by itself or in connection with other clauses, should be analyzed whether it contains a satisfactory answer to the question and aspects contained in the following illustrative check-list:

Illustrative check list as to content of guarantee provisions:

1. Clarity of the language used

Definition of ambiguous terms

- in the individual clauses itself
- in a "Definitions" section

Definition

- by means of an exclusive listing of items or
- by an abstract formulation of
- by a combination of an abstract formulation with a non-exclusive list of examples

Use of descriptive terms, not value judgements

Use of objective criteria, not subjective criteria.

2. Completeness of the clause

Completeness of the guarantee as to

- quantity (and tolerances)
- quality (and tolerances)
- time (of delivery, legal consequences)
- place
- measurements
- language

Separation of responsibilities

- of the two main contracting parties
- of sub-contractors, consultants and other persons related to the contract
- of third parties outside the contract

Type or degree of default

Burden of proof

- as to the party
- as to quality requirements, tolerances
- as to number, size and type of the samples
- as to time requirements (for test, for notification)
- as to involvement of third parties

Effects of nonfulfillment

- type of effect
- quantitative, qualitative and time requirements (for notification, limitation)
- methods of establishing the effects (calculation

methods, involvement of third parties)

- tolerances

3. Changing conditions

Force majeure

Frustration

Hardship

Other difficulties to perform contract having their reason

- in the person of the supplier

- in the person of the recipient
- in the person of third parties
- in the technology

- in economic developments such as devaluation, inflation, changes in the demand patterns, changes in price for essential goods

- in social and political developments such as new legislation, new policies, demographic changes, strikes

- in climatic and natural developments such as failure of crops, natural disasters

4. Interpretation

- applicable law

- definitions in the contract

- "whereas" - clauses on purpose of the agreement

- rules of interpretation

- avoidance of contradictions within the contract, rules of interpretation to solve this

5. Appropriateness of general provisions

Appropriateness of general rules on

- burden of proof
- type of responsibility
- type of notification
- limitation
- type of force majeure in view of specific provisions on - various types of technology - primary and secondary obligations.

Having clarified certain basic attitudes concerning drafting and particularly implementation of guarantee provisions, let us review briefly their legal character.

First of all one should clearly state that the main purpose of the guarantee provisions is to enforce the performance of the supplier's main obligations.

As such one can divide the guarantees into implied guarantees and expressed guarantees.

Implied guarantees are those which arise out of the spirit of the contract and out of the specific law doctrine applicable to the given agreement.

While for example in US implied guarantees should not be spelled-out in the agreement, French law tends to rule in favour of spelling them in the contract.

Contrary to implied guarantees, expressed guarantees are those explicitely mentioned in the agreement, providing the measure of the supplier performance.

The brief discussion on the legal nature of performance guarantees is also linked to the traditional classification of obligations, that is in "obligations de moyen" (make the best effort) and "obligation de resultat" (warranty to achieve).

Under "obligation de moyen" the debtor is only obliged to apply a reasonable dilligence to attain guaranteed results. Under "obligations de resultats" the debtor has to demonstrate achievement of the desired result. 74/

From this point of view of the recipient of technology, particularly in a developing country the more important classification of guarantees would be absolute and penaltiable guarantees.

The absolute guarantees are such provisions which provide for unlimited liability of the supplier in case he will fail to perform.

Such absolute guarantees usually will lead to actual delivery under a given contract; absolute guarantees are however not too often used for account of reluctance by the supplier and some time additional costs which they may cause, i.e., overdesign, etc.).

An example of absolute guarantee might be for example, plant capacity or quality of the final product, both parameters of decisive character for the success or failure of the project.

Penaltiable guarantees, would be those which provide for limited liability of the supplier in case of non-fulfillment of his obligations under the contract.

They are usually consisting of penalties, reduction of fees and royalties and similar limited liabilities.

Liquidated damage provisions are an example of penaltiable guarantees related to yield, consumption of raw materials or utilities, etc.

In order to obtain the complete picture of different types of guarantees one should mention also the following:

1. Suitability guarantee

2. Guarantee as to completeness, correctness and good engineering standards

3. Performance guarantees of various nature

4. Guarantees as to legal title and infringements.

Suitability guarantees, one of heatedly disputed concepts[75/] provides for a guarantee by the supplier that the technology will be suitable to achieve desired results in the environment of the recipient in terms of appropriatness, use of local resources, use of local labour, commercial results, etc.

As mentioned, this is a controversial issue, raised by number of developing countries, and not always such guarantee could be achieved.

Guarantees as to completeness, correctness and good engineering standards are quite common and provide the recipient of technology with the assurance that he will receive complete technology, with correct documentation and that the supplier will employ good engineering standards 76/ in implementing his obligations under the given contract.

Performance guarantees are the most common provisions, particularly in process industries and they relate to the specific performance of technology. Such guarantees will include:

- product quality guarantee
- yield guarantee
- production capacity guarantee
- rejection rate guarantee
- scrap loss guarantee
- shelf life guarantee
- productivity guarantee
- catalyst consumptions guarantee
- raw material consumption guarantee
- mechanical warranty
- guarantee as to availability of catalyst, spare parts and components.

Finally, the guarantee as to legal title and infringement, is supposed to ensure that the supplier is the owner of legal right under which he licences his technology, and that those rights do not infringe third party rights. Discussion of this type of obligation has been detailed in Chapter IX of this Guide.

As can be seen from the overview of various guarantee provisions and their classification they will not be applicable in all types of technology agreements.

The patent licence agreement usually will employ guarantees as to the legal rights, possibly some of the performance guarantees (yield, quality, raw materials consumption, catalyst) and perhaps guarantee as to completeness and correctness. The know-how agreement, depending whether in process or product industry will incorporate similar guarantees as in patent licence, with addition perhaps to engineers standards provisions.

Engineering contract, no doubt will put heavy emphasis on the completeness, correctness and engineering standard of supplies. Most complete guarantee provision will occur in turnkey and product at hand contracts, as in those cases virtually all inputs are provided by the supplier.

Again in technical assistance agreement, and training agreements, the scope of guarantees if any, will be very much limited 77/ .

DESCRIPTION AND ILLUSTRATIVE LIST OF MAJOR GUARANTEE PROVISIONS

This sub-chapter attempts at providing the managers of recipients of technology enterprises with brief and concise review of major guarantee provisions in a form of illustrative provisions accompanied by brief commentary.

The illustrative list should not be taken as either exhaustive nor as model provision.

Its sole purpose is to provide examples, which after modifications can be applied in individual agreements.

In the initial part to the sub-chapter we will deal with the training of the local personnel, use of local resources both from the point of view of guarantee provisions as well as with some considerations related to unpackaging of technology and its implication on the guarantee provisions.

The issues related to training have been partially covered in Chapters III, V and VII of this Guide, yet certain elements seem to warrant additional attention by the recipients of technology.

While the contract as such and specifically performance guarantees will ensure usually discharge of the obligations by the supplier, it is the crew and personnel of the recipient enterprise which will ensure smooth, effective and uninterrupted production or exploitation of transferred technology.

It is therefore of crucial importance that the recipient of technology will spare no effort to secure that his personnel will be properly prepared and trained in exploitation of a given technology. This objective can and should be achieved in cooperation with the supplier, who usually provides a guarantee that he will train certain specified number of local personnel.

This is usually the case in semi and turn-key agreements, and product at-hand agreements.

The training provisions, therefore should ensure that the personnel of the recipient should at least obtain the following training:

- at other plants of the supplier;

- on the site, inclusive of presence during construction, erection, mechanical and other completion test runs, etc.;

- engineering staff of the recipient should be present all the time during all designing stages of the plant, erection, inspections, test and performance runs, etc.

In agreements for simple transfer of know-how under patent or know-how licence, the training of the local personnel does not play such significant role, as usually the technology is inplanted into already productive environment, which is using already trained and skilled labour and engineering staff.

It is therefore the responsibility of the recipient to select and hire his personnel, which when undergoing the training will be able to absorb and learn new techniques, and deal with new, complex problems.

The supplier , should usually assure provision of the training in the language spoken in the country of the recipient, yet in cases of some more rare languages, agreement can be reached to provide sum training either in

English, French or Spanish.

If this is the case, the recipients should ensure that all his staff undergoing training programmes will have good command of the agreed language.

The training aspect of guarantee provisions is important in this sense, that the performance guarantee tests are run by the recipient personnel, under supervision of the supplier.

It is therefore important that also supervisory personnel of the recipient will undergo proper training, in order to take over the operation, once the plant of installation is commissioned.

In this sense product at-hand agreements provides for extended managerial and technical assistance of the supplier, yet permanent dependency on the outside source of expertise should be avoided.

Concluding, proper training provisions will assist in achievement of the guarantees, yet their true effect will only be visible after plant completion or take-over by the recipient enterprise.

For the sake of illustration the following is the example of a typical, training of recipient personnel provision:78/

"(a) Personnel designated by the recipient shall be given adequate opportunity to study the method of manufacture of the product at the manufacturing plants of the supplier. Such ..."

Another issue to be covered in the present chapter is the one of local resources in the context of guarantee and warrantee provisions.

There one should distinguish among:

- use of local raw materials or local feed-stock;
- use of local utilities of various kind;
- use of local subcontractors;
- use of local technologies - elements of the package;

In respect to local raw materials or local feed-stock - which may or may not vary from the one originally used by the supplier of technology - provisions of guarantee will directly reflect such conditions.

It is therefore of a critical importance, that the recipient of technology is assured of:

- availability of raw materials adequate for long term supply of the plant/installation;
- that the chemical composition of the raw materials is constant within agreed limits;
- that the supplier of technology acquainted himself thoroughly, with all characteristics of the local raw materials;
- that the guarantees are based on the local raw materials available.

All above conditions indicate close cooperation among supplier and the recipient during the pre and constructual stage, as well as designing and supply of the plant or installation.

It should be mentioned, that if local feed-stock or raw materials vary from the original used by the supplier, he may, even if laboratory tests are positive, be hesitant to provide full fledged guarantees in respect for example quality of the final product, consumption of raw materials, catalyst or utilities.

Above elements should therefore be taken into considerations prior to formulation of the guarantees.

Similar situation may arise in the product industries, which sometimes may be based on local, substitute raw materials.

A different situation will develop when, for this or another reason, local subconstractors or engineering companies are engaged to provide for parts of the plant/installation or part of engineering As it is a common practise, the supplier usually provides the installation specification with suggestions as to source of the supply, and in these cases provides full-fledged guarantees.

Introduction of the local subcontractors who provide either part of the equipment or part of the engineering work may add the element of uncertainity, which will be usually reflected in the scope of guarantees.

Interesting, from this point of view experience, was made in Argentina 79/ as well as in Junta Cartagena 80/

and some recipients of technology are urged to study in detail such experience.

While the desire of most developing countries to employ local resources and capabilities to the maximum extned is understandable, yet on account of unknow often quality, the suppliers might be reluctant to such resources, thus avoiding, if possible, provision of "normal" guarantees.

It is therefore in the interest of the recipient, to inspect - if possible - jointly with the supplier, the premises of potential local supplier in order to find out the expected quality of supplies on a basis of past experience of such source.

Only in such cases, the supplier may agree to apply his normal guarantees, without the need to retort to overdesigning and over insuring himself.

The Annex I to Guide provides for detailed time table of preparation and activities for project implementation by the potential recipient of technology in developing country. For illustrative purposes, below is reproduced a check list of activities to be undertaken by the recipient in the industrialized country (often TNCs):

1. Sales presentation - world wide forecast of demand for a product;

2. Technical evaluation of available and potential technologies by R + D Department;

3. Approval of findings of R + D Department by Board;

4. Preselection of 2-3 potential suppliers;

5. Entry into secrecy agreement with preselected suppliers

- technical evaluation

- evaluation of cost of production

6. Negotiation of the agreement (Joint team consisting of: marketing, licencing, technical departments plus potential new plant managers);

7. Signature of licence contract;

8. Selection of the contractor;

9. Signature of contracting agreement

- close cooperation with the contractor at the site

- procurement of equipment by the investor with advise by the contractor

10. Commissioning of the plant/installation - start-up (supervision by the licensor).

SUITABILITY GUARANTEES

As already extensively mentioned earlier in this present Guide the suitability guarantee concept has been evolved around the issue of suitability or appropriateness of a given technology to perform in different - to original - environment.

In most national laws suitability guarantee is treated as one of implied guarantees, although for example in Argentina and Yugoslavia it is explicitely mentioned in the context of suitability guarantee: warranty of fitness merchantibility of product; most updated; best obtainable;

As such it is quite clear that it was recipients of technology among developing countries, who pressed and developed such concept as it is presented in the code of conduct by UNCTAD 81/ .

At the side of suppliers of technology however the concept of suitability guarantee is not as yet well developed and in many instances they might be reluctant to go for it except of implied guarantees.

The illustrative text of suitability guarantee may read as follows:

"The licencor guarantees that the technology will be suitable to meet/obtain results under the conditions set in this contract".

COMPLETENESS, CORRECTNESS AND ENGINEERING STANDARDS GUARANTEES

This type of guarantee is by far one of the most commonly applied in variety of technology agreements, specially related to supply of technology accompanied by large delivery of technical documentation.

Its purpose is to assure the recipient that documentation is complete, correct and up to agreed standards.

In terms of completeness, in principle the recipient will receive assurance as to: (a) that it will be sufficient for him to produce final product, (b) that it is complete in the framework of agreed contract and (c) is up to agreed level of description.

In this guarantee parties will agree as to language of documentation, measurement standards; original drawings (transparents) or blueprints, etc. Furthermore such guarantee will set responsibility for checking the drawings and other documentation.

After WIPO Licencing Guide[82] the following text is provided for illustrative purposes:

Subject to the terms and conditions hereinafter set forth, the Transferor makes to the Transferee the following guarantees:

(i) all the written Know-How and the Technical Information handed over or disclosed to the Transferee pursuant to the provisions of this agreement will be correct, complete, up-to-date and adequate to (manufacture the Product) (Apply the Process).

(ii) the (Product) (application of the Process) will meet those performance characteristics for the Product (Process) set forth in Appendix No. within the normally permitted tolerances.

(iii) the (Product) (application of the Process) (operation of the Plant) will meet the safety and environmental requirements of the laws and regulations in force in the Territory of the Transferee (and will at least meet the said requirements as applicable on the Effective Date of this Agreement in the territory in which the Transferor carries out similar operations).

(iv) the Plant will be designed, constructed and operated according to the Know-How and Technical Information furnished or approved, in writing by the Transferor and will be mechanically capable of meeting the operating requirements set forth in the said Technical Information; and all components of the Plant, including all mechanical and electrical equipment and auxiliaries directly related and essential to operations of the Plant, will be in good mechanical and operating condition; the equipment of the Plant will be properly responsive to controls and will be capable of substained operation for the period required for conducting performance tests as hereinafter provided.

(v) within .... months from the Start-Up-Date the Plant will attain at least a yield and reach the planned capacity which satisfies the requirements set forth in Appendix No. ...

(vi) the training services by the transferor for the Transferee's personnel will be of a quality not less than that provided by the Transferor to his own personnel and adequate to meet the needs of the Transferee.

In the context of the preceeding,, it should be mentioned, that usually the supplier of technology (licencor) has no capacity for detailed engineering - it is usually provided by engineering company.

Furthermore, the resident engineer designated by recipient, usually sits at engineering company premises and reviews documentation and drawings during preparations.

In relation to completeness, correctness and engineering standards guarantee, parties should resolve the ways of remedies related to errors in the documentation, need to redesign of parts of the installation etc., as well as issue of timely delivery of documentation.

The timely delivery of documentation may be linked to payments (mentioned earlier in this Guide) as well as indirectly to consequential and liquidated damages. (Particularly when delays affect supplies and installation of the equipment, which in term affects provision of other works and consequently completion of the whole installation).

The scope of consequences will vary depending on type of the agreement; that is turn-key, engineering or straight licence agreement.

Finally one should - at least briefly - mention the right of the licencee to take off the hand of engineering company, the contract - for further action in order to provide for correction, if so far available remedies were not satisfactory.

TYPES OF PERFORMANCE GUARANTEES

These are most common types of guarantees, particularly frequent in process industries.

Product Quality Guarantee

This guarantee will usually relate to the final product coming out of plant or installation (or semiproduct or component) and describe in the most detailed manner agreed quality standards of the product which the technology is supposed to provide for.

In case of some consumer, products protected by trade-mark, the quality will not only be guaranteed, but even more will be required as a precondition for maintaining of the trade-mark or trade-name.

Yield Guarantees

In process industries consuming large quantities of raw materials, yield guarantee will be crucial for the economy of productions of a given plant or installation.

Production Capacity Guarantees

This is one of the most important guarantees, in this sense that the installation plant will produce per day) year certain volume of final products. Often production capacity guarantee is included among so-called absolute guarantees.

An example of production capacity guarantee may read as follows[83/] :

The Plant shall be capable of sustained, steady and continuous operation and of meeting the full requirements stated below in Articles 1 to 6, all of which are hereby guaranteed by the CONTRACTOR, which shall be proven and demonstrated by test runs as specified in this Article and in the Annexures XVI and XXXI and such tests are to be conducted in accordance with the conditions set forth therein. The PURCHASER shall comply with the provisions of Articles ......

1. The production capacity of ammonia and urea from the Plants shall be (1000) Tons per Day ammonia and (1725) Tons per Day urea.

2. The quality of the ammonia from the Ammonia Plant and of the urea from the Urea Plant shall be in accordance with Annexure ...

3. The quality and quantity of carbon dioxide shall be adequate and suitable for the guaranteed capacity of the Urea Plant and quality of urea Product.

4. The Off-Sites shall be adequate for the sustained and continuous operation of the Plant.

5. The consumption of utilities and raw materials in each of the Ammonia and Urea Plants are in accordance with guarantees given below.

6. The effluents from the Plant are in accordance with Annexure ....

The guarantees outlined in Article ... shall be divided into Absolute Guarantees and Penaltiable Guarantees.

1. Absolute Guarantees shall be defined as those guarantees which the CONTRACTOR shall establish without any

limitation to his cost, and which cannot be satisfied by the payment of Liquidated Damages.

2. Penaltable Guarantees shall be defined as those guarantees which can be satisfied by the CONTRACTOR on payment of Liquidated Damages in accordance with Article ...

Absolute Guarantees and Penaltiable Guarantees shall be:

Absolute Guarantees:

1. 95 per cent of the capacity of the Ammonia Plant corresponding to 95 per cent of (1000) Tons per Day of specification grade ammonia.

2. The quality of ammonia as per Annexure ....

3. 95 per cent of the capacity of the Urea Plant corresponding to 95 per cent of (1725) Tons per Day of specification grade urea.

4. The quality of urea as per Annexure ...

Utilities Consumption Guarantees

This guarantee provides the assurances to the recipient as to consumption of various utilities like water, electricity, etc. This guarantee may affect the economy of the project and often non fulfillment may be quantified by penaltiable or absolute guarantees.

Rejections Rate Guarantee

This guarantee is typical for certain product industries and is closely related to the quality guarantee, in this sense that the smaller rejection rate, the higher average quality of the final product.

Scrap Loss Guarantee

This is again one of the guarantees frequent in certain product industries.

Shelf Life Guarantee

In certain industries, the consumption habits will require that the product should have certain shelf life (cereals, jams, pharmaceutics, photographic films, etc.). The shelf life guarantee - (usually 12 to 18 months) will provide for such provisions .

Productivity Guarantee

This again is one of more frequent guarantees in product industries, providing for certain productivity of individual piece of equipment, or of the whole installation.

Catalyst Consumption Guarantee

This guarantee is typical for all process industries using catalyst. As the catalyst is crucial for the process and is often quite expensive, such guarantee is usually crucial for the recipient.

The catalyst consumption guarantee, may usually include the guarantee as to life of the catalyst.

Raw Material Consumption Guarantee

This guarantee will specify the quantities of raw material consumption per unit of the final product. In the interest of the recipient, such guarantee should be as detailed as possible.

MECHANICAL WARRANTEES

Usually supply of technology is combined with supply of machinery and equipment, for which individual supplies provide with mechanical warrantees of 6 to 12 months duration.

GUARANTEE as to Availability of Catalyst, Spare Parts and Components

It is quite common to request the supplier to guarantee the supply of catalyst, spare parts and components through the life of the plant (10 to 15 years).

While such guarantee can be usually obtained, yet the recipient should build into guarantee provisions enabling him to :

(a) produce spare parts or components;

(b) obtain catalyst from other source;

Such provisions should be developed in case the supplier goes bankrupt or in case of take over.

The usual way of protection is that either supplier provides with stock of spare parts or components or catalyst or he deposits in prearranged place drawings, formula and design of such catalyst, spare parts or components, on the basis of which the recipient may produce them (or let them manufacture) himself.

Determination of Methods for Meeting of Guarantees

As mentioned earlier in the Guide, it is absolutely critical to establish in a clear way the methods for meeting guarantees. For this purpose we have reproduced after UNIDO/PC/26 the illustrative text of Performance Guarantee test procedures.

<u>Performance Guarantee Test Procedures</u>

<u>Ammonia Plant</u>

Performance Guarantees of the Ammonia Plant shall be demonstrated by means of the following Performance Guarantee Tests:

1. A minimum (20) Day sustained continuous test under normal operating conditions in order to demonstrate the capacity for continuous steady operation and capacity at an average of (90) per cent of capacity of the Ammonia Plant, together with the capability to produce specification grade ammonia and carbon dioxide, followed immediately by:

2. A (10) Day uninterrupted continuous test under normal operating conditions, in which the operation of the Ammonia Plant at 100 per cent capacity and the consumption of raw materials and utilities will be demonstrated, while producing specification grade ammonia. The tests for capacity and quality shall be applicable for all (10) Days of the test. 100 per cent capacity of the Ammonia Plant shall be (10,000) Tons of 99.8 per cent. Product shall be corrected for any increase in strength. For consumption of the raw materials and utilities the test period will be any consecutive (7) Days within the (10) Day period.

<u>Urea Plant</u>

Performance Guarantees on the Urea Plant shall be proven by means of the following Performance Guarantee Tests:

1. A minimum (20) Day sustained continuous test under normal operating conditions in order to demonstrate the capability for continuous steady operation and capacity at an average rate of (70) per cent of the Urea Plant together with the capability to produce urea of specification grade, to be followed immediately by:

2. A (10) Day uninterrupted continuous test under normal operating conditions in which the operation of the Urea Plant at 100 per cent capacity, and the consumption of raw materials and utilities shall be demonstrated while producing specification grade urea. The tests for capacity and quality will be applicable for all (10) Days, and the test for consumption shall be for any consecutive (7) Days within the (10) Day test period. 100 per cent capacity of the Urea Plant shall be (17,250) Tons of specification grade Product and shall be corrected for any increase in strength.

<u>Power Plant</u>

The power plant shall be operated at capacity (as soon as load permits) for the said period of (7) consecutive Days to prove its guarantee of capacity for both power and steam, and its guarantee for consumption or fuel.

During the specified (10) Day period under Article

26.5.2.2. (unless as otherwise agreed) the Ammonia and Urea Plants shall be run simultaneously at capacity for any consecutive (7) Days within the (10) Day period to prove that the power plant and utilities are adequate for the continuous and uninterrupted operation of the Ammonia and Urea Plants and Off-Sites together.

The Performance Guarantee Tests will be run in accordance with Annexure ....

1. The CONTRACTOR shall have the right to have the Plant(s) operated in accordance with its requirements to perform the test(s) and the PURCHASER's personnel shall work under the technical instructions of the CONTRACTOR.

2. The detailed procedures to be followed for the execution of the Performance Guarantee Tests shall be agreed upon between the parties within three (3) months before the commencement of the above tests. Instruments tolerances shall be warranted by the CONTRACTOR. The PURCHASER and CONTRACTOR shall agree on the instruments and will jointly calibrate them for measurment of the Plant capacity and consumptions.

If the (10) Days Performance Guarantee Test(s) is interrupted due to reasons for which the CONTRACTOR is not responsible, the Plant(s) shall be started again as soon as possible and when the Plant(s) has reached normal operating conditions, the Performance Guarantee Test(s) shall continue immediately thereafter. The duration of the Performance

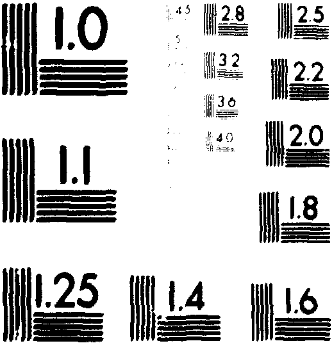
Guarantee Test(s) shall be extended by the duration of such interruptions and the Performance Guarantee Test(s) shall then be deemed to have been performed continuously, provided, however, that the Plant has been operated for a minimum (7) Day period without interruption.

The CONTRACTOR shall be obligated to complete the Performance Guarantee Tests of the Plant within the periods stipulated in Article ..... or to pay Liquidated Damages in accordance with that Article.

After the successful completion of any Performance Guarantee Test, in accordance with the Contract, the CONTRACTOR shall prepare a Performance Guarantee Test Report which shall be signed by the CONTRACTOR and submitted to the PURCHASER for approval.

1. If the said Report is satisfactory, the PURCHASER shall issue within (30) Days from the receipt of the CONTRACTOR's Report a Provisional Acceptance Certificate or shall inform the CONTRACTOR's Site representative within the same period of the reason for non-acceptance.

2. Provided Article .... has been complied with, in the event of the PURCHASER failing to issue the Provisional Acceptance Certificate or to inform the CONTRACTOR as provided in Article 1, the CONTRACTOR shall request the PURCHASER for an explanation for the delay and if the PURCHASER fails to respond within another (30) Days, the acceptance of the Plant for which the Performance Guarantee



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

Test was conducted shall be deemed to have taken place, on the date that the Performance Guarantee Test was successfully completed.

TEXT A	TEXT B
The obligations of the CONTRACTOR shall be deemed to have been ful-filled, if for reasons not attri-butable to the CONTRACTOR the Gu-arantee Tests under Article .... cannot be carried out within (30) months from the last shipment of Equipment, or within (60) months from the Effective Date of Con - tract, whichever comes earlier, provided that in the event of Force Majeure the period shall be extended by the period of Force Majeure but not exceeding (...) months. In the event of a dispute as to the fulfillment of the CON-TRACTOR's obligations and as to the entitlement for payment, the parties shall resort to Arbitra-tion.	The obligations of the CONTRACTOR shall be deemed to have been fulfilled, if for reason not attributa-ble to the CONTRACTOR the Guarantee Tests under Article...cannot be carr-ied out within /.../months from the Effective Date of the Contract, provided that in the event of Force Majeure the period shall be extended by the period of Force Majeure but not exceeding /.../months. In the event of a dispute as to the fulfillment of the CONTRACTOR's obliga-tions and as to the entit-lement for payment, the par-ties shall resort to Arbitration.

In the event the performance Guarantee Tests cannot be made within the period stipulated in Article... above, the CONTRACTOR shall be obligated to send personnel to Site to assist in Starting-Up and testing the Plant, provided, however, that the PURCHASER shall pay additional fees and travel expenses for this service as may be Agreed between the PURCHASER and CONTRACTOR.

Demonstration of Performance Guarantees

In order to illustrate performance test guarantees, the following text on ammonia/urea turn-key delivery is reproduced[84] .

1. The Guarantee for the consumption of raw materials and Utilities shall be demonstrated in Guarantee Tests to be run in accordance with Article .... of the Contract for the Ammonia Plant, Article .... for the Urea Plant and Article .... for the power station.

2. The CONTRACTOR shall give at least 30 Days notice to the PURCHASER in writing, of his intention to run any guarantee tests. If such test has to be repeated for faults due to the CONTRACTOR, 15 Days notice shall be given to the PURCHASER unless otherwise agreed between CONTRACTOR and PURCHASER.

3. The Performance Guarantee Tests of the Plants shall be run under the direction and supervision of the CONTRAATOR's personnel but all measurements will be taken jointly by the PURCHASER and the CONTRACTOR and in the event

of any dispute relating only to the correctness, sufficiency and/or adequacy of the tests and/or in the manner in which the tests were conducted, the provisions of Article .... of the Contract shall apply.

3.1. The first 20 Day test of Ammonia and/or Urea Plant shall commence within 90 Days from the initial operation of the Plant(s), provided that the PURCHASER fulfills his obligations for the supply of feedstock etc. under Article ... Subject to the provisions of clause 3.2 below, this 90 Day period shall be extended if the Plant(s) is (are) unable to operate normally and in the event of failure of this test the CONTRACTOR shall be permitted not more than 2 other tests to be run within 6 months immediately thereafter (subject however to the provisions of Article .... of the Contract 95/ .

3.2. If, for reasons ascribable to mistake(s) and/or error(s) in process and/or detailed engineering or for any other reasons related to the work and services provided or performed by the CONTRACTOR, and/or mistake(s) and error(s) in the contractual specifications and instructions, the CONTRACTOR is not able to perform the test(s) within the period(s) stated in clause 3.1 above, the provisions of clause 7 below shall apply.

3.3. The CONTRACTOR shall have the right to have the Plant(s) operated in accordance with his requirements at its own risk during the period permitted to the CONTRACTOR to perform the test(s) and the PURCHASER's personnel shall work under the directions and technical instructions of the CONTRACTOR. The PURCHASER shall have the right to operate the Plant(s) as and when such operation shall not interfere with the CONTRACTOR's work.

4. The guarantee test periods for the Ammonia and Urea Plants shall, in each case, be a (20) Day sustained continuous test at (9%) capacity followed immediately by a (10) Day test at 100% capacity.

4.1. During the operations of the Urea Plant under Article 26.4.2.2., the ammonia in the ammonia storage at the beginning and end of the test shall not be depleted.

4.2. The production of ammonia shall be measured by method of measurement of ammonia should be given 86/ .

4.3. The production of urea shall be measured by the use of the integrating on-line recorders on the conveyor for the (20) Day test period, but shall be measured by isolating, packing and weighting the actual daily production of urea during the (10) Day 100% capacity test period.

4.4. The measurment of the quantities of all inputs and outputs (other than ammonia and urea) which are to be measured in accordance with Annexure XXX shall be discussed and agreed to in the meeting contemplated under Article 6.9 and appropriate instruments specified.

5. During the 10-Day guarantee test for the Urea Plant under Article .... (unless otherwise agreed) the Ammonia and

Urea Plant shall be run simultaneously for a consecutive (7) days to prove the adequacy of the Off-Sites, Utilities and carbon dioxide, in accordance with Article .... of the Contract.

5.1. The adequacy of the Off-Sites, Utilities and carbon dioxide shall only be considered as demonstrated if the Urea Plant operates at 100% capacity, or if the Urea Plant operates at 95% capacity and the agreed liquidated damages are paid by the CONTRACTOR.

6. The power plant shall be operated at 100% capcity for (7) consecutive Days to prove the guarantees for power and steam production, and the guarantee for fuel consumption.

6.1. The electrical production shall be measured by aggregating the watt-hour meters over a period of 168 hours. The guarantee test shall be considered to be complete if the power plant averages (....) kwh/hr during this period.

6.2. The method of measuring the steam shall be discussed at the meeting contemplated under Article 6.8 and appropriate instruments provided.

7. Detailed procedures for all the tests including the calibration of instruments shall be agreed upon by the CONTRACTOR and PURCHASER at least 3 months before the commencement of the first test, in accordance with Article 26.4.5.2. of the Contract.

8. In all cases CONTRACTOR shall supply the necessary

instruments. Instrument tolerances for the measurement of different consumptions shall be agreed for the following:

Natural Gas Flow Meter :

Other Gas Meters :

Steam Meters :

Power Meters :

Cold Water Meters :

Hot Water and Condensate Meters :

Temperature Recorders :

Ammonia Measurement System :

at the first design meeting contemplated under Article 6.5 of the Contract, except where already specified above.

9. Samples of ammonia and urea shall be withdrawn jointly at least twice in each 8 hours and sent for analysis. The results shall be averaged over a 24-hour period and each such result shall meet the product specifications contained in Annexure ....

10. The maximum period in which the CONTRACTOR shall be allowed to run his tests shall be 18 months after initial operation of the Plant, or 52 months after Effective Date, whichever is earlier, extended by such time as is required to replace equipment, after which the provisions of Article .... will apply. (Subject to his paying the Liquidated Damages, if any, in accordance with Article ....

10.1. In the event that the CONTRACTOR does not complete or is unable to complete any or all of the

Performance Tests and Guarantees of the Plant(s) for reasons attributable to the CONTRACTOR within the 9 months after initial operation of the Plant(s), the PURCHASER shall in addition to the remedies under the Contract have the right to stop all payments due to the CONTRACTOR and the CONTRACTOR shall be required to undertake the work specified under Article .... if any, without delay and the validity of his Bank Guarantee shall be extended.

LEGAL TITLE AND INFRINGEMENTS

This section of guarantees deals with the proprietary rights to the technology and necessary assurances as to legal right to use it by the recipient.

This guarantee will therefore include not only question of legal rights but also infringements (both third party rights and by third party) and possible remedies and compensations.

In view of importance of such provision particularly in case when patents are involved the following examples of illustrative provisions are provided:

(a) warranty by supplier against infringements,

(b) warranty as to patent or patent application,

(c) warranty as to no subsisting and further licences,

(d) infringement: notice and defence,

(e) reduction in royalties on account of competition from infringer,

(f) reduction in Royalties on account of infringement of patent rights,

(g) infringement: indemnity by the licencor,

(h) infringement: option to eliminate;

<u>Warranty by Licencor Against Infringement</u>

The Licencor warrants that, to the best of the

Licensor's knowledge, the (Product to be manufactured) (Process to be applied) under this Agreement does not infringe (any) (specified country) patents in force on the date of the execution of this Agreement.

Warranty as to Patent or Patent Applications

The Licensor warrants, as to the (applications for the) patents listed in Schedule No. ......, that :

(i) the invention has not, to its knowledge, been published or used except experimentally prior to the date of the (specified country) application and is fully described in the said patent application of which particulars are given in Schedule No. ......;

(ii) (the Licensor is the true and first inventor of the invention) (there are no lawful grounds of objection to the grant of the patents to the Licensor so far as it is aware);

(iii) the Licensor has not, nor to its knowledge has any other person, done or omitted any act whereby the right to obtain the patents and the conditions or circumstances affecting the validity of the grant of any patents is or will be impaired;

(iv) the Licensor has not prior to the date of this License assigned or charged or agreed to assign or charge the said patent (applications) or any right relating thereto or relating to the invention that is the subject-matter of such patent (applications).

Warranty as to no Subsisting and Further Licenses

The Licensor warrants that other than the license granted on (date) to (persons specified) there are no subsisting licenses under the Patents in respect of (specified country), that no further licenses will be granted to any other person in respect of (specified territory), and that no commitments have been made to grant any additional licenses, in respect of the said territories.

Infringement : Notice and Defense

(a) The Licensee shall promptly advise the Licensor in writing of any notice or claim of infringement and of the commencement of any suit or action for infringement of any patent against the Licensee which is based upon the use of any invention that is the subject of the patent(s) or of any patent of an Improvement granted to the Licensor and which is used by the Licensee under the authority and in accordance with the terms of this Agreement.

(b) The Licensor shall, upon receipt of such notice and if promptly requested in writing so to do, undertake at the Licensor's own expense the defense of any such suit or action. The Licensor shall have sole charge and direction of the defense of any such suit or action and the Licensee shall have he right to be represented therein by advisory counsel of its own selection at its own expense. The Licensee agrees to cooperate fully in the defense of any such suit or action and to furnish all evidence in its control.

(c) In the event the Licensee undertakes its own defense of any such suit or action against it, the Licensor shall nevertheless bear the expenses of, and fully cooperate in, such defense and shall have the right to be represented therein by advisory counsel of its own selection and at its own expense.

(d) Neither the Licensor nor the Licensee shall settle or compromise any such suit or action without the consent of the other if the settlement or compromise obliges the other to make any payment or part with any property or assume any obligation or grant any license or oher rights or be subject to any injunction by reason of such settlement of compromise.

(e) The Licensor will release, acquit and discharge the Licensee from any and all claims or liabilities for infringement or alleged infringement of the Patents prior to the date of validation by the Government Authorities of (country of the Licensee) of this Agreement.

Reduction in Royalties on Account of Competition from Infringer.

Payment of royalties as from the commencement of any such infringment shall continue so long as the Licensee is able to sell the products without reduction in price. In the event that reductions in price are necessary to meet the competition of the infringer and a significant reduction in volume of sales occurs, royalty payments shall be reduced to an extent commensurate with the adjustments necessary on account of said infringement, and in the event of a failure to agree on what is fair and reasonable the matter shall be referred to an independent expert appointed by agreement between the parties, or failing agreement the matter shall be deemed a dispute within the meaning of Article ... (see note....), (infra) of this Agreement.

Reduction in Royalties on Account of Infringement of Patent Rights

If the Licensee or any of its sub-licensees is required, after consultation with the Licensor, to pay royalties to a third person (persons) on the Product for the reason that the Lecensee's activities under this Agreement infringe the said third person's (persons') patent rights, the royalties payable from the licensee to the Licensor shall be reduced by the amount of the royalties payabe to the said third person (persons).

Infringement : Indemnity by the Licensor

(a) In the event that the Licensee shall have requested the Licensor to undertake the defense of any such patent infringement suit or action as referred to in Article ... (see note ...) , (supra), the Licensor will hold it free and harmless from any damages or other sums that may be assessed in or become payable under any final decree or final judgement by any court in said suit or action instituted against the Licensee t. he extent said decree or judgement is based upon the infringing use by the Licensee hereunder, during the term of this Agreement, of any invention that is the subject of the Patent(s) or of any patent of an Improvement made or acquired by the Licensor and which was used by the licensee under the authority and in accordance with the terms of this Agreement, or resulting from, or arising in connection with, the manufacture, sale or use of any tool, machinery, equipment, material or process furnished by the Licensor and employed by the Licensee hereunder, or from the performance of any work hereunder, if notified, in detail, promptly in writing of such claim or suit (and given authority to defend the same).

(b) The Licensor shall not be liable for any such infringement in any instance where the particular tool, machinery, equipment, material or process which is the subject of the claim or suit was specif.ed by the Licensee. In such event, the Licensee shall indemnify the Licensor and hold it harmless in the same manner and subject to the same provisions as the Licensor is required to defend the Licensee hereunder unless the Licensor, having been consulted by the Licensee, did not advise the Licensee against such specification or the Licensor though not consulted, had a reasonable opportunity to advise the Licensee on such specification and failed to do so.

Infringement : Option to Eliminate

In the event of any notice or claim of infringement as referred to in Article ... (see note ...), (supra), or in the event that the Licensor shall become obligated to make any payment to the Licensee pursuant to Article ... (see note 94), (supra), the Licensor shall have the right, at its sole option, to eliminate the alleged or adjudicated infringement by, at the Licensor's own expense, (a) procuring for the Licensee an appropriate license or (b) making such changes in the Licensed Plant, subject to suit, as the Licensor shall deem derivable to avoid such infringement, provided however, that such changes shall not impair the operation of the Licenced Plant.

C H A P T E R VII

MONITORING OF PROJECT IMPLEMENTATION WITH SPECIAL REFERENCE TO GUARANTEE / WARRANTY PROVISIONS AND THEIR ENFORCEMENT BY THE SUPPLIER AND RECIPIENT OF TECHNOLOGY 87/

In this chapter it will be examined project monitoring by concentrating of the deliberations on the hypothetical case of highly complex, high technology process license complete with guarantees from which results a large construction project. This is for the reason that if a complex project for a large plant can be monitored by the recipient of technology in developing country, a more simple project will be relatively easy to handle. The process industry is selected since, as we have seen performance guarantees are much more common and are more critical relative to the production of products from such processes as those used to produce chemicals, pharmaceuticals, fertilizers, synthetic fibers, plastics and products made through fermentation (these examplify the "process" industry).

The monitoring of a project by a recipient of technology in developing country is about the same as monitoring by a multinational corporation licensee. It will include the gathering of records, the taking of photographs, observing the actions of the contractor and his sub-contractors as well as of the licensor, visiting equipment suppliers in order to expedite and check on progress, collecting documents from various sources, attending meetings, visually inspecting the project, and keeping a "diary". All of these are important at all stages. That is after the license is signed, the project moves in turn through the process design phase, mechanical design, shop construction of elements or parts, field erection or construction, initial testing, catalyst loading, and start-up.

COLLECTION OF EVIDENCE AND DOCUMENTATION

During all of these phases, the recipient of technology in developing country will want to take many photographs, keep a record of, and check on, the actions of the licensor and the various contractors involved during implementation of the project. What is being checked not only is whether the guarantees will be met, but also what evidence can be preserved (just in case it is needed later) and whether or not implementation is complete in a technical sense. After the plant is commissioned, it will be too late to try to recall diary entries, to start collecting documents, and to begin taking progress photographs. These tasks must be accomplished day by day as the project unfolds. Thus, a very methodical person and one who can be on the job everyday should be put in charge of monitoring.

To understand the process more fully, let us first examine the licensed construction process through the eyes of the licensor. The typical licensor begins his follow-thorugh with complete implementation of the agreement promptly after the agreement itself is signed. The following is a rough "check-list" of licensor tasks. He will provide to the recipient of technology or to the approved contractor for the licensee either a complete process design or the basic process data. He will also provide technical information concerning all the equipment which is essential to the successful operation of the process. Where the licensor does not prepare the complete process design himself, he will help prepare or will consult with the contractor on the preparation of the basic design covering the plant to be constructed. He may review and comment on the design as the contractor proceeds. Going into detailed engineering (and note that the process design and detailed engineering may be done by different firms), he will be available for consultation and will assist the contractor. He will also prepare or will have prepared or will help the licensee prepare an operating manual. He also likely will provide a specified amount and type of training for the operating personnel of the licensee. And, lastly the licensor will provide start-up assistance. All of these are illustrated in a typical illustrative "technology disclosure" section of a complex process license.

Here we quote:

"ARTICLE 3. TECHNICAL DISCLOSURE

3.01. LICENSOR hereby agrees to make available to LICENSEE for its operations hereunder all transferable technical information respecting the Licensed process now possessed by LICENSOR and Affiliates of LICENSOR prior to ...., 198..... LICENSOR further agrees at LICENSEE's request (and at LICENSEE's expense) to provide to LICENSEE, for its operations hereunder, transferable technical information respecting the Licensed Process so possessed or hereafter so acquired by LICENSOR adequate in scope to enable LICENSEE to construct or have constructed Said Plant and to produce and recover therein .... in conformance with quality specifications set out in Section 9.01.

(b) of ARTICLE 9 of this Agreement. The technical information so provided shall include (without being limited thereto) to the following.

(a) a complete process design for Said Plant at the initial designed capacity based upon raw material specifications, yield, product quantities, product specifications and utility characteristics to be agreed upon by LICENSOR and LICENSEE as the design criteria, said process design to include, without being limited to, feed specifications, complete material balance, heat balance, materials of construction, instrumentation outline, and information related to the storage and handling of ....;

(b) process specification sheets for all major equipment items, and equipment summaries for pumps, vessels, tanks and vacuum systems;

(c) written reports specific to Said Plant at the initial designed capacity in sufficient detail to use in operation of Said Plant;

(i) description of plant design;

(ii) reference material adequate for the preparation by LICENSEE of an operating manual, including technical information and detailed instructions appropriate for operation of the Licensed Process in Said Plant;

(d) test procedures and instructions for determining feedstock compositions, stream compositions, flow rates, product purity and percentage yield.

3.02. LICENSOR hereby grants to LICENSEE a non-exclusive right to use the information disclosed to LICENSEE pursuant to this ARTICLE 3 for the practice of the Licensed Process in Said Plant, and the further right to disclose on a confidential basis such information to LICENSEE's selected engineering contractor and/or construction contractor (which selections shall be subject to LICENSOR's approval in writing, and such approval shall not be unreasonably withheld), for design and construction of Said Plant.

3.03. When and as requested by LICENSEE, LICENSOR shall provide one (1) or more process engineers to work in the offices of LICENSEE's selected engineering contractor and its selected construction contractor in an advisory capacity to assist the selected contractors in conforming the detailed mechanical design of Said Plant to the process requirements thereof. Such process engineer services shall not, without the consent of LICENSOR , exceed two (2) engineers at any one time and shall be available for a total of up to twenty-eight (28) working man-days without additional cost to LICENSEE. If such services are reasonably required for a longer period than equivalent to the twenty-eight (28) working man-days, LICENSOR agrees to make such services available for such longer period. LINCENSEE shall reimburse LICENSOR for all necessary travel and reasonable living expenses of such engineers incurred by LICENSOR subsequent to the expiry of said twenty-eight (28) working man-days, plus a fee of .... Dollars ($......) for each working man-day of such servicer provided in excess of said twenty-eight (28) man-days.

3.04. When and as requested by LICENSEE, LICENSOR shall provide sufficient process engineers at the site of Said Plant to inspect Said Plant when construction has been completed to the degree feasible therefor, to assist in an advisory capacity in the start-up of Said Plant, and in such capacity to instruct LICENSEE's personnel in the operation of Said Plant. Engineers provided for these purposes shall not exceed five (5) engineers at any one time except with the consent of LICENSOR, and shall be made availale to LICENSOR for a total of up to eighty (80) working man-days without additional cost to LICENSEE. If such services are required for a longer period than equivalent to eighty (80) working man-days, then LICENSEE shall reimburse LICENSOR for all necessary travel and reasonable living expenses of such engineers incurred by LICNESOR subsequent to the expiry of said eighty (80) working man-days, plus a fee of .... Dollars ($......) for each working man-day of such services provided in excell of said eighty (80) working man-days.

3.05. As the contractor's designs, drawings and specifications of Said Plant (including revisions of those previously available) become available, they shall be reviewed by LICENSOR from the standpoint of suitability of the contractor's design of the physical plant to the Licensed Process and any comments or requests or suggestions for change shall be provided by LICENSOR to LICENSEE. If changes are suggested or requested, LICENSOR shall at that time inform LICENSEE of the effect, if any, or failure to make such changes including the effect upon LICENSOR's guarantees. If changes are not requested by LICENSOR, LICENSOR shall be deemed to have given final approval and all of LICENSOR's approval shall not be unreasonably withheld. LICESNOR shall not be obligated to recalculate, review, comment upon, or approve mechanical features not affecting process operability (such as, among others, piping layout and pipe sizing, wall thickness of columns and vessels, internals of heat exchangers, thickness and quality of thermal insulation, efficiencies of pumps and other power converting units) but may provide comments thereon that arise out of LICENSOR's review of the contractor's drawings. LICENSOR shall use reasonable efforts to expedite review and approval, so as not to delay the progress of the work".

Note from the above example that which the Licensor is to provide to the recipient of technology in developing country.

Most important of all, this includes "a complete process design". If this process design is followed closely by the contractor for the licensee, it is to be expected that all the guarantees will be met.

COMPLETENESS, INSTITUTIONS OF PROCEDURES

The licensor also will provide process specification sheets for all major equipment items. The licensee and/or his contractor can use these to order important items of equipment. The licensor also will provide written reports sufficient for the licensee or recipient of technology to prepare an operating manual. Test procedures, to be used in determining if the guarantees have been met, will be provided and they should be checked by the licensor. In order to be sure that he has received all material which is due, the recipient of technology should compile an expanded check list from the license agreement itself. He then should make sure that his engineers each have a copy of and understand the check-list. In case of questions, the engineers should be instructed they should not hesitate to ask their counterparts in the licensor firm.

In 3.03, the licensor has agreed to assign some of his process engineers to work with the licensee and the licensee's contractor. The first two such engineers are provided for up to a total of 28 days at no added charge to the licensee, but any further help will usually cost a per diem fee plus expenses.

The licensee, in monitoring the project, will want to provide one of his own process engineers (or a consultant engineer or an engineer specially designated from the staff of the contractor). The function of both process engineers, of course, is to make sure that the detail mechanical engineering follows the process design for, if it does, the guarantees are more likely to be met. In the example quoted in 3.03 above, the 28 day time period probably is too short unless, by chance, the regular office of the licensor's process engineer is near to the office of the contractor so assignments can be in terms of say, two or three days at a time instead of for entire weeks. If not, 28 days is only a little over 5 weeks of working time and this may be too little to complete the mechanicals.

Note also that the licensor has agreed in 3.04 to provide sufficient of his own process engineers to inspect the plant when construction has been completed and to assist in the start-up as well as instruct the licensee's personnel.

The fact that the licensor has foreseen the necessity to provide such engineers should cause the developing country licensee to provide a similar group of engineers for monitoring purposes.

In 3.05, the licensor has agreed that as the contractor's designs, drawings and specifications become available they will be reviewed by the licensor. Here again, the licensee should be alert and have his own engineers review the drawings, ask questions of the licensor, and question the contractor when appropriate. If changes are suggested, note that the licensor will inform the licensee of the effect such changes will have upon the guarantees. Once again, the licensee should be alert to monitor all that occurs and to ask questions concerning these matters as they arise.

One of the most helpful monitoring devices for the recipient of technology in developing country to have available in the event that some enforcement of the guarantees becomes necessary, is a design and construction diary. It should be the duty of at least one of the licensee's engineers to keep such a day by day progress diary. This can be supplemented by progress reports issued to the licensee by the contractor.

The same person who keeps the diary (or a separate person) also can take photographs, in equipment manufacturing firms, in shop erection areas, and in field erection areas. It is better to take too many photographs and to keep too many notes for the diary then too few, for the simple reason that it is never possible to forecast ahead what will be needed in order to prove to a court or arbitrator that the guarantees were not met (and the possible reason therefor).

A variation of a diary which some firms prefer can be a letter issued once a week to top management. This letter is printed and copies are sent to all concerned with the project as construction progresses. In such a letter, the project leader will summarize (somewhat in a diary fashion) what progress was made each day of the past week. He also will forecast what he hopes to see accomplished during the upcoming week. This usually will be supplemented with meetings. The alert licensee and his project team should be required to report either once a month or once a quarter to top management. Using graphs, charts and a blackboard, they will explain the progress that has been made and the then current status of their monitoring activities. It is not too much to request that if such reporting sessions are utilized, the papers and slides as well as photographs of blackboards be kept in the primary diary file for this purpose. They may some day become valuable evidence.

In connection with the diary kept by the licensee (or his site engineer) it is advised to keep paralelly so called master file in which the full correspondence will be kept, registering both significant and insignificant occurances during the project implementation.

This master file should begin with evidence and documentation covering the period when project was contemplated throughout its implementation and completion including post completion warranty period.

Such file thus may cover the period up to 10 years and it is even more important that such file is kept as people involved may move or simply die.

Master file will however remain and provide documentary evidence as to intentions, actions and results of the work of the parties and persons involved in the project conceival and implementation.

Another important precaution - usually reflected in the master file - should be taken in connection with various different meetings which took place in various stages of project planning and implementations.

Detailed records from all such meetings should always be prepared and kept in the master file.

The same will apply to recording of the design conferences which purpose usually is to:

1. Follow - on a regular basis - progress of the project implementations;

2. Collect evidence for enforcing timely deliveries and enforcing of the guarantees;

In connection with project diary, one is strongly advised to keep so called design and construction diary and daily progress diary.

All three diaries may be kept separately, or jointly with relevant subsections.

To illustrate the importance of keeping of such diaries, let us quote an example where the supplier -

contracted for a construction of a major hotel in one country - runs into substantial delays on account of delayed provision of cement and other construction materials to be provided by a local investor.

The supplier kept meticulous diary of all such late deliveries and when local investor went to court suing him for not meeting schedule for delivery, evidence contained in such diary was sufficient to win the case.

ORGANIZATION OF PROJECT PROGRESS MONITORING

In order to organize for project monitoring, the recipient of technology will want first to consider in what areas his particular guarantees may not be met. For example, if the rate of consumption of raw materials in the process is important and if it has been guaranteed, the licensee will want to document both the raw material composition and, of course, to meter the rate of consumption during the test run. Records of these matters should be kept. If one of the most important guarantees relates to total production, the failure to meet this guarantee probably will be due to an improper design or an inadvertant bottle neck in the process or equipment. This should be anticipated and sufficient documentation collected to be able to produce evidence as to the defects at the bottle neck point. Likewise, if a particular critical piece of equipment in the plant must be made locally due to governmental conditions and the licensor is not familiar with the local purchaser, the alert licensee would be well advised to monitor the production of the critical items so as later to have evidence available if, in fact, that item causes a failure to meet guarantees. In short, detection and measurement of deficient performance under the guarantees is a critical item to the recipient of technology in developing country. This means that he should plan ahead for an adequate monitoring of the project.

The first step toward monitoring the project is to form a licensee team. On a major project, such a team will have as its leader an experienced plant construction engineer. Under him will be several process and mechanical engineers, accountants, photographers, and office personnel. In addition the licensing executive and the lawyers and patent agents will help the monitoring team part time. Many large firms, as an initial step, will hold a two or three day seminar for the team. This initial seminar will be led at first by the licensing executive and the lawyers. It will be their job to acquaint the team members with the license provisions which are to be monitored (including, of course, the guarantee provisions). At such a seminar, monitoring type duties will be assigned to individuals. It is recommended, as well, that a letter be issued so as to put in writing the duties and the guarantee provisions. Among the more important monitoring jobs are those which collect documentation and evidence as construction progresses. Files need to be set up in orderly manner so as to store the documentation gathered. Photographs will be taken daily, as construction progresses and as equipment is delivered to the site. These will need to be identified on the back and stored in an orderly manner. The diary, which is kept so as to be able to recall later exactly which date particular events took place, should be explained to all members of the team. The engineers in particular should be instructed to keep adequate records of their activities during the monitoring period. Still photographs can be taken by all parties and the results pooled. For example, photographs can be taken by expeditors at each of the equipment vendors locations and these kept in the files where photographs of the plant site (while under construction) are kept. In some events, motion pictures will be more helpful, i.e., during the loading of catalyst, frequent motion pictures of the manner in which the catalyst is loaded may be crucial to a given performance guarantee at a later point in time. If no proper motion picture equipment is available, a series of still photo may do almost as well.

One of the most crucial factors in project monitoring is the ability to mesure and/or thus to detect deficiencies. Conventionally, the license agreement itself will provide in detail for particular test procedures. These should be agreed to by technical representatives of both the licensor and licensee so there is agreement that the procedures to be used are the best and most accurate. A counter function of monitoring is to see to it that the tests have been carried out adequately and properly. To this end, the engineers for the licensee will want to be assured that the test implementation and laboratory set-up the licensor utilizes is accurate and will give the proper results. Similarly, if the licensee's laboratory is to be used, the licensor will want to be satisfied that all of the equipment and test instruments function properly. In somewhat rare cases, the licensor and the licensee will provide for a neutral outside party to do the testing and give the results to both the licensor and the licensee. This, however, can be expensive and is not the norm with modern licensing practices.

Yet another consideration related to monitoring activities is the issue of training the local staff, both in terms of its progress and in terms of strengthening of the performance of relevant guarantees.

It is advised that the local investor provides for careful selection of candidates who will undergo proper training both at the plant of the licensor as well as at the plant under construction.

Important consideration will be the selection of the skeleton crew for training which usually will consist of:

- would be plant manager;
- four operating shift leaders;
- analysts;
- maintenance chief;

- electronics/instruments staff;
- product handling staff ;

Sometimes it is advisable to include sales staff and product development staff depending on the nature of products, the given plant is going to produce.

The training at licencor's plants should - to the extend possible - be carried at identical installation - as only in such plant training will be of the greatest effectiveness.

CERTIFICATION AND COMPLETION PROCEDURES

The same team set up the recipient of the technology to monitor the project progress will supervise and participate in certification and completion procedures.

These will usually - in complex deliveries - include:

- inspection of the equipment;
- mechanical completion (electrical, electronic, gas and water);
- dry runs, wet runs, process runs;
- ready for operation;
- start-up;
- operation period and
- performance test runs.

Selected persons by the licensee - engineers usually - will carry out inspection of the equipment as it arrives to the site. They will check not only conformity with the contractual specification but also the state in which the equipment arrived to the site. Protocols from such inspections are usually signed by the contractor or licensor and the licencee, except in cases when licensee purchases the equipment directly.

Copies of inspection protocols of each piece of the equipment are usually put into the file of the project; in case of damage to the equipment, error in the supply etc., replacements are ordered on the basis of such protocols.

Once the equipment arrived on site, has been erected and installed in pieces or larger units the phase of so called mechanical completion will begin.

In this phase representatives of the contractor/licencor and the recipient of technology - or authorized by him consultant - will check the electrical, electronic, gas and water completions.

It is usually agreed before hand the mode of checking various elements of mechanical completions, which should testify that the plant has been installed.

Each part of the completion procedure is checked and tested separately, sometimes combined with dry runs (without the feedstock). After each of the parts of the completion procedure separate or protocol is signed by all parties concerned.

The protocol specifies the checking done and its results and indicates change that will need to be done or replacements ordered. After all checking is effected, of technology that the guarantees - at least process guarantees - have been met, and therefore he can accept and take over the plant.

The performance test runs are carried according to preaveraged in the contract schedule, by the personnel of the recipient and under supervision of the licencor's engineering company personnel.

The performance tests will check all performance guarantee, like consumption of utilities and raw material, consumption of the catalyst, quality of the product, plant capacity, etc.

After completion of each of the test runs, special protocol is prepared with details of each of test runs on a basis of which the so-called provisional acceptance certificate is issued by the recipient of the technology.

In case some or all of test runs will fail, the licencor usually will have the right to repeat such tests after rectifiction, at his cost.

Conditions of carrying and repeating test runs are usually specified in the agreement, as well as minimum parameters under which the recipient of technology will issue the provisional acceptance certififcte and take-over the plant.

It should be stressed that the procedure of mechanical completion, trial runs, performance certificate is typical for turn-key or semi-turn-key agreements. In case of supply of process licence, only some of those activities are carried out by the recipient of technology and the licensor.

In respect to equipment, it is common to request and receive a one year guarantee period, within which the supplier will exchange faulty pieces of the equipment.

Usually at the end of said period, the licence will issue the final plant acceptance certificate, followed usually by the last payment to the contractor or licensor.

Within the period between issuance of provisional and final acceptance certificate, the licencee may claim rectification of hidden effects, run as impurities which may block pipelines, etc.

However, for example Swiss law establishes 5 years overall limit for hidden defects, with one year time for notification.

Such elements may eventually be introduced to the agreements.

As mentioned earlier the mechanical completion, performance test runs, provisional and final acceptance certificates, all are important benchmarks of the supplier performance, related directly to major payments under the contract.

Not fulfillment of those benchmarks may lead to either delay of payments, or their substantial reductions.

It is therefore of utmost importance to link payments to performance in any technology agreement.

Simultaneously one however should stress that such performance will not be the same in different types of technology agreements.

C H A P T E R VIII

MEASURES AND ALTERNATIVES TO ASSURE A SUCCESSFUL PERFORMANCE

There is no doubt that the warranty and guarantee provisions were developed and incorporated in a variety of technological agreements with the explicite purpose to assure:

(a) successful performance,

(b) provision of necessary remedies,

(c) establish "pressure" on parties to perform under penalties schedule;

It should however be mentioned that guarantee provisions are not the only measures which may assure successful performance of a given contract. Most of these measures have been sufficiently covered in the present Guide and specifically in Chapters III (Formulation of Objectives by Technology Recipients and Supplier), IV (Criteria for Establishing the Scope of Guarantees in Technology Agreements), V (Role of Suppliers and Recipients of Technology in Preparatory Stage of Formulation of Guarantees and Warranties) and in Chapter VII (Monitoring of Project Implementation with Special Reference to Guarantee/Warrantee Provisions and their Enforcement by the Supplier and Recipient of Technology).

Yet there are additional steps which may be considered by the recipient of technology in order to assure the project success.

One of the more obvious steps to be taken is the search for experienced and proven supplier of technology who may have eventually experience in some developing country. By the choice of supplier, one dramatically increases its chances for successful performance of the project. Another, not yet fully discussed, step to be taken is the linkage of payments to the actual delivery/performance of the supplier of technology.

This measure is relatively simple and often used and provides the recipient of technology with extremely effective tool of control over the performance of the supplier. The hypothetical cases of such linkage are provided for illustrative purposes:

Case I Supply of Technology - straight licencing agreement.

In this case the recipient is acquiring a process licence to improve the performance of the technology so far used (reduction of the raw materials consumptions and increased existing output are main feature of this technology). The agreed terms provide for a down payment of 500.000 $ plus royalty a 3% of net selling price of the final product.

The traditional - conservative approach will call for the following payment/performance schedule:

1. payment of 500.000 $ by the recipient;

2. delivery of the documentation by the supplier;

3. introduction of technological changes by the supplier;

4. performance test runs;

5. start-up and production;

6. royalty of 3% from the sales of the product;

The linkages between the payment and performance will enable the recipient of technology to control the performance of the supplier in the following manner:

1. 100.000 $ down payment by the recipient;

2. supply of complete documentation by the supplier;

3. 100.000 $payment by the recipient;

4. introduction of technological changes by the supplier;

5. 100.000 $ payment by the recipient;

6. performance tests by the supplier;

7. 150.000 $ payment by the recipient (if tests are successful only);

8. period for discovery of hidden effects - running 3% royalty paid by the recipient;

9. 50.000 $ paid by the recipient at the end of hidden defects period;

10. running 3% royalty paid by the recipient.

This simple case provides very realistic description of the situation in which the recipient of the technology, way of schedule of payments, controls quality and timing of performance by the supplier.

It should be remembered that linkages as above combine two elements:

1. performance of clearly specified tasks by the supplier

2. time of performance of the tasks by the supplier

Case II. Supply of the turn-key plant of the total value of 10.000.000 $

This is a more complex case yet, also here the linkage between performance of the supplier/contractor and the payments by the recipient of technology can be very clearly established.

The schedule may for example look as follows:

1. downpayment upon signature of the contract: 500.000 $

2. provision of basic engineering

3. payment of second instalment of 500.000 $

4. provision of specification of equipment

5. opening of the revolving credit line by the recipient for procurement of the equipment up to 4.000.000 $

6. provision of detailed engineering

7. payment of third instalment of 500.000 $

8. mechanical completion of the plant

9. payment of the fourth instalment of 1.500.000 $

10. carrying of the performance tests

11. signature of provisional acceptance certificate by the recipient

12. payment of the fifth instalment of 2.000.000 $

13. period for hidden effects

14. rectification of hidden effects by the supplier

15. signature of final acceptance certificate of the plant by the recipient

16. final payment of 1.000.000 $ by the recipient.

There again it is clearly seen that only by explicit and direct linkage of payment to timely performance of specific tasks by the supplier, the recipient is in a position to control fully his performance. Naturally all measures described in prior chapters are to be taken by the recipient of technology to be in a position of performing this control effectively.

Another - linked directly to performance method which can be effectively used, is so called incentive performance system, that is introduction in the payment schedule premium for the supplier if he performs better than the minimum guarantees and time scheulde set in the contract.

Before such incentive schedule is introduced into the contract, the technology recipient should answer the following two basic questions:

1. what are my critical objectives (time of completion,

quality, volume, consumption, etc.)

2. what is the additional cost I am ready to incure in order to achieve my objectives.

Once careful analysis and answer to above issue is found, only than the recipient may introduce incentive performance scheme into contract.

If for example, the overriding factor will be completion time, than for each day the plant is in operation before agreed deadline, he will be ready to pay an extra bonus to the contractor. Similar bonuses may be built into specific performance guarantees.

Out of experience related to purchase of turn-key plants some countries developed and introduced the concept of the so-called "product at hand" agreement. The product at hand agreement is the turn-key supply agreement in which, after provisional plant acceptance, the supplier agrees to provide extended technical assistance and training for management of the plant [88].

In other words, the recipient received additional inputs from the supplier, effectively providing him with the final products, manufactured by the contracted plant.

It should be stressed, that the product at hand agreement, although provides the recipient guarantee as to the final production, yet in certain cases it may lead into unnecessary and long terms reliance (at cost) on the technical and managerial expertise and assistance of the supplier.

In certain instances, when the recipient of technology in developing country, has large manufacturing experience and certain R + D basis, he may attemp at purchasing of individual equipment instead of procuring both equipment and technology from the supplier. In this case one should not overlook the fact, that the technology is often very much embodied in the machinery and equipment. Therefore, experienced in his field potential recipient, may embark on successful design of technology on his own, on the basis of the available equipment and machinery and known to him its performance and characteristics.

This course of action although is most desirable for developing countries, yet at present, can be limited only to few countries, which possesses necessary manufacturing expertise and sufficient R + D base.

Another important measure of assuring successful performance - of the contractual nature - is securing of one among two documents, that is Performance Bank Guarantee or Peformance Bond.

Both documents - issued on request of the contractor - provide the investor with additional guarantee or security that the Contractor's contractual obligations will be fulfilled.

On the other hand, the investor may consider the possibility of taking of a special insurance to cover various risks related to acquisition of technology or complete plant. The insurance laws however are not yet fully developed in this respect and often on account of high risks involved, the premiums may be of preventing nature, thus adding considerably to the cost of the investment.

At the end of the Contractor it is however customary to request him - at his cost - to take the following insurances:

- Construction All Risks or Erection All Risks

- Loss of Advanced Profits Insurance (or Machinery Consequential Loss Insurance)

- Machinery Breakdown Policy

- Marine Insurance or Cargo Insurance Policy .

- Insurance Liability for Use of Automobiles, Trucks, etc.

- Liability Insurance for Payments Under Workmens Compensation Acts

- To the extend possible special insurance providing coverage for consequential losses;

In this connection one should mention the issue of recovery of damages by way of liquidated damages as described in detail in the following Chapter IX.

C H A P T E R IX

CORRECTIVE ACTION, REMEDIES, DAMAGE LIQUIDATION PROVISIONS, CONSEQUENTIAL LOSS PROVISIONS, PENALTY LIABILITIES AND BURDEN OF PROOF

The purpose of the corrective actions and remedies of various nature is the obligation of the supplier to rectify the defaults, usually at his own cost.

The usual situation in the case of process guarantees, will be the provision, which will allow the supplier to repeat guarantee tests usually for the second or even third time, if the previous ones were not satisfactory, i.e., the guaranteed results were not met.

While the consecutive tests failed, than usually number of the provisons foreseen in the contract will come into force, either in the form of the compensation or in the form of the penalties.

All those issues will be examined in this Chapter[89]

Burden of Proof

Before exploring the legal morass known as "burden of proof" (with regard to enforcing guarantee provisions in the technology transfer agreement), it is important to distinguish two concepts which often are confused. The first of these is "liquidated damages" and the second is a license provision which by agreement limits total recovery to an agreed maximum amount.

In fact, one can see in some cases of guarantee recovery that the maximum recovery in no event could exceed one-half the total royalties paid. A "liquidated damages" provision is different. It normally is enforced by most nations' courts only where the amount specified for the liquidated damages represents a reasonable compensation for the actual damage caused. And even then it usually must be shown that actual damages are difficult to calculate and, for this reason, the liquidated damages provision has been put in the license agreement. If a court finds that the amount set forth for liquidated damages is excessive, the license language providing for liquidated damages will be examined quite closely and often will be held unenforcable because it is a penalty.

By contrast, a provision which limits the liability of the licensor to a given maximum amount when the guarantees are not met does not purport to be realted to what is reasonable for actual damages. It merely is intended to limit by contract the licensor's liability. It necessarily is written as a fixed maximum because actual damages may be substantially in excess of the maximum. For example, if guarantees are not met and the plant is inoperative, actual damages may be as much as the total cost of the entire plant (if it cannot be repaired). A limitation in the agreement as to the maximum amount collectible of the guarantees thus are not met normally will be enforced by the court. Not so with "liquidated damages". If the court finds that there is no reasonable relationship between actual damages and the liquidated damages, the court will refuse to enforce it.

The incorrect use of the term "liquidated damages" can cause confusion later on as to what the licensor and the licensee had in mind when they signed the license agreement. It thus might lead a court or an arbiter at a later date to deny the enforceability of a provision which actually only was intended to limit liability to a maximum amount. By using criteria which are applicable to liquidated damages rather than to maximum liability the court thus will in effect have revised the license terms. The court even could reach a holding of total unenforceability because the provision does not represent a reasonable approximation of actual damages.

In the usual technology license situation and supply of plants, most arbiters and most courts will enforce the contractual provision limiting the maximum liability of the licensor to a specified amount. The language setting forth this provision, however, should be unequivocal and clear and it might be well to reinforce it by other provisions which make it clear that the parties intend the limitation to apply in all circumstances.

This is to preclude a court or arbiter later from constructing the provisions too narrowly. The alert licensor knows of this distinction and will put added safeguards in the license agreement. The recipient of technology, particularly in developing country should recognize that the above is the reason that particular language has been used in the guarantee section.

We now turn to a consideration of which party, the licensor or the licensee, has the burden of proof when a dispute arises as to whether or not the guarantees have been met.

While this can be a complex legal subject, dependent in some cases on the particular law of a country and thus variable from the country, in general the paty who initiates a claim is the party with the burden of proof. For example, if the licensee initiates a claim in court or by arbitration to the effect that the guarantees were not met by the licensor at the startup, it would be the licensee which had the burden of proof. That means that the licensee or investor would have to produce most of the evidence in order to convince the court or the arbiter of the validity of its case.

On the other hand, if the licensor believes that the warranties have been met properly, but some of the royalty payments are held back by the licensee because of the dispute, then when the licensor becomes the plaintiff or files the claim before the arbitration board or court it is the licensor which will have the burden of proof. In that case, it will be the licensor that will have to produce the most convincing evidence and to satisfy the tribunal.

Some types of claims appear at first inspection to be related to the guarantees within the license when in fact, they are not. For example, if a supplier of equipment to the project has been negligent thus causing the investor or licensee "purchaser" to incur a loss, such a supplier will be liable for damages. In chemical and plastic plants particualrly, very major cases can arise from poor workmanship. For example, a reactor which is improperly constructed and exploded either during static test or start-up or even at a much later date, say a year or so after start-up. Such explosions have been known to kill many people, demolish large and valuable buildings, and cause a great deal of associated loss. Claims in these cases can be very high. They do not, however, normally come under the guarantee provisions of the license. At the best, they will be covered in the purchase contracts which the equipment supplier and the licensee (or his contractor) will have executed.

When a recipient of technology in developing country suspects that a supplier has been guilty of negligence which results in a great loss to the licensee, even though the guarantee provisions do not apply an arbitration or a court case can be filed seeking remedy. However, these types of cases are much more difficult to prove than cases which arise under the guarantee provisions of the license agreement. This is for the reason that the guarantee provisions often are very precise, utilizing numbers and the like to set forth definite concepts, while supplier negligence and casual connection are very difficult proofs before a court or an arbiter. The best protection which the recipient of technology can have is to be assured that every purchase of equipment carries with it certain guarantees and has certain provisions for liquidated damages. These do not relate to the guarantees in the license agreement itself, however. The warranties are generally the descriptions of performances of the licensed object (process) e.g. specifications of product, consumption of raw materials or utilities, starting time of commercial operation of plant, mechanical warranties for equipment, consequential damages, etc. To determine who carries the damages for non-fulfillment of warranties, need shall be to establish the liabilities.

"Guaranty" and "warranty" are both terms used in license contracts to designate the undertaking of the licensor that the object of the license fulfills the promised specifications as defined in the beginning of the present Guide.

Definitions of Damages

If in a technology transfer deal the promised performance is failing to be achieved, the acquirer of such technology is in fact suffering damage. This damage can take on various forms going from minor inconvenience to loss of the enterpise, from trivial to most severe damage.

The scope of the damage liquidation provisions in the contract is to provide and agree - before a damage occurs - on the way of settling such damage. However, such clauses are often aleatory due to the difficulty to encompass all possibilities.

Not meeting the promised performance is due to definite causes such as failure of appreciation, insufficient care when performing the duties, sometimes force majeure. The consequences of such non-fulfillment result generally in economic effects. The delay in the time schedule for start-up of the plant - or as case may be for first commercial production - is an important failure to meet a promised performance. Therefore, such time should be well defined in the contract with the party responsible for the construction of the unit. It should, however, be remarked that start-up and test run - or as others call it performance test - do generally not coincide in time, the test run occurring later. The test run is the exercise during which the proof of fulfillment by the plant of the warranted performance is produced. Between start-up and performance test there is generally a period of time during which the plant is run in and the crew gains operating experience; however, during this time span, the plant under normal circumstances would already produce markecable goods.

It is general practice in case of failure of the performance test to allow for sufficient flexitility for the repetition of the test. To eliminate the cause and to cancel the effects of insufficient performance generally means extra spendings which one can define globally as "damage". For the purpose of the Guide we shall also call the expenditures to alleviate the causes "direct damages" and those to compensate the economic effects of not meeting the guaranteed performance "consequential damages'.

Direct Damages .

The following is the review of the most important reasons of occurance of direct damages:

- faulty manufacturing process;
- faulty engineering;
- wrong assumption on which process is chosen and engineering is based;
- faulty raw materials, specification and quality wise;
- faulty utilities;
- faulty manipulation of plant.

The immediate main consequence of such faults are:

- delay in start-up of plant;
- insufficient quality of product;

- too small capacity;

- too large consumption of raw materials and utilities.

What can be done to find relief ? Remedies would be:

- additional research and development;

- rectification of engineering and construction work;

- modification or replacement of equipment;

- change in raw materials and utilites;

The cost of the measures required to relieve the above named damages are relatively easy to calculate "post festum" and need not to be discussed in detail: it is a simple addition of work and material cost.

Consequential Damages

It was defined as "consequential damages" those damages which are the efects due to the, failure to meet the guaranteed performance. These damages are generally subjective and therefore more difficult to assess.

In order to define the nature of the consequential damages, one should list up the most important reasons to acquire technology and the main effects of the related short comings:

- enter the marekt with new products:

late entry of the market gives the competition an advantage.

Low quality may cause nonacceptance of the product;

- replace manufacturing process to remain competitive with existing product:

late changeover means loss of profit. If new process yields unsatisfactory product, loss of market is the consequence;

- reduce dependence on imports:

goals of national policy may not be attained;

- create new jobs:

public policy may be jeopardized.

Some of the quoted above damages are possible to express intensible way, some especially those related to national or public policy matters are not.

Evaluation of Damages

Direct Damages

The direct damages are concrete damages as were enumerated earlier. They are tangible and concrete in as much as one can determine such concrete factors as "engineering hours", modification or rebuilding of equipment; however, sometimes additional research and development work has to be carried out. By essence, however, R + D has to be normally considered as imponderable; nonetheless, depending upon the case, some good evaluations are feasible.

In general, very often part or all of the plant can be operated with for example a lower profitability until the required modifications are made so that to the direct damages additional consequential damages may have to be added.

The direct damage evaluation has to be made as soon as the failure of the test runs is evident. Careful budgeting and planning helps to keep the damage within controlable limits. Planning and budgeting follow normally similar patterns to those used for plant construction, although depending upon the case they may be very much simplified. However, the real damage can be computed only at the end of the operation when the successful test run has been carried out.

Consequential Damages

In this subchapter are suggested some methods of evaluation of the consequential damages arising out of specified cases where guarantees were not met. However, it is necessary to emphasize that the legal situation will finally rule which claims the licensee may assert against the licensor. These cases are:

1. damages resulting from delayed commissioning of plant,

2. damages resulting from not meeting the name place capacity of the plant,

3. damages resulting from not meeting the warranted consumptions,

4. damages resulting from not meeting the promised quality specifications;

The following describes in more detail and practical manner liabilities resulting from the above essential types of consequential damages, which may occur in licensing agreement.

Damages Resulting from Delayed Commissioning of Plant

The delay in commissioning a production unit means to its owner that he will have to postpone the appearance on the market of his products. If the unit was planned to be on stream just before a main sales period begins, as for example can be the case in the fertilizer industry, such postponement would mean the loss of a year of sales before the effective sales volume can begin again; in other cases, the delay may not show major consequences.This suggests that in each case the economic facts resulting from a delay must be analysed before the contract is signed and a proper remedy clause drafted. It is generally useful to set a defined amount as liquidated damage which is due for every day of delay.

The loss of profit resulting from late start-up is relatively easy to calculate: If the yearly capacity of the plant is a units in n days, the daily loss amounts to a:n units. In general, n varies between 30 and 330 days, (Some manufacturers prefer to state the capacity of the plant in units per hour). If the profit generated by one manufactured unit is b.s, the daily loss would be $\frac{a \cdot b}{n}$ \$. However, caused by the impact of the delayed start-up on fixed and variable costs, the investment has been made; interests on the spent capital are running; the plant has to be depreciated; the labour force has been hired and trained and wages are to be paid; the raw materials have been bought and stocked and interests on these expenditures have to be added.

It is suggested to calculate this loss, to ad up the investment, the interests resulting from expenditures and the wages and other overheads. To calculate the interest on spent amount, the formula is well known[90] :

I. $$I = \frac{C \cdot i}{100}$$

I = intersts

C = amount spent on plant, machinery, building, stockage facility, laboratories, offices, raw materials, labour, etc.

i = rate of interest;

The question is whether one should choose the bank rates for loans or the calculated rate of return of the project. Each of these rates can be justified, the choice will very much depend on the specific case. The most justified and simplest way is to choose the calculated rate of return of the project.

First of all, it gives an objective value of the true loss incurred by the licensee. Since all factors of the project have been accounted for, including running bank interests, over-heads, lost profit, etc., the draw back is, that the raw material consumption, which does not in effect take place, is assumed. It is felt that this is a minor inconvenience with regard to simplicity. Choosing the bank interest rates in our view has more draw backs than advantages, since they do not take into consideration most relevant factors. Of course, we may be able to consider that raw materials are not consumed, but we will have to calculate and list separately all other factors such as loss of profit, labour, spent capital, depreciation and other over-heads, etc.

The suggested calculation then reads as follows: using the formula I, the daily loss (l_d) may be calculated as follows:

II. $$l_d = \frac{C \cdot r}{100 \cdot 365}$$

l_d = daily loss

C = spent capital

r = internal rate of return

365 = may be changed into the number of actual production days on which the plant capacity is based, e.g.,

345, 330 or 300, etc.

and the loss during the whole time of the delay will be:

III. $$L_t = L_d \cdot D$$

l_t = total time of delay

D = number of days which have passed between the planned and the effective start-up

l = daily loss .

In combining formulas II and III, we shall obtain:

IV. $$L_t = \frac{C \cdot r \cdot D}{360}$$

The question is now whether an increment on this amount can be justified. It will be a matter of the courts to decide, judging on the merits of the case. A justification can be drawn from the occurence of sales cycles as mentioned earlier. In the case where the contractual start-up of the plant misses the contractual start-up, the plant misses the sales cycle and the relevant loss can be claimed. In such a case, D in formula IV may be the number of days of the cycle to be considered.

Another justification may be that supply contracts may be terminated by customer and damages be due to them, not to mention the loss of reputation as a reliable supplier. Of course, one cannot evaluate the consequences in advance, since the partners are unknow at the time of contracting and the market may have changes from time to time. As we said earlier, in most of the cases, only the effective damage can be claimed.

Damages Resulting From not Meeting the Name Plate Capcity of the Plant

There are two situations in which this may occur: Under-designing of equipment and lower yield. The latter case is going to be dealt with under subtitle 3. "Damages Resulting from not Meeting the Promised Consumption"

Not meeting the capacity due to underdesign has two consequences:

- higher production cost;
- loss of revenue.

To evaluate the reduction of profit resulting from higher production cost and lost sales due to lack or product, we have again to start from the basis given by the feasibility study made for the decision making procedure. However, since quite a lot of time has generally passed, it may be necessary to update the relevant data and figures.

If p_0 is the unit profit realized at name plate capacity and p_1 is the unit profit realized with the reduced per annum capacity, the unit profit differential p will be :

I.

$$\Delta p = p_0 - p_1$$

the general formula to establish the unit profit p is as follows:

II.

$$p = \frac{S}{n} - \frac{V}{n} - \frac{F}{n}$$

n = capacity in units produced

S = total sales

V = variable costs

F = fixed costs

For p_0 and p_1 the equations read respectively:

III.

$$p_0 = \frac{S_0}{n_0} \quad \frac{V_0}{n_0} \quad \frac{F}{n_0}$$

IV. $$p_1 = \frac{S_1}{n_1} \quad \frac{V_1}{n_1} \quad \frac{F}{n_1}$$

By substracting III from IV, we obtain:

V.

$$p_0 - p_1 = \frac{S_0}{n_0} - \frac{S_1}{n_1} - \frac{V_0}{n_0} - \frac{V_1}{n_1} - \frac{F}{n_0} + \frac{F}{n_1}$$

setting $\frac{S_0}{n_0} = \frac{S_1}{n_1}$ as set by the market and $\frac{V_0}{n_0} = \frac{V_1}{n_1}$ as consumption for raw materials and utilities per unit produced is constant and F being the sum of investment, interest, labour which do not change whatever the production may be, p becomes:

VI.

$$\Delta p = F \frac{/n_0 - n_1/}{n_0 \cdot n_1}$$

Since p reflect on each of the n units produced, the total loss per year is

VII. $n_1 \Delta p$

Now, as the loss may be repeated over the whole life of the project we therefore may wish to calculate the present value of the annual losses ($_pV_{n_1} \Delta p$).

VIII.

$$_pV_{n_1}\Delta p = \frac{n_1 \Delta p}{1+1} + \frac{n_1 \Delta p}{(1-i)^2} + \cdots + \frac{n_1 \Delta p}{(1+i)^m}$$

where:

i = discounting rates

m = duration of project in years

The loss of each unit of capacity shortage (c) is therefore:

IX.

$$c = \frac{_pV_{n_1} \cdot \Delta p}{n_o - n_1}$$

For the ease of understanding, we have purposely simplified the concept of fixed and variable cost.

The reader may, if a more precise calculation is wanted, use formula V and proceed with the calculation steps leading to formulas VI and IX.

Damages Resulting From not Meeting the Warranted Consumption

To evaluate the damages resulting from not meeting the warranted consumptions, one shall again make use of the general formula V of subpara 2.

I. $$\Delta p = \frac{S_0}{n_0} - \frac{V_0}{n_1} + \frac{V_1}{n_0} - \frac{F}{n_0} + \frac{F}{n_1}$$

In this example, we are going to study the effect of the variations of the variable cost (V). In the preceeding examples, we have assumed that the consumptions were constant irrespective of the numbers of units produced. Further, we shall admit that $\frac{S_0}{n_0}$ is equal to $\frac{S_1}{n_1}$ since the unit price is given by the market and n_0 equals n_1, since we have no drop of production capacity. Δp therefore becomes:

II. $$\Delta p = \frac{V_1 - V_0}{n_0}$$

and the total reduction of profit n_0 p.

If this reduction n_0 p is maintained over the full period of the project, the present value (PV) will become:

III.

$$PV_{n_o}\Delta p = \frac{n_o \Delta p}{(1+i)} + \frac{n_o \Delta p}{(1+i)^2} + \cdots + \frac{n_o \Delta p}{(1+i)^m}$$

One has, however, to give here some specific comments as to the evaluation of the variable costs and especially the consumption of the raw materials. Very often, an excess consumptions of one kind may be compensated with consumption bonuses. In such a case, it is necessary to determine the consumption factors for each individual component, and consolidate the resulting values.

<u>Damages Resulting From not Meeting the Promised Quality Specifications</u>

Not meeting the quality specifications results in lowering the sales price of the produced object. Again, the formula V that is $p_o - p_1 = \frac{S_o}{n_o} - \frac{S_1}{n_1}$ etc. will be used, and the damage is evaluated as follows:

I. $$/V_2/\Delta p = \frac{S_o}{n_o} - \frac{S_1}{n_1} - \frac{V_o}{n_o} + \frac{V_1}{n_1} - \frac{F_o}{n_o} + \frac{F_1}{n_1}$$

in this case, we assume that:

$$\frac{V_o}{n_o} = \frac{V_1}{n_1} \qquad \frac{F_o}{n_o} = \frac{F_1}{n_1}$$

and $n_0 = n_1$

Δp becomes:

II. $$\Delta p = \frac{S_0 - S_1}{n_0}$$

and the present value of the total loss of profit n p is calculated by the use of the formula:

III. $$PV_{n_0}\Delta p = \frac{n_0 \Delta p}{1+i} - \frac{n_0 \Delta p}{(1+i)^2} + \cdots + \frac{n_0 \Delta p}{(1+i)^m}$$

Here again, one may add the damages due for not meeting sales contracts if the licensee does not explicitely waive consequential damages; also in this case, the final damage may be settled by court award.

Damages Resulting From Infringement of Patent Rights and Damages Resulting From Infringement of Third Party's Patent Rights

The question here is whether it is possible to warrant absolutely that the subject of the granted license is not infringing or going to infringe any third party's patent rights. The answer is definitely no, and this for an obvious reason: at the time of the execution of the contract it is virtually impossible for the licensor to know whether part or all of the technology he licenses is not subject of a pending patent application not yet published and owned by a third party. There is in this case no way to ascertain whether the licensed object is going to infringe third party's patent rights. In most countries, during the period between the filling of such third party's patent application and publication either of the patent application or publication of the granted patents there is an information gap. There are no possibilities for the licensee to limit the enterpreneurial risk he is going into. This situation is however not to be considered as unfair to the licensee, since a company which undertakes its own research is also carrying the burden of such risk. However, it would be considered normal practice that if a licensor knows patents which are obstacles to the normal operation of his process to provide information to the prospective licensee. In case of infringement of third party's patent due to faulty, unsufficient or malignant retention of information, the evaluation of damages would follow other patterns, separately or in addition to those developed under subparas 1 to 4.

The main points for consideration in such cases would be, for example:

- cost resulting from modifying subject of license so as not to constitute infringement;

- cost resulting from contracting a license from the owner of the infringed patent;

As we see, this kind of damage is a composite damage. The cost of alleviating the infringement being considered as "direct damage" are relatively easily to compute and the resulting time, quantity and quality problems as "consequential damage" being more subjective and more complex to assess and to be evaluated as suggested earlier.

However, it should be always kept in mind that in most countries legislation gives the owner of the infringed patent the right to refuse the grant of a license: all implied consequences resulting from this situation should also be treated as "consequential damages".

<u>Damages Resulting From Infringement of Licensor's Patent Rights by Third Parties</u>

If a third party infringes a licensed patent, the situation is going to be substantially different if the licensee has been granted an exclusive or a non-exclusive right on the subject of the license.

In the case of exclusive lincense, the licensor has generally passed on to the licensee all his rights to use, make and sell, and under normal circumstances, also the possibility to seek a court award against the infringer. Normally, the holder of the right acting as plaintiff may, in such a case, claim the restitution from the infringer of all the profit drawn under his unlawful action. The plaintiff if he is licensee must, however, insure that the damages paid to him by the conviced infringer will be sufficient to pay to the licensor the contractual fees on the manufactures of the infringer. Only if the licensor has retained the right to infringement, may he be found liable if he is not diligent in seeking a court award against the infringer or if he does not negotiate with the infringing party a settlement satisfactory to the licensee. Damages under this title have to be considered not only under the aspect of market lost to the unlawful competition but also under the aspect of lost prestige due to loss of exclusivity.

If we have the case of a non-exclusive license, the licensee will have to prove that he has sustained a damage through the action of the infringer in the first place. The question remains open whether the licensee may also claim to be freed from further payment of fees if the licensor fails to prosecute the infringer without good and valuable reasons to justify his lack of action. In such a case, a most favoured licensee clause in the contract would be helpful for the licensee, since theoretically the infringer who is not prosecured could be considered as a "tolerated" without payment licensee.

<u>Liquidated Damages</u>

The rather time consuming method to calculate the prejudice caused by non-fulfillment of the warranties and start-up delays have conducted to the consideration of penalty payment as compensation from the supplier of services (technology, engineering, etc.) to the buyer (licensee). Such penalty payments must, however, be in a reasonable relationship to the effective damage.

In contractual language, such payments are called "liquidated damage payments". Also here, one shall treat in a different way the delay of production start-up and excess consumptions of raw materials and utilities or the insufficient capacity of the plant. The rule would be to settle in the contract the amount which the supplier would have to pay to the buyer either for each day of start-up delay or for each unit of surplus consumption.

To calculate the liquidated damage payments we can use the calculation methods used under paragraphs 2.2.1. - 2.2.5. and extrapolate them into per diem or unit rates. Such liquidated damage payments shall as a rule not include the direct damages as defined earlier (the cost of plant modification if such modification is required).

The method of calculating liquidated damages is effectively used if there is a chance to overcome the occurring difficulties within a reasonable period of time. For this purpose the contracts, especially those of the engineering firms, contain liquidated damage provisions for delay to meet the agreed term.

Non-Fulfillment of Warranties Due to Licensee

So far it was always assumed that only the licensor or the contracted eingineering company carry the whole burden of liabilities. This does not, however, correspond to the normal situation.

Typical responsibilities of the licensee are:

- specification of the desired product,

- capacity of the desired plant,

- continuous supply of specified raw materials, auxiliary chemicals and utilities during performance test,

- provision for adequate operating crew;

If part or all of such services as engineering, erection and commissioning are to be rendered by licensee himself, he must keep in mind that he will be liable for his contribution.

Failure by licensee to carry out his chores with diligence may result in relieving partly or totally the liability of licensor or the commiteed engineering company.

Non-Fulfillment of Warranties Due to Force Majeure

Force majeure means that if the party subject to provide a performance can not fulfill its obligations due to events which are beyond its control, it is relieved from its obligations for the duration such events persist.

Examples of such events are 91/ :

- acts of authorities and governments;

- acts of God;

- war or riots, strikes,

- destruction of documents or machinery unless destruction could have been avoided by diligent action of carrier of obligation;

- unavailability of key personnel of carrier of performance unless it would have been reasonable for him to foresee replacement;

Per definition the risk of failure due to force majeure is to be carried by licensee. Courts may be involved to verify if truly a force majeure situation exists. If force majeure was claimed unduly, damages may be awarded to the party sustaining the damage.

Approach to Damage Provisions According to Type of the Agreement: Division of Responsibilities Direct License Contract

The simplest form of "direct" license is used when the licensor provides the process data and instructions of licensee personnel and licensee engineers, constructs, erects and commissions the plant and constitutes the operating crew.

This form or contract is common in the case of the licensee having at its disposal sufficient adequate in-house engineering, construction erection and commissioning facilities. Normally under this scheme, the licensor is responsible to supply correct process data which are contained in what is called the "basic engineering".

The basic engineering is a package containing a detailed process description with process flow sheet, energy and material balances and includes generally a lay-out and a so called " P + I Diagram" which shows piping and instrumentation. From these data, the licensee must be able to build the plant. The operating manual for the unit is to be drafted jointly by licensor and licensee.

Licensee may at its convenience of necessity seek collaboration with suppliers of equipment, however, he shall always be responsible towards licensor of his and his sub-contractor's actions.

The related essential clauses related to guarantees in the contract are:

- the division of responsibility clause;
- the warranty clause;
- the performance test clause;
- the penalty clause;
- the patent infringement clause;
- the force majeure clause;

The Cascade Type Contract

It is rather seldom that the licensor who is generally a product manufacturing company constructs completely the licensee's plant, this task being normally devoluted to a so called engineering contractor who then will take over part of all of the licensee's duties as defined earlier. The typical situation would then be a cascade relationship between licensor and licensee with the engineering contractor inbetween.

This contract set up is both advantageous to licensor and licensee, since each has only one partner with whom they share the responsibility. The burden of the engineering contractor is of course heavier, but he is normally also more experienced in plant construction and dealing with the related responsibilities. Further, his business being the construction of plants, his motivation to carry risks is better than for example the licensor's whose main activity is generally the manufacture of products and only subsidiarily the license third parties and construct their plants. In this case, we find the same types clauses related to guarantees and warranty:

- the division of responsibility clauses,
- the warranty clause,
- the performance test clause,
- the penalty clause,
- the patent infringement clause,
- the force majeure clause.

Overview of the Content of Individual Major Provisions.

The Division of Responsibility Clause[92]

A typical division of responsibility clause should contain the work to be carried out by either party painstakingly defined. Essentially, such a clause would contain the following items:

In a direct type of contract or in the contract between licensor and engineering contractor in the case of cascade type contracts of course, as in all cases the parties shall adapt during the negotiation the final wording of the contract to their particular needs.

- Duties of the licensor:

- licensor grants to licensee (or contractor) a license to make, use and sell product which includes the right to construct and operate plant for manufac ture of product;

- the licensor provides the basic engineering consisting of: process full description with process flow sheet; lay-out, plan or lay-out model; list of main equipment; energy and mass balance; P + I Diagram containing control instruments interlocks;

- licensor accepts to act as consultant during the various project phases and is physically present on the site during the commissioning of the plant;

- licensor carries the warranties as specified;

- Duties of licensee, or as the case may be, of engineering contractor:

- licensee (or contractor) states quality of product desired;

- licensee (or contractor) states size of plant;

- licensee (or contractor) carries out the detailed engineering for the construction of the plant, erects the plant, commissions the plant (which includes all start-up operations and at a later phase the performance test run);

- licensee (or contractor) provides an adequate key crew to be trained on licensor's plant which in turn will have to train subaltern crew on licensed new plant;

- licensee supplies continuously adequate (in quality and quantity) raw materials, auxiliary chemicals and utilities to carry out the perfor- mance test runs.

- Licensor and licensee (or contractor) are among others:

- drafting the operation manual;

- setting of the timing and respecting such timing;

In cascade type contracts, the basic distribution of duties between the licensor and the engineering contractor is similar to those of the direct contract; what is additional is the distribution of responsibilities between engineering contractor and licensee. Towards the licensee the contractor carries the responsibilities of the licensor.

A typical distribution between engineering contractor and licensee would be as follows:

- Duties of engineering contractor:

- contractor engineers, constructs, erects and commissions the plant,

- contractor provides for adequate of all personnel involved,

- contractor sublicenses the right to manufacture, use and sell product,

- contractor drafts the operation manual,

- contractor carries the warranties as specified,

- contractor is responsible to respect timing as agreed with licensee.

- Duties of licensee:

- licensee states quality and quantity of produce desired,

- licensee provides adequate personnel for training,

- licensee runs the performance test under supervision of contractor,

- licensee provides continuously adequate (in quantity and quality) raw materials, auxiliary chemicals and utilities.

The Warranty Clause

The warranty clause is similar in both the direct and the cascade type of contract. This is true as well in the relationship between licensor and licensee (or contractor) as in the relationship between contractor and licensee. However, also in this case the contractor carries the responsibility on behalf of the licensor against which in case of necessity he may turn to hold himself harmeless.

A typical warranty clause would be:

"Provided licensee's personnel is qualified and the raw materials and auxiliary chemicals and utilities are made available by licensee in quality as specified in exhibit and quantity continuously, and all the operating instructions required by licensor are fulfilled and licensee's plant has been designed, erected and commissioned as specified by licensor, then licensee will obtain in licensee's plant results as specified in exhibit".

The "exhibit" will contain:

a) the specifications of raw materials, auxiliary chemicals and utilities,

b) the extrapolated yearly capacity of plant obtained in x hours operation per year of the quantity produced during the test run,

c) the consumption of raw materials, auxiliary chemicals and if possible of utilities per unit produced,

d) the specification of the product obtained.

In the cascade type contract the licensor, or the licensee as case may be, would be replaced by the contractor.

The Performance Test Clause [93/]

Also the performance test clause is similar in case of direct or cascade type contracts needing, however, an adaptation to each specific situation which is self evident. The following clause is a simplified model clause which may be completed according to the parties' requirement.

1. In order to determine whether the warranty set forth

in clause "warranties" herein has been met, licensor and licensee agreeing that licensee's plant has reached normal operating conditions, a test run shall be carried out in presence on site of licensor personnel, the details of which shall be agreed upon by the parties. The performance test shall be a 72 hour period of continuous operation. The production capacity, raw material requirements and quality of the product shall be measured and analyzed. If the warranted results are met, the test run is considered successful and a joint constat shall give relief to licensor. In case the consumptions during the test run show that some debets are reasonably offset by consumption bonuses, then the warranties are deemed to be met. If the test run is to be interrupted after 36 hours, the parties may decide the continuation of the test run as soon as practicable for the balance of time and add up the results obtained.

2. If the performance test demonstrates that the warranty has not been met, resulting from deficiencies due to licensor, the parties shall cooperate to the end that the reason for such failure be ascertained and corrected and a further test run performed. It is understood that licensor shall bear the expenses necessary to correct the reasons of failure of licensor's personnel during the period from the first test run until the completion of the further test run.

If the warranties are not met, resulting from deficiencies due to licensee, the warranties shall nevertheless be considered as being fulfilled.

3. At the end of the first and the further test run, if any, the parties hereto shall draw up and sign a statement on the performance obtained, showing all the data collected.

The Penalty Clause

The penalty clause may be different according to the penalization.

A typical clause which can be used in case of failure of the performance test due to liensor's responsibility would be: "If the performance test reasonably demonstrates that the warranty has not been met due to deficiencies due to licensor, and licensee has followed all the recommendations of licensor, licensor's engineers have assisted in the start-up of licensee's plant and participated in each test run and the licensee has followed the operating instruction of licensor, then licensor shall refund up to fifty percent of the fee required to be paid by licensee to licensor as liquidated damages for the losses sustained by licensee by reason of reliance upon such warranty".

- If we face failure to meet a given target date for completion of the plant, a typical clause could be:

"Contractor warrants that plant shall be completed on (date)". In case of failure to meet such date, contractor agrees to pay (amount) for each day of delay as liquidated damage. The sum of the amount due as liquidated damage may be retained by the client on the next payment due".

The Patent Infringement Clause

A normal patent infringement clause by licensee very often used, is following:

"Licensor makes no representation warranty or guaranty as to that the licensed process does not infringe third party patent rights in the licensed territory. However, licensor declares that to the best of his knowledge, the process does not infringe such patent rights. In case licensee is prosecuted for infringement, licensor shall assist licensee to defend himself against the alledged infringement at licensee's cost".

The following clause is used if licensor fails to prosecute an infringer of his own patent rights to the detriment of licensee:

"If licensor fails without good reason to undertake action either in court or otherwise against any party infringing his patent rights to the detriment of (exclusive) licensee after due summons, than licensee may choose either to procede against the infringer at his own cost or reduce the licensee fee by x%".

The Force Majeure Clause [94]

This clause is well known and need not be specifically recited here. Such clause, however, is of paramount importance and never should be omitted in a license contract.

Few other situations should be considered in the present chapter. It might happen that, all consecutive tests failed and original supplier exhausted all his technical possibilities to rectify defects, yet the plant is not up to desired standard.

In such cases, it might be possible that putting the plant on the stream (or into operation) can be handed over to another supplier, who however has to provide suitable guarantees as to desired and expected results.

The settlement of damages with th original supplier will be carried paralelly, yet his cooperation usually will be sought, in order to make the plant operational soonest.

One of the ways that are used by technology recipients as a "defense" measure against non-fulfillment of guarantees are so called "performance bonds" and various bank guarantees, which essentially are established by the supplier in favour of the recipient and serve as "security" against performance of the supplier.

As it was mentioned earlier, the court settlement and arbitration procedure are often costly and time consuming. Moreover lost case may very seriously damage the reputation of the supplier, as it happened in cases of some reputed engineering companies not too recently.

It is therefore quite usual that when parties reach agreement on the extend of damages and non fulfillment of certain guarantees that informal settlement is used to settle all claims between parties.

Such informal settlement does not necessarily mean that amounts of claims and damages should be low, they are simply used for the purpose of speedy finalisation of such situation, which is often in the interest of the recipient of technology.

Informal settlements, due to stated reasons, may provide even for greater cooperation of the supplier of technology in provision of variety of remedies.

In assessing the extend of damages, one can suggest to use - in addition to simple calculation provided in this chapter - the method developed by H. A. Janiszewski and M. Besso[95] of using Internal Rate of Return (IRR) method to calculate losses.

Another word of caution relates to cases when investor is contracting the plant (or technology) on the scale bigger than existing one or bigger than actually in opeation. Scaling up of the batch size plant into large scale may prove very difficult both on account of technology, but even more so on account of costs.

From the point of view of the investor, the most important issue is that the plant is working and no amount of penalties will equal the losses which occur in case the plant/technology is not working.

It is therefore advisable - in case difficulties and damages occur - to strengthen cooperation among parties of the contract to get plant working.

The investor may invest in such case - to the extend possible - in his own R + D effort in order to find solution to occured difficulties, as such experience is invaluable.

In many cases it is desirable - either under contract provisions - or under separate arrangement with the supplier - to call in other engineering company in order to solve technical problems immediately.

Naturally, usually such extra costs are covered by the original supplier.

CHAPTER X

OVERVIEW OF ENFORCEMENT PROCEDURES WITH RESPECT TO GUARANTEES AND WARRANTIES

In this chapter information and basic considerations for the recipients of technology will be provided, covering the following important issues:

- amicable settlement;
- appointment of neutral technical expert (private settlement);
- arbitration procedures (inclusive of brief overview of major arbitration courts);
- court procedures;
- applicable law;
- cost of arbitration;

It is no doubt that both the recipient as well as supplier of technology should aim at resolvng disputes arising out from guarantee or warranty provisions in an out of court manner.

Such settlement by mutual consensus is called amicable settlement and brings about not only good working atmosphere among parties to the dispute but also saves time and substantial expenditures.

It is therefore strongly advised, that before resorting to other settlements, efforts should be made at reaching amicable, out-of-court settlement, where both parties agree to settle their differences, without need of third party to resolve their disputes.

When such amicable settlement between parties, for variety of reasons is not possible, yet parties do not wish to go to the arbitration, than they may try at settling their differences privately, by jointly appointing neutral technical experts, whose views and conclusions will be honoured and abided by both supplier and recipient of technology.

Neutral technical expert could be both physical or legal person.

The physical person could be for example an outstanding capacity in the matters disputed by the parties, in whose qualifications integrity and impartiality both parties trust, so that conclusions reached will be accepted without questioning.

In case of legal person, it can be for example professional association (for example in licencing matters - Licensing Executive Society) which on the strenght of its expertise may provide objective view as to nature of the dispute.

Both above described ways of out-of-court settlements are often practised, usually among parties who used to work with each other for a longer period of time, yet they may as well be used by the recipients of technology in developing country.

The advantage of such settlement of the disputes is quite obvious; it is much faster; less expensive and held in private.

Once the possibilities of out-of-court settlement has been exhausted, only then parties should resort into arbitration or court procedure to solve their disputes.

Arbitration is a jurisdiction established by agreement between the parties of a contract to settle law litigations in replacement of the judicial authority of the state.

The arbitration judges do not dispense justice in the name of the state and the arbitral tribunal is not a public authority. However, the arbitration jurisdiction is not a purely private law institution but, without using the public power is also part of the juridical system of a state, with authority to render judicial decisions as results from the various national procedure laws.

The limitations to which arbitration is subject is generally settled in the relevant national laws ruling the arbitration; however, basing on private autonomy, arbitration cannot expand beyond the legal limits of such autonomy: can only be subject of arbitral jurisdiction objects over which the parties are allowed to dispose and which are not exclusively reserved, due to overwhelming public interests, to state jurisdiction. The arbitrators are bound to the law governing the contract and arbitration rules. In general arbitral decisions cannot be enforced if they are contrary to the public order and the law of the country of the concerned party.

Arbitration has become an important tool of the international and national business world because it is considered to be the "friendly" way to settle disputes. In fact, not only are there institutions who carry arbitration among their tasks as the International Chamber of Commerce in Paris, the American Arbitration Association and many others; also international conventions on arbitration have been concluded between numerous states either bilaterally or multilaterally, the object of these conventions being the enforcement of the arbitration awards. The most important international treaties are:

1. the Protocol of Geneva of September 24, 1923, concerning arbitration agreements and arbitration clauses,

2. the Geneva Convention of September 26, 1927, concerning the acknowledgement and enforcement of foreign arbitral awards,

3. the New York Convention of June 1958, on the acknowledgement and enforcement of foreign arbitral awards,

4. the European Convention of Geneva of April 21, 1961, on international commercial arbitration;

whereby the two last ones today are playing the most important part[96].

In international technology transfer transactions of an all types, the following arbitration rules may be commonly found:

1. the Rules of Conciliation and Arbitration of the International Chamber of Commerce in Paris (June 1, 1975),

2. the Commercial Arbitration Rules of the American Association of Arbitration, New York (January 1, 1980),

3. the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules (December 15, 1976),

4. the Zurich Chamber of Commerce Arbitration Manual (November 3, 1976);

There are of course quite a number of other such rules prepared by other bodies which can be used as well, such as:

5. the Arbitration Rules of the London Court of Arbitration (September 1, 1978),

6. the Commercial Arbitration Rules, the Japanese Commercial Arbitration Association (February 1, 1971),

7. the Rules of the Netherlands Arbitration Institute (April 1, 1973),

8. the Rules of the Court of Arbitration of the Hamburg (FRG) Chamber of Commerce (December 7, 1948/September 4, 1958),

9. the Rules of the Court of Arbitration attached to the Chamber of Foreign Trade of the GDR (February 1, 1975),

10. the Rules of Procedures of the Interamerican Commercial Arbitration Commission (May 1, 1978).

The LICENSING EXECUTIVES SOCIETY (USA) INC. recommends the rules know as the

11. Licensing Agreement Arbitration Rules (May 1, 1978) which are specifically oriented towards technology licensing.

There are also specialized arbitration rules for disputes between individuals and states, such as

12. the Convention on the Settlement of Disputes between States and nationals of other States submitted by the Executive Directors of the International Bank of Reconstruction and Development (March 18, 1965).

The decision as to whether choose arbitration or courts, which law shall rule the contract and which rules of arbitration shall apply is complex and requires full knowledge of the specific situation under which the contract is concluded, the laws with their advantages and disadvantages, and for the rules of arbitration their strengths and weaknesses. There are numerous institutions active in international commercial arbitration which can be consulted as to the right choice. In most countries there is at least one body which can, based on its members' experience help the parties either with advice or at least with reference to qualified local or foreign specialists to make proper decisions and draft proper arbitration clauses.

The most experienced bodies are certainly the International Chamber of Commerce in Paris, the American

Arbitration Association, the International Bank of Reconstruction and Development and the various local chambers of commerce, as well as national arbitration associations.

There are various points of view which can constitute the basis of the choice, such as purely legal considerations, or what I would venture to consider more appropriate the need to settle differences of opinion in a sensible way and find solutions in problematic situations whcih are as far as possible acceptable to both parties.

Warranty and Guaranty cases are generally of complex nature. The subject of warranty in technology transfer seems at first sight simple, well defined: e.g., either the test run shows the fulfillment of the warranted results or it does not. The difficulty resides in the fact that black and white situations occur rather seldom and what complicates matters is the fact that the parties in need to solve an occuring problem may not be in the most suitable mood to do so due to the failure to perform as warranted in the contract, perhaps several times in a row. In other words: when arbitration comes into the picture, both parties, due to their psychologic involvement are not any more in best shape to overcome their personal pressures.

The rather rigid court system is rarely in the position to act in such a situation, since the state courts have to concentrate on the purely legal appreciation of the case.

They define who is the "good guy" and punish the "bad guy". Another draw back of the state courts is that the judges are generally imposed irrespective of their specific experience and have to be assisted by hordes of specialists which results in very long lasting procedures.

Opposite to this: in arbitration, as the word itself says, there should not be such a thing as "bad guy" or "good guy", but two parties in difficulty trying honestly to save as much of the China as can be saved: all if possible. The arbitration tribunal is generally composed by ad hoc experts having the trust of the parties whose primary task is not only to decide about the award in the legal sense but also to act as "aimable compositeurs" and also to help the parties to negotiate a solution to their problems. At this point, the attention should be drawn to a serious problem which may arise if the parties are implying that the arbitrators they choose are their attorneys to represent their case. The arbitrator chosen by a party is a judge and only a judge, however, a trusted judge.

Another advantage of the arbitration tribunal is in general its ability to reach a decision in less time than state courts need due to the ad hoc constitution of the arbitration tribunal the case has not to wait until being called up.

Under these conditions, it seems that arbitration is important answer to solve warranty cases, where speed is one of the important elements together with relevant specialists and skilled negotiators to avoid degradation of the relationship between the parties involved and to restore the spirit of cooperation in an atmosphere of trust for the benefit of continuing collaboration.

However, if both parties have reached the degree of unsurmountable opposition, then there is no advantage for arbitration over state courts to warrant the much higher cost of arbitration.

With the advent of national laws and regulations, the issue of the applicable law (the law according to which the contract/agreement is to be interpreted) became quite controversial.

The majority of national laws[97] requires that the law of the country of the recipient of technology should be applicable, as the contract is executed in this country.

On the other hand, suppliers also execute the contract - although often not explicitely in their country, and therefore claim applicability of their own law.

The experience shows, that from the point of view of arbitration, the choice of the law is not very critical.

As a compromise solution parties may therefore choose among the following three possibilities:

1. Leave the applicable law open (it will be usually decided by arbitration or court);

2. Settle on the neutral law;

3. The law will be chosen according to a country where the eventuall arbitration award will be enforced.

By provision of the above options, one can relatively easily find a solution which will suit both parties to the agreement[98] .

It should however be mentioned, that applicable law may play prominent role in case of the enforcement of court decision.

Finally, one should also mention that the body of law related to technology transfer transactions has been much developed in some countries and less in others; therefore the choice of applicable law should take such considerations also into account.

As it was mentioned earlier in this chapter the cost of the court action and arbitration is not only time consuming but also expensive.

Available experience shows that in some instances the court procedure may be actually less expensive that those of the arbitration; however, usually they are consuming much more time.

Time and cost considerations therefore, should be taken into account prior to taking a decision as to attempt at solving the dispute.

A N N E X I

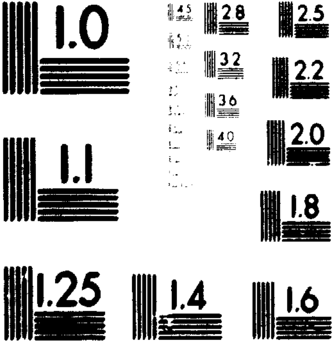
Check List of Activities by the Recipient/Supplier in the Procurement of Technology

Supplier (Licensor) Company	Contractor or Engineering	Recipient (Licencee)
-	-	1. Identification of need for techno- logy - formation of the core team
-	-	2. Search for Techno- logy
-	-	3. Indentification of alternative tech- nologies
-	-	4. Preliminary selec- tion of technology
-	-	5. Preliminary inden- tification of po- tential supplier
-	-	6. Pre-feasibility study (1) abandon project

		/2/ proceed with project
1. Provide basic information including costs and economics		7. Narrowing down of selection of tech- nology - first formulation **of scope of guaran-** tees
-	-	8. Feasibility study
-	-	9. Evaluation 93/ (1) abandon project (2) proceed with project Preparation for ten- der
2. Participation in bidding - provision of specifications - evaluation of the recipient	1. Participation in bidding	10. Invitation to tender or contact potential supplier - formulation of basic guarantees - formulation of training require- ments
3. Supply of bid or offer	2. Supply of bid or offer	- formulation of requirements to use local re-

84.12.

03



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No 2)

		sources
--	—	11. Evaluation of bids - evaluation of technology - evaluation of economics - evaluation of scope of TA provided - evaluation of scope of offered guarantees (1) abandon project (2) prepare new tender (3) proceed
4. Provision of additional information	3. Provision of additional information	12. Contract selected potential suppliers - confidentiality considerations - prepare draft agreement
5. Enter into secrecy agreement - prepare draf agreement	4. Prepare draft agreement - enter into secrecy agreement	13. Enter into secrecy agreement [100]

6. Prelimary round of negotiations	5. Preliminary round of negotiations	14. Preliminary round of negotiations
-	-	15. Selection of the supplier - selection of the contractor/engineering company
7. Negotiations	6. Negotiations	16. Negotiations - technology - price - finansing - local suppliers - guarantee
8. Signature designate - project manager	7. Signature designate - project manager	17. Signature of the agreement designate - project manager
9. Provide design manual or basic engineering	8. Design the plant	18. Provision of design basis to supplier/contractor
10. Provision of specifications of equipment - training of recipient staff	9. Provision of specifications of equipment - civil engineering works - procurement (in	19. Designate resident engineer

	case of turn key)	
-	-	20. Procurement - designate staff for training
11. Inspection of equipment - training of recipient staff	-	21. Inspection of equipment
12. Training of recipient staff	10. Erection and supervision 11. Carrying static tests, running tests all section tests - mechanical completion of the plant	
13. Start-up	12. Start-up	22. Start-up
-	-	23. Initial operation
14. Performance tests	13. Performance tests	24. Performance tests (1) negative (2) positive
15. Rectifications	14. Rectifications	-
16. Repeat performance tests Provision of continu-	15. Repeat performance tests	25. Repeat performamnce tests

ing technical assis - tance		
–	–	26. Provisional accep- tance
17. Rectifications	16. Rectifications	27. Hidden defects
–	–	28. Final acceptance

A N N E X II

ISSUES THAT CAN BE CONSIDERED FOR INCLUSION INTO GUARANTEE CLAUSES

1. The Parties
   - 1.1. Capacity and Reputation of the Supplier
   - 1.2. Capacity of the Recipient
2. The Technology - Technical Characteristics
   - 2.1. Description
   - 2.2. Completeness
   - 2.3. Correctness
   - 2.4 Documentation
   - 2.5. Timely Transmission
   - 2.6. Non-Documented Technology
   - 2.7. Language
   - 2.8. Measurements
   - 2.9. Outdated Technology (see 4.4. and 5.3.)
   - 2.10. Technical Workability (see also 4.2. and 2.1.)

3. Technology - Legal Aspects
   - 3.1. Warranty of Ownership and Legal Validity
     - ownership of title
     - ownership of know-how
     - legal validity
     - payment after expiration/invalidation (see 3.3.,

5.6.)

3.2. Third Party Claims (see also 3.1.)

3.3. Patent Claims for Know-How

3.4. Maintenance in Force

3.5. Defense of Patent (see also 3.1. and 3.2.)

3.6. Non-Contestation

3.7. Further Licenses and Agreements

3.8. Modifications

3.9. Payments (see 5., 12.5., 13.6., 14., 16.1., 19.1., 19.2.)

4. Technology - Commercial Characteristics

4.1. Warranty of Fitness; Purpose of the Agreement

4.2. Merchantibility

4.3. Best Obtainable Technology

4.4. Outdated Technology (see 5.3.)

5. Payments

5.1. Absolute Level of Payments

5.2. Type o Payments

5.3. Relationship to the Value of the Technology

5.4. Mode of Calculation (Price Indexation)

5.4.a. Price Indexation/Price Adjustment

5.5. Payments for Unexplcited Technology

5.6. Payments after Expiration of Patent Rights

5.7. Payments in Case of Legal Proceedings

5.8. Payments after Disclosure of Know-How

5.9. Payments after Termination of Contract

5.10. Unpackaging (see 16.)

5.11. Most Favourable Terms (see 14.)

5.12. Payment for Inputs (see 12.5.)

5.13. Payment for Outputs (see 19.6.)

5.14. Currency, Conversion Risks (see also 19.1. and 19.2.)

5.15. Taxes

6. Confidentiality

6.1. Definition

6.2. Confidentiality in the Pre-Contractual Phase

6.3. Rights of Disclosure (during the Agreement)

a) Disclosure to Employees

b) Disclosure to Sub-Contractors and Other Contractual Parties

c) Disclosure to Other Third Persons

d) Disclosure to Government Regulatory Bodies (see also 20.5.)

6.4. Obligations of the Supplier

6.5. Duration of the Confidentiality (see also 15.)

a) Matters Known to the Public

b) Matters Available from Third Persons

c) Period After Transmittal of Confidential Information

d) Expiration of the Agreement

6.6. Use of Confidential Information by the Recipient After Expiration of the Agreement

7. Delivery and Installation of the Technology/Execution of Works

7.1. Location of Site, Local Conditions (see also 17. to 20.)

7.2. Commencement, Time of Transmission, Completion, Delays

7.3. Obligations During the Execution of Works

8. Mechanical, Performance and Maintenance Guarantees

8.1. Mechanical Guarantees

8.2. Samples and Tests

8.3. Performance Guarantees

8.4. Maintenance Guarantees

8.5. Performance Bonds

9. Utilization of the Technology

9.1. Field of Use

9.2. Volume and Structure

9.3. Obligation to Use the Technology, Timetable (see also 18.5.)

9.4. Sublicensing/Subcontracting

9.5. Exclusivity

9.6. Own Research and Competing Technologies (see also 18.2.)

9.7. Modifications (see 10.5.)

10. Technological Advances; Improvements

10.1. Access to Improvements of the Supplier

10.2. Access to Improvements of the Recipient

10.3. Right to Improvements of the Recipient

10.4. Improvements Resulting in New Products

10.5. Modifications of the Technology

11. Technical Assistance

11.1. Information, Data

11.2. Research and Development

11.3. Engineering

11.4. Management

11.5. Training of Personnel

11.6. Marketing (see 13.)

11.7. Obligations of the Recipient

12. Provision of Resources

12.1. Raw Materials, Intermediate Products

12.2. Equipment

12.3. Spare Parts

12.4. Maintenance

12.5. Payment for Inputs

12.6. Unpackaging (see 16.)

12.7. Most Favourable Terms (see 14.)

13. Marketing

13.1. Access to Export Markets

13.2. Distribution Channels of Supplier (see also 16.)

13.3. Quality Standards

13.4. Identification of Products

a) Patent Marking

b) Trademarks

c) Identification of Origin

13.5. Resale Prices

13.6. Price for Outputs Sold to the Supplier

13.7. Most Favourable Terms (see 13.6., 14.)

14. Most Favoured Recipient

15. Duration, Termination

15.1. Maximum Duration

15.2. Termination (see also 5.9. and 6.5.)

15.3. Rights of Use After Termination

a) Use of Patent Rights

b) Use of Know-How (see also 6.6.)

c) Dispersal of Know-How (see also 6.6. and 13.5.)

d) Marketing of Goods Produced Before Termination

16. Unpackaging

16.1. Payments (see also 5.4., 5.6.)

16.2. Technology

16.3. Sources of Supply

17. Use of Local Resources

17.1. Raw Materials; Intermediate Products

17.2. Local Personnel

17.3. Local Consultancy Services

17.4. Local Management/Ownership

17.5. Local Auxiliary Services (see also 8.7., 9., and 13.3.)

18. Local Technologies Conditions

18.1.Local Availability of Technology

18.2.Creation of Local Research and Development (see also 9.6.)

18.3.Creation of Local Skills (see also 11.3.)

18.4.Displacement of Existing Enterprises

18.5.Absorption, Adaptation and Assimilation of the Technology (see also 8.3., 11.5., and 17.3.)

18.6.Modification (see 10.)

19.Local Economic Conditions

19.1.Remittance Abroad

19.2.Currency, Conversion Risks (see also 20.5.)

19.3.Export Promotion (see 13.1.)

19.4.Import Substitution

19.5.Barter Agreements

19.6.Consumption of Energy and Scarce Resources

19.7.Labour Intensity

20.Socio-Economic and Legal Conditions

20.1.Health and Safety

20.2.Environment

20.3.Regional Development

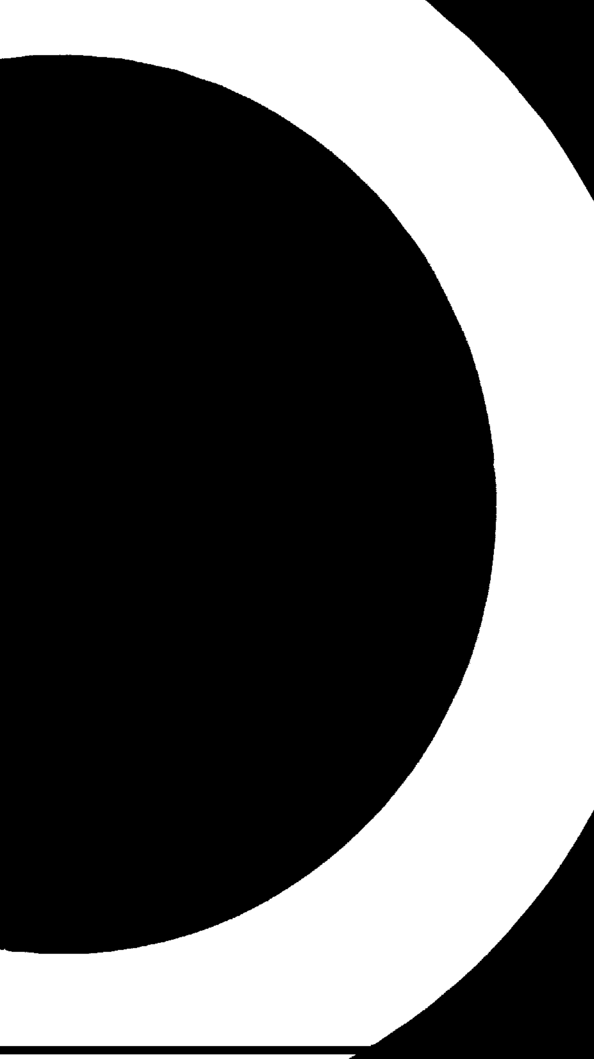
20.4.Women, Minority Groups

20.5.Existing Legislation (and Development Plans)

20.6. Applicable Law

20.7.Settlement of Disputes

20.8.Language



A N N E X III

ILLUSTRATIVE CONTENT OF TENDER DOCUMENT

1. GENERAL EXPLANATIONS
   - 1.1. Introduction
   - 1.2. Announcement
   - 1.3. Definitions
   - 1.4. Right to Bid
   - 1.5. Security for Fulfillment of Bid (Bid Bond)
   - 1.6. Validity of Bid
   - 1.7. Evaluation of Bids
   - 1.8. Conclusion of Contract
2. COMPOSITION OF BID
   - 2.1. Form and Contents of Bid
   - 2.2. Subject of Bid
   - 2.3. Scope of Supplies and Services Rendered
   - 2.4. Share of Domestic Supplies Within the Scope of Foreign Bidder's Supplies
   - 2.5. Technical Level of Bidded Equipment
   - 2.6. Price of Deliveries and Services
   - 2.7. Terms of Payment
   - 2.8. Patents and Licenses
   - 2.9. Process and Technical Documents
   - 2.10. Training of Personnel
   - 2.11. Direction and Supervision of Erection

2.12. Start-up, Train Run and Performance Tests

2.13. Terms of Delivery, Time Schedule

2.14. Completeness of Bid

2.15. Review of Technical Documents, Quality Control, Inspections and Testing of Equipment at the Manufacturer's

2.16. Shipment, Transport and Acceptance of Consignments

2.17. Technological and Technical Guarantees and Guaranty Period

2.18. Temporary and Final Acceptance of Plant

2.19. Penalties and Indemnities

2.20. Liability for Damages

2.21. Withdrawal from the Contract

2.22. Liabilities and Services Rendered by the Buyer

2.23. Insurance of Equipment

2.24. Taxes, Custom Duties and Other Charges

2.25. Force Majeure

2.26. Disputes

2.27. Joint Venture

3. TECHNOLOGICAL-TECHNICAL DATA AND REQUIREMENTS

3.1. Location

3.2. Raw Materials, Power and Water

3.3. Capacity and Product Quality

3.4. Ecology

3.5. Regulations and Standards

3.6. Special Requirements

4. TECHNOLOGICAL-TECHNICAL TERMS

BIBLIOGRAPHY AND REFERENCE MATERIAL

1. WIPO "Licencing Guide for Developing Countries", Geneva, 1977, WIPO

Publication No. 620 (E, F, S)

2. UNIDO "Manual on the Establishment of Industrial Joint-Ventures

Agreements in Developing Countries", 1971, ID/68, Sales No. E.71.II B.23

3. UN "Guide for Use in Drawing Up Contract Relating to the International Transfer of Know-How in the Engineering Industry", 1970 Trade (222) Rev. I, Sales No. E.70.II E.15

4. UNCTAD "Guidelines for the Study of the Transfer of Technology to Developing Countries", 1972, TD/B/AC.II/9 Sales No. E.72.II.D.19

5. UNIDO "Guidelines for Evaluation of Technology Transfer Agreements", 1979, ID/233

6. UNIDO "Guidelines for the Acquisition of Foreign Technology in Developing Countries", 1973, ID/98, Sales No. E.73.II.B

7. UN "Guide on Drawing Up International Contracts on Industrial Co-operation", 1976, Sales No. E.76.II.E.14

8. L. Kopelmanas, "Remedes aux difficultes actuelles suscitees parles ventes d'usine en complet etat de production", Montpeller, 1977

9. V. Strauch, "Guarantee Clauses in Transfer of Technology

Transactions of Public Enterprises in Developing Countries", ICPE, 1981

10. Carlos M. Correa, "Guarantees and Warranties in Transfer of Technology Transaction of Public Enterprises of Developing Countries", by ICPE, 1982

11. ICC "Uniform Rules for Contract Guarantees", Publication No. 325, Paris, 1978

12. ICC "The International Solution to International Business Disputes: ICC Arbitration ", Publication No. 301

13. ICC "The International Centre for Technical Expertise", Publication No. 307

14. L.W. Melville, "Forms and Agreements on Intellectual Property and International Licencing" by Clark Boardman Co. Ltd., NY, 1979

15. H. Wise, "Trade Secrets and Know-How Throughout the World", by Clark Boardman Co. Ltd., NY, 1981

16. M. Eckstrom, "Licencing in Foreign and Domestic Operations", Vol. 1-3; by Clark Boardman Co. Ltd., NY, 1982 edition

17. R. Goldscheider and M. de Hass, "Arbitration and the Licencing Process" by LES/Clark Boardman Co. Ltd., NY, 1981

18. ORGALIME "Model Form of a Licence Agreement for the Manufacture of an Unpatented Products", Bruxelles, 1968

19. Fontaine "Les clauses de force majeure dans les contracts internationaux", 5 DPCI 500 (1979)

20. H.A. Janiszewski and M. Besso, "Renumeration in

Technology Transfer Transactions in Licencing", Law Handbook, 1982, by Clark Boardman Co. Ltd., NY, 1982

21. UNIDO "Features and Issues in Turn-Key Contracts in Developing Countries", ID/WG.337/5

22. United Nations Commission on International Trade Law. documents related to clauses related to contracts for the supply and construction of large industrial works.

1. ICPE - International Centre of Public Enterprises in Developing Countries

2. On the basis of V. Strauch "Guaranty clauses in transfer of technology transactions of public enterprises in developing countries", 1981.

3. The terms used in English speaking countries will be "guarantee" (or "guaranty" or "surety"; see e.g., for the U.S.A. Black's Law Dictionary 833-34 (rev. 4th ed.1968) In contracts, also the term "performance bond or"performance guaranty" is used; see e.g., UNIDO, Guidelines for Contracting for Industrial Projects in Developing Countries, New York 1975 (Doc. ID/147, Sales No. E.75.II.B.3),Annex XIV herein after cited as "Guidelines for Contracting") French speaking countries use the term "guarantie", "cautionnement" or "caution"; see e.g., for Algeria Ordonnance No. 67-90, Art. 77-85; for Switzerland, Code des Obligations, Art.492 which reads: "Le cautionnement est un contrat par lequel une personne s'engage envers le creancier a garantir le paiement de la dette contractee par le debiteur" Spanish speaking countries use the term "garantia" or "seguridades"; see, e.g., Mexico, Codigo Civil, Art. 2796.

4. Document No. 460/228-470/329 of 20 June 1978. The original term "bank guarantees" was replaced by the term "contract guarantees", because insurance companies and other non-banking institutions increasingly engage in such guarantees, as well. The "Uniform Rules for Contract Guarantees" distinguish "tender guarantees"(Art.2a), "performance guarantees" (Art. 2b) and "repayment guarantees" (Art. 2c).For a detailed discussion see, e.g., Pullec, Principe et Technique des Garanties Contractuelles, 5 Droit et Pratique du

Commerce International 387 (1979), which contains a bibliography, a list of West European Court Decisions and arbitral awards of the ICC as well as some model forms for different types of contract guarantees.

5. This is the term used by GATT, Agreement on Public Purchases of 12 April 1979, see Art. V Sections 2 b, 4 f and 12 f

6. See, e.g., France, Code Civil, Sect.1625 which reads "La garantie que le vendeur doit a l'acquereur, a deux objects: le premier est la possession paisible de la chose vendue; le second, les defauts caches de cette chose ou les vices redhibitoires"..

7. See, e.g., U.S.A., Uniform Commercial Code, Section 2-313, para. 1 (a) which reads: Any affirmation of fact or promise made by the seller to the buyer which relates to the goods and becomes part of the basis of the bargain creates an express warranty that the goods shall conform to the affirmation or promise".

8. In English law, for example: It seems that the term "warranty" has a more restricted meaning in English law where it only covers promises which are collateral to the express object of the contract, see UNCTAD, Guarantees and Responsibilities of Source and Recipient Enterprises, TD/AC.1/14, para 13 hereinafter cited as "Guarantees and Responsibilities".

9. See, e.g., Mexico, Codigo Civil, Art. 2283; Chile, Codgo Civil, Art. 1837, 1839 and 1924.

10. See, e.g., Fed. Rep. of Germany, Civil Code, Sections 459 ff.

11. See, e.g., German Democratic Republic, International Commercial Contracts Act, sections 230 ff, 278 ff.

12. See also footnote 233 below.

13. See, e.g., Brazil, Normative Act 15, Sect. 4.5.1. f, 5.5.1. f

and 6.5.1. f (no claim of industrial property rights which migh e connected with the unpatented technology transferred); Portugal Decree No. 53/77, Art. 6.1. (c) (information on improvements); GDR, International Commecial Contracts Act. Sect. 95 and 57 (quality gurantees

14. See, e.g., Yugoslavia, Law on Long-Term Co-operation, Art. 24 (guarantees on:completeness and suitability of the technology; provision of raw materials, equipment and spare parts achievement of certain results: effects on health and environment; compensation for damages; confidentiality of secret data:

15. See, e.g., other portions of the law of Yugoslavia.

16. See, e.g., Brazil, Normative Act 15, Sections 2.5.1., 4.5.1., 5.5.1., 6.5.1. (specification and completeness of the technology transferred; field of activity of technicians who provide training; identification of the area to which the technology applies; supply of information; technical assistance; ownership of improvements; effective use of patents, attainment of specific purposes).

17. See Argentina, Law No. 21.617, Art.8. The law has been abrogated recently.

18. See, e.g., Zambia, Industrial Development Act, 1977, Section 15 which stipulates that transfer of technology agreements "shall provide that" (provisions on royalty rates; payment obligations and right of use after termination of contract; technical assistance; supply of spare parts and raw materials; most-favoured-licensee clause);

India, Guidelines for Industries, 1976-1977, Chapter XXX.9. use formulation such as "there should be" (fee sublicensing; training of Indians; other measures of absorbing, adapting and developing the imported technology; duration of payments).

19. See, e.g., Brazyil, Normative Act 15, Sec. 2.2., 4.2., 5.2., 6.2.: "Remuneration"

20. As discussed in section 1 above; see also footnotes 3 and 4 above.

21. See, e.g., ORGALIME, Model form of a patent contract, Art.5.

22. See, e.g., ECE, General Conditions for the Supply and Erection of Plant and Machinery for Import and Export No. 188 A, Section 23; ECE, General Conditions for the Erection of Plant and Machinery Abroad, No. 188 D, Section 18. Both are reproduced in UNIDO, Guide lines for Contracting, Annexes XVII and XIX.

23. See, e.g., Magnin, Know-How et Propriete Industrielle, 1974, Annexe IV, Art. 3 de contrat-type.

24. WIPO, Licensing Guide for Developing Countries, Geneva 1977, p.158 f, Sections 3.5 and 3.6 (hereinafter cited as Licensing Guide).

25. op. cit. p. 75 f, especially footnotes 143, 153, 154, 157.

26. op. cit. p. 75 f, especially footnote 137. Other guarantees mentioned relate to improvements, rights of third parties to the technology and questions of disclosure.

27. UNCTAD, Draft International code of Conduct on the Transfer of Technology
as of 10 April 1981. TD/CODE TOT/33, p.16 ff (Chapter 3) (hereinafter cited as Draft Code of Conduct).

28. Section 5.2. (a), op. cit., p.16.

29. Section 5.2. (c), op. cit., p. 16.

30. Section5.3. (b)., and (c) (i), op.cit., p.17 f.

31. Section 5.4. (v) and (viii), op.cit. p. 19.

32. Section5.4. (x), op.cit. , p.19.

33. Section5.4. (xii) (xiii) and (xiv), op.cit., p.20.

34. See also, DTT Series No. 12 "Guidelines of Evaluation of Transfer of Technology Agreements' by UNIDO, ID/233, N.Y., 1979.

35. This part is based on a paper prepared by Dudley S. Smith for UNIDO, Vienna 1982.

36. All figures relate to royalty and other direct payments only.

37. The writings of ICPE provide extremely rich literature on public enterprises in developing countries.

38. The following description is strongly simplified in order to present the basic idea. Of course, real life is far more complex.

39. Even the exceptions support the general rule. Enterprises which are not content with the present system are often outsiders which attack these rules because they do not profit from them. A typical example is, e.g., the Dutch enterprise Centrapharm which has no own research and development facilities, but only processes and sells pharmaceuticals of other enterprises. For this enterprise, export restrictions are a hidrance in all cases. It has therefore attacked them in several cases

40. Correa, Transfer of Technology in latin America:) A Decade of Control, 15 JWTL 388, 392 f (1981). This is particularly evident in the case of foreign owned recipients who have to perform a certain function within their concern, but may also apply to nationally owned enterprises. On the problem of "passive licensees" not engaging in own research see also Mytelka, Licensing and Technological Dependency in the Andean Group , World Development, 1978.

41. It should be noted, however, that even public enterprises may

find it difficult to comply with certain development objectives when negotiating the acquisition of technology on the enterprise level. This is particularly evident, when public enterprises have to compete with other enterprises on the national or international level which are free from similar obligations. At first glance, it seems that this conflict cannot always be resolved by the enterprise itself, but may require intervention on the government level. Government intervention may consist of: general legal provisions applicable to all enterprises, whether public or not; special provisions for public enterprises; ;the grant of special subsidies or privileges, etc. For some approaches, see Ch.V below. For some additional considerations of the function of public enterprises in the bargaining process) for guarantees see Ch. VI... below).

42. For extensive,treatment of this issue see for example paper by Richard A. Eastman "Allocation of Risk in the Construction Contract" prepared for UNIDO/ESCAP Symposium on Contracts for the Construction of Oil and Gas Pipelines 30.08.-2.09.1983, IHT/SYM 83/716).

43. This subchapter is based on "Manual for the Preparation of Industrial Feasibility Studies", by UNIDO - ID/206 Sales E. 78 II B. 5.

44. UNIDO, ID/233.

45. For detailed description see UNIDO ID/206 pp. 186-189.

46. On the issue of appropriateness of technology see UNIDO's Monographs on Appropriate Industrial Technology.

47. This chapter is partially based on "Guarantees and Warranties in Transfer

of Technology Transactions of Public Enterprises of Developing Countries" by Carlos M. Correa, october 1982.

48. See J. Valeiras.

49. See M. Salem and M.A. Santos Hemmite, op.cit. p.122.

50. See Intal "Contrataciones del Estado en America Latina Informe Preliminar"

1982.

51. See L. Ravazini "Case Study of Argentina", ICPE, 1982.

52. See B. Teyssie, in Montpellier 1977, op.cit. p.146.

53. See Volkmar Strauch op.cit.

54. See UNIDO "Guidelines for Evaluation of Technology Agreements" ID/233, N.Y.,1979, p.20.

55. idem p. 1.

56. See J. Valeiras op.cit.

57. See ECE/TRADE/177 , op.cit. 15.

58. idem p. 9.

59. See Gilberto "Metodo de desgravacion tecnologica" Junta del Acuerdo de Cartagena J/67/110, March 1982.

60. See an example of such a bond in UNIDO PC/26 Annex XXII.

61. See C. M. Correa "Control de la Transferencia" op.cit. p. 130.

62. See A. Aarcz, J. Saleto, D. Workman "Compras de tecnologia Extranjera" II, 1975.

63. See M. Salem and M.A. Sanson hermitte, op.cit. p. 123.

64. see Juan Valeiras, quoted earlier.

65. Bhaya, Paper submitted to the UNIDO-ICPE workshop on Management of Transfer and Development of Technology in Public Enterprises in Developing Countries , May 1978.

66. In the USA, e.g., implied warranties have not, as a rule, been

written into licenses, see Wukowich, Implied Warranties in Patent, Know-How and Technical Assistance Licensing Agreements, 56 Cal. L. Rev. 168 919680. In French Law, on the other hand, is a tendency to rule under Art. 1641 Code Civil that the seller of technically complicated goods which are not familiar to the buyer, has an obligation to give advice and technical assistance to the buyer and that the same obligation may apply to certain technology transactions, see Schapira, Les ContractsInternationaux de Transfert Technologique, J.de Droit inten. 1978, O. 33.

67. See, e.g. UNIDO, Guidelines for Evaluation , p.31, WIPO, Licensing Guide, para. 127.

68. See ORGALIME, Model Form of License Agreement for the Manufacture of an Unpatented Product, Brussels 1968, Clause 3.

69. See Aselmann, Specification and Renumeration of Foreign Know-How, Les Nouvelles, Special Issue, June 1972, reprinted in Finnegan (Goldschaider /Ed.), Law and Business of Licensing, p.500 ff.

70. International Chamber of Commerce , Le transfert de technologie pour le developpment. Declaration of the ICC at the UN Conference on Science and Technology for Development , Vienna, 20-30 August 1979, p. 23 f.

71. See Aselmann, op.cit., p. 501 Aselmann proposes the following formulation which indeed is far more precise: "One complete set of up-to-date, correct and legibly reproducible manufacturing drawings of allcomponents made by the licensor or subcontracted to his design , complete lists of parts of all subassemblies,in both metric measurement and English wording, together with one set of white prints thereof for the machine and all standard and special

equipment pertaining thereto. All drawings to be on ISO standar forms. A-4 size or larger, with title blocks providing for alternation service list of parts and raw material dimensions".

72. For example, some enterprises from Socialist East European States are hesitant to consider strikes as a matter of "force majeure". (Although this attitude might have changed recently). [illegible] Fontaine, Les clauses de force majeure dans les contrats internationaux, 5 DPCI 500 (1979).

73. For a detailed discussion of the different problems and possible formulations see: Fontaine, op.cit. p. 469 ff (footn. 256) See also Radway, Negotiating with latin American Governments, p. 520, 465 f, who discusses the question whether price escalation clauses prohibited in many countires in spite of heavy inflation may be covered by force majeure clauses.

74. For more detailed description see "Guarantees and Warrantees in Tansfer of Technology Transactions of Public Enterprises of Developing Countries" by Carlos M. Correa, ICPE, February, 1982.

75. See UNIDO model contracts for semi turn-key plant supply.

76. See FIDIC.

77. For more detailed deliberations see also Chapter IV of this Guide.

78. From "WIPO Licencing Guide for Developing Countries", WIPO, Geneva, 1977.

79. Luis T. Ravazzini.

80. UNIDO/Junta Cartagena, "Unpackaging of Technology Package in ANDAN Countires" by UNIDO, 1983.

81. See TD/Code TCT/33 of 12.05.81 p. 19.

82. WIPO "Licensing Guide", Geneva, 1977. p.76.

83. As per UNIDO/PC.26 p.98-99.

84. UNIDO/PC 26 p.205-208.

85. The figures in brackets not to be removed if Article is not used.

86. Weight tanks are initially expensive, but give an accurate measure of production. Flow meters even when automatically controlled for temperature give a high instrument error which in cases of some flow meters can be as high as plus - minus 3%.

87. This Chapter is partially based on the document prepared for UNIDO by Dudley Smith and earlier UNIDO publications namely ID/233 "Guidelines for Evaluation of Technology Transfer Agreements".

88. See: Carlos M. Correa, "Guarantees and Warranties in Transfer of Technology Transactions of Public Enterpises of Developing Countries", ICPE, October 1982.

89. Parts of this chapter are based on M. Besso, "Damage liquidation provisions, liabilities, penalties, direct loss provisions, consequential loss", 30.12.82.

90. See also: Remuneration in Technology Transfer by H.A. Janiszewski and M. Besso in "1982 Licencing Law Book" by Clark Boardman Comapny Ltd., N.Y., 1982.

91. See also UNICITRAL documentation regarding force majeure changed conditions, handship, etc.

92. See also: "Allocation of risk in the construction contract", by Richard A. Eastman presented at UNIDO /ESCAP Symposium on Contracts for the construction of Oil and Gas Pipelines , Jakarta 30.08-2.09.1983.

93. See also Chapter VIII of this Guide.

94. For extensive examples see: UNIDO/ID/233 UNICITRAL/Working

group on the New International Economic Order , various documents ECE General Conditions.

95. H. A. Janiszewski and M. Besso "Remuneration in Tecnology Transfer", bid.

96. See "Les Arbitration and the Licensing Process", Clark Boardman, New York,, 1982 part 3 "Enforcement of Arbitral Awards".

97. For example in Portugal, Mexico, Brasil, Spain as well as other countries.

98. See also "Licensing Guide for Developing Countries" by WIPO, Geneva 1977.

99. Possible checking by supplier of recipient raw material and critical inputs.

100. It is also possible to enter into secrecy agreement earlier (activities 7-9 by licensee).