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# GUIDE TO GUARANTEE AND WARRANTY PROVISIONS IN TRANSFER-OF-TECHNOLOGY TRANSACTIONS

*Prepared jointly by the secretariats of the United Nations Industrial Development Organization and the International Center for Public Enterprises in Developing Countries*

UNITED NATIONS
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## EXPLANATORY NOTES

Besides the common abbreviations, symbols and terms, the following have been used in this publication:

| | |
|---|---|
| DIN | Deutsche Industrienorm |
| DM | Deutsche Mark |
| ECE | Economic Commission for Europe |
| ICPE | International Center for Public Enterprises in Developing Countries |
| ISO | International Organization for Standardization |
| R and D | Research and Development |
| UNCITRAL | United Nations Commission for International Trade Law |
| UNCTAD | United Nations Conference on Trade and Development |
| UNCTC | United Nations Centre on Transnational Corporations |
| UNIDO | United Nations Industrial Development Organization |
| WIPO | World Intellectual Property Organization |

# Preface

This *Guide* was prepared on the basis of selected background material dealing with legal systems, contractual practice, court and arbitration practice, and actual cases and experiences involving transactions in which technology was transferred to enterprises in developing countries. Recommendations were made by an expert group convened by the United Nations Industrial Development Organization (UNIDO) and the International Center for Public Enterprises in Developing Countries (ICPE), based at Ljubljana, Yugoslavia. Extensive use was made of papers and documents specially prepared for UNIDO and ICPE for this purpose, as well as existing documentation of the United Nations Centre on Transnational Corporations (UNCTC), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Commission on International Trade Law (UNCITRAL), the World Intellectual Property Organization (WIPO), UNIDO, ICPE and the International Chamber of Commerce. Contributions to the preparation of the text were made by Marc Besso, Carlos M. Correa, François Dessemontet, J. M. Leal da Silva, Rasto Macus, I. Viveka Patriksson, Luis A. Ravizzini, Dudley Smith, Volkmar Strauch and Juan A. Valeiras.

## CONTENTS

# INTRODUCTION

The subject of guarantees and warranties in international transfer-of-technology transactions has, in spite of their crucial importance for the success of such transactions, generally received much less attention in developing countries and international forums than extensively debated issues such as restrictive practices and price conditions in international transfer of technology. Moreover, little effort has been made to treat the subject more thoroughly—to go beyond its legal aspects and include its technical and economic aspects and the subsequent managerial decisions that have to be taken throughout the various stages of the project cycle, starting well before the negotiating phase and only ending in the operational phase.

The preparation, negotiation, drafting and implementation of guarantee and warranty provisions constitute one of the most complex and sensitive issues in transfer-of-technology transactions, particularly in transactions involving large industrial projects. The importance of these provisions is particularly noticeable in the acquisition of foreign technology by developing countries, taking into consideration the differences in the technical/industrial environment and the development stage between the parties and countries supplying and acquiring the technology. Transferring unadapted technology to an inadequately prepared and receptive environment often leads to problems or failure. The issue of guarantee provisions is even more accentuated in projects handled by public enterprises, given the dimension, multifunctional responsibilities and developmental impact those enterprises typically have on the national economies of developing countries.

In practice, transfer-of-technology negotiations often encounter a number of difficulties in arriving at a set of guarantee and warranty provisions that are satisfactory from the point of view of developing countries, even in the area of so-called traditional guarantees and warranties. This applies even more so to guarantees involving specific developmental goals to be pursued by public enterprises, such as maximum use of local skills, materials and industrial capacities, disaggregation of technology packages and adaptation to local conditions. The above considerations prompted UNIDO and ICPE to initiate an effort to prepare some guidance for entrepreneurs in developing countries.

When the issue of guarantee and warranty provisions has been dealt with at all in handbooks, manuals and other literature, it has usually been treated as a legal question that must be solved after a problem in contract performance has arisen. It is usually limited to *ex post facto* interpretation of given contractual clauses. Most of what little literature there is on negotiating and drafting guarantee and warranty provisions is written from the perspective of a developed country and does not adequately take into consideration the specific circumstances prevailing in developing countries.

This *Guide* differs from most other literature on the subject in the following ways:

*(a)* A managerial approach is taken in the *Guide*. Because the aim of the *Guide* is to provide practical guidance to the technology recipient* in planning and preparing for negotiations, the content of the *Guide* cannot be limited to legal considerations but must also encompass the entire range of technical, economic and managerial questions that must be decided on by the project management;

*(b)* An *ex ante* or preventive approach is taken in the *Guide*. The recipient is less interested in solving problems and settling disputes after they have arisen than in avoiding problems and disputes from the beginning. Thus, the main thrust of this *Guide* lies in the preparatory stage of the transfer-of-technology transaction because it is at this stage that potential problems must be anticipated and practical solutions proposed;

*(c)* In this *Guide*, the issues involved in transactions on transfer of technology are approached from the point of view of a technology recipient in a developing country, although many of the issues discussed could also be relevant to small and medium-sized enterprises in developed countries. One simple reason for this is the imbalance in existing literature, which is usually written from the supplier's** rather than the recipient's point of view. But the main reason for approaching the issues from the recipient's point of view is that it is the recipient who is primarily affected by the technology, regardless of whether it proves to be effective or defective;

*(d)* Special attention is paid in the *Guide* to the developmental aspects involved in transactions on transfer of technology. Particularly for developing countries, technology transfer entails not only ensuring the commercial profitability of a given project, but also developing the economic infrastructure, using local resources and creating skilled labour. The negotiation of guarantee provisions will often include these issues, especially when public enterprises are the recipients of the technology.

The structure of this *Guide* follows the project development cycle, starting with the project preparation phase. This includes the definition of the objectives of the technology transaction, the collection and evaluation of information on alternative technologies, potential technology suppliers and various organizational forms in which technology transfer can take place, resulting in the definition and rating of economic and technical parameters (see chap. II). From this newly obtained information, various options can be analysed, providing a basis for the decision-making process during the next phase, the contract preparation phase. In this phase, critical parameters are translated into guarantee and warranty provisions (see chap. III).

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*Throughout this *Guide*, the term recipient is used, except where specific reference is made to the acquisition of industrial property rights, in which case the term licensee is used.

**Throughout this *Guide*, the term supplier is used for the different categories of technology suppliers, except where specific reference is made to the transfer of industrial property rights, in which case the term licensor is used.

The next phase, the actual drafting of individual guarantee or warranty provisions, must take into account the purpose and function to be fulfilled by the provision, the current legal situation and contractual practice, as well as the main problems involved and possible solutions to them (see chap. IV).

Illustrative clauses are provided throughout the *Guide* to serve as examples of the type of provisions that may be found in contracts. The illustrative cases that appear in the *Guide* are also meant to serve as examples.

# I. The purpose and scope of guarantee and warranty provisions

The significance of adequate guarantees and warranties should be seen in the context of the technology transaction as a whole and its function in the development process.

While some guarantees and warranties are encountered in transfer-of-technology transactions between parties who are both situated in developed or developing countries, another group of guarantees and warranties is particularly important in transactions between developed and developing countries. These guarantees and warranties are concerned with the integration of the technology in the entrepreneurial and national environment of the technology recipient, such as use of local resources and creation of skilled labour.

Difficulties in arriving at satisfactory guarantee provisions may stem from the legal situation, which often does not adequately take into account the specific nature of technology as an intangible and the concerns of recipients in developing countries.

The contractual stipulation of guarantees has advantages and disadvantages for the recipient, which have to be considered in each individual case. Alternative and complementary approaches to contractual guarantees must also be considered.

## A. The role of guarantees and warranties in transfer-of-technology transactions

In transfer-of-technology transactions to recipients in developing countries, guarantees are particularly important and usually broader in scope owing to a number of structural differences, such as differences in the technical experience and the technological infrastructure of the supplier and recipient, and differences in the technical, economic, social and political environment in which the supplier and recipient are operating. The difference between a North-North technology transfer and a North-South technology transfer and how this difference is reflected in the scope of guarantee provisions are discussed below.

### *1. Technological levels of the supplying and recipient enterprises*

In a North-North transfer of technology, both supplier and recipient are basically on comparable technological levels. The technical structures of both the supplying and recipient enterprises show similar features: usually both

parties have already operated plants with similar techniques; they are familiar with the basic features of the technology; they have adequately trained personnel that are capable of solving most problems that may arise; they know the supply markets and distribution channels; and usually both of them have research and development (R and D) divisions. When acquiring a new technology, the recipient therefore has no need to acquire a whole technological package to put the new technology to work. The recipient is mainly interested in being assured 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 from third parties. In other words, the technology must not have material or legal defects. In such cases, guarantees can be restricted to those who assure the supplier that the technology to be transferred actually meets the description and has certain defined mechanical/functional capabilities and is without legal defects.

In a North-South transfer of technology, the developing country enterprise is often on a different technological level; its whole technical structure may be different. Thus, the technology can only be implemented if the technology and the technological structure of the enterprise are brought together, either by adapting the technology to the existing structure of the enterprise or by adapting the structure of the enterprise to the technology, or both.

Depending on the size of the gap between the technological requirements of the technology to be acquired and the existing structure of the enterprise, it may be necessary for the acquisition of the technology itself to be accompanied by complementary measures to put it to work effectively, such as the training of personnel, provision of additional inputs (intermediaries etc.), and modifications and adaptations of the recipient's infrastructure.

### 2. *Social, economic and technological environment of the recipient's country*

In a technology transfer between enterprises from developed countries, both the supplier and recipient operate in comparable economic, technological and social environments. The countries of both parties have similar levels of technological experience and achievement; they each have an infrastructure that provides access to most of the necessary inputs and to adequately skilled human resources. Both parties must face comparable factor allocation problems. Their demand and consumption patterns, income distribution and socio-cultural and legal structures often have basic similarities. Therefore, both parties are not obliged to give much attention to problems concerning the provision of inputs, access to outlets, the usefulness of the products or their compatibility with the general situation in their own country. The appropriateness of the technology is a given factor or will at least be evaluated with the help of a set of criteria that is common to both parties.

The economic, technological and social environment in a developing country is different from that in a developed country. Access to the necessary inputs, the impact of a technology on existing skills and production units,

consumption patterns and income distribution in a developing country differ considerably from those in a developed country. Factor allocation problems encountered in the supplier's country also differ from those encountered in the recipient's country. The appropriateness of the technology, therefore, requires far more attention in North-South technology transfers than in technology transfers between parties in developed countries. Furthermore, the set of criteria used to assess the appropriateness may differ as well.

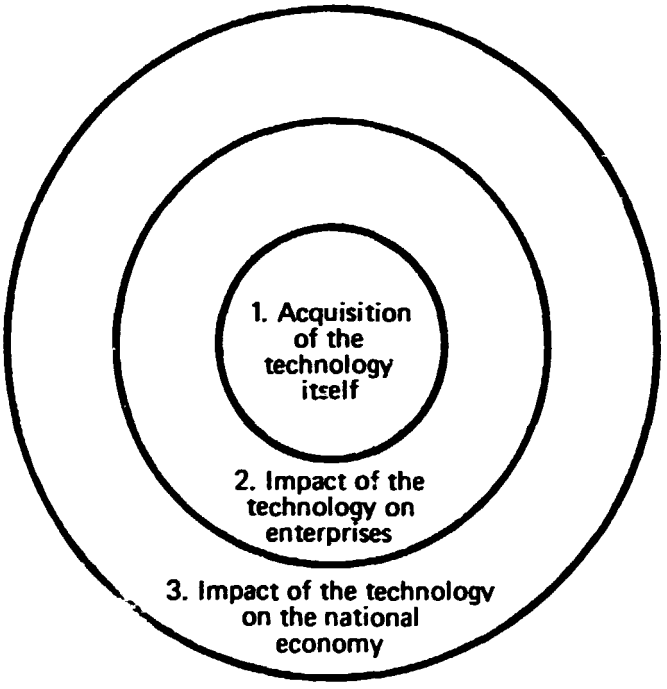
### *3. Public interest issues*

Private enterprises, especially those in market economy countries, usually pursue, within the general legal framework, their own personal interests. National development policies are, in principle, not taken into consideration unless such policies happen to be identical with their own interests or have been incorporated into binding legal provisions or other forms directly influencing their behaviour. Thus, national resources will only be utilized if such action can be justified economically. If this is not the case, they will only be used if the Government makes it profitable to do so by granting direct or indirect advantages or by creating some form of direct legal interference, such as imposing import restrictions on foreign resources or obliging enterprises to use national resources.

This attitude towards public interest issues may be found not only within enterprises in developed countries, but also within private enterprises in developing countries. A recipient in a developing country may be reluctant to make an effort to search for and use local resources. The willingness of a private enterprise to use locally available resources or to provide for the training of personnel may also be primarily a question of economic profitability; here, again, it may value short-term profits more than medium- or long-term benefits. In this case, governmental regulations may be necessary to put into effect public interest issues. In addition, public enterprises may show more readiness to incorporate national development objectives into their business policies. This applies, in particular, to those objectives that do not incur additional costs or where additional costs are offset by immediate or long-term benefits. Thus, though the use of local resources may require some preparatory work, it can be justified both from a technical and economic point of view.

## B. Linkage between guarantees, enterprise objectives and the national economy

As mentioned in section A above, when technology is transferred to a developing country, guarantees should be discussed within the framework of the recipient's capacities and objectives, as well as within the framework of the broader technological, economic and social implications of the technology. The three main areas of consideration are depicted in a simplified way in the figure below.




**Areas to be considered in a discussion of guarantees**

The first area of consideration concerns the acquisition of the technology itself and guarantees strictly related to the technology as such, for example, the content, description and completeness of the technology, its efficiency, legal protection and confidentiality issues. Guarantees of this kind are often the standard set of guarantees in transfer-of-technology agreements between enterprises in developed countries. These guarantees are of interest to enterprises wherever they are. Usually suppliers are used to negotiate and undertake guarantees in these areas.

The second area of consideration relates to the utilization and application of the technology in the recipient's plant. Relevant guarantees in this context include the consumption of utilities and raw materials, productivity and quality. The focus is on the recipient's capacity for and interest in making effective and profitable use of the technology for his own benefit. Effects of the technology outside the enterprise are of secondary importance. Such guarantees are of interest to recipients in developed and developing countries, but recipients in developing countries need such guarantees to a higher degree because they are less familiar with the technology and because the technology will be operated under different conditions and with different inputs in a developing country. Guarantees of this type are more difficult to negotiate because suppliers are less familiar with the recipient's operating conditions and technological capacities. Most guarantees and warranties are based upon and more relevant to situations in developed countries and therefore may not reflect the knowledge and realities that exist in developing countries.

The third area goes beyond the considerations of the individual recipient and is concerned with the impact of the technology on the national economy as a whole and vice versa. Such guarantees include the effects of the technology on the use of local resources, on local technological conditions (such as the creation of skilled labour and of R and D activities), on local economic conditions (such as foreign exchange holdings), on local social conditions and other conditions (such as income distribution) and on health, safety and the environment.

Guarantees of this type often go beyond the short-term interests of the parties to the agreement. The supplier, and often the recipient as well, will be reluctant to respond to objectives that are mainly in the interest of the recipient's country. Both parties, however, should give adequate consideration to such guarantees. This is important if the technology is to be integrated and remain viable in the long term in the new environment.

## C. The legal situation

The scope and content of guarantee provisions are shaped by the legal environment, which, in turn, is determined by the law systems of the countries concerned. The main components of the legal situation on guarantees and warranties include the legal bases for current practice, the character of legal provisions and the contractual freedom and bargaining power of the parties. These are analysed below.

### *1. Main legal bases*

The main legal bases for the current practice guarantees and warranties are given below.

#### *(a) Specific legislation*

So far, only some countries, mainly developing countries, have enacted specific regulations on transfer-of-technology transactions. But even most of these laws do not deal specifically with guarantees or only treat them marginally. At the international level, however, among others, the draft international code of conduct on the transfer of technology, currently being negotiated under the auspices of UNCTAD [1], deals extensively with guarantee issues and may have an impact on national legislation in this respect.

#### *(b) General civil and commercial legislation*

Under existing civil and commercial law, transfer-of-technology transactions are governed by general contract rules. Their application usually raises a number of problems because of the intangible character of technology.

#### *(c) Other relevant legislation*

In addition to commercial contract and specific technology transaction laws, other legal provisions may determine the scope or content of guarantee and warranty obligations. These provisions cover, among other things, plant

and personnel safety, environmental protection rules, product and customer protection, anti-trust, investment and foreign exchange legislation, and importation of raw materials and semi-finished products.

### *(d) Trade practice and business custom*

Lack of adequate statutory provisions has led to the development of model contract terms. Originally, the authors were mainly associations of suppliers of technology. Therefore, it is quite natural that these standard contracts reflect primarily the interests of suppliers in developed countries and, to a much lesser extent, the concerns of enterprises, particularly public enterprises, in developing countries. Since the business community is used to the scope and structure of this type of standard contract, there is a widespread tendency to consider such contracts normal. This renders the inclusion of guarantees protecting the interests of the recipient even more difficult. Some international organizations, however, such as UNIDO and the Economic Commission for Europe (ECE), have published model contracts containing provisions on guarantees. In 1976, UNIDO began to work on model contracts through sectoral consultations, such as those on the pharmaceutical, petrochemical and fertilizer industries, attended by representatives from developed and developing countries, which examined guarantee and warranty issues more extensively. Important work related to the above has also been carried out by UNCITRAL, which prepared the *Legal Guide on Drawing Up International Contracts for the Construction of Industrial Works* [2].

## *2. Binding and non-binding legal provisions*

In most countries without specific legislation on transfer-of-technology transactions, the majority of the provisions of the law governing warranties and guarantees are non-binding, that is, the parties may regulate their mutual obligations in a way different from that provided by law if they wish to do so. Only some legal provisions are binding in character, such as those governing the supplier's liability in cases involving fraud or acting against good faith.

The freedom of the parties to formulate their contractual guarantee provisions may have a twofold function: they may extend the content of the guarantees beyond that provided for by law or they may reduce the content of guarantees to a level below that provided for by law. In actual practice, contractual guarantee provisions often have the function of reducing the scope of warranties stipulated by non-binding legal provisions. Thus, guarantee provisions may:

*(a)* Reduce the level of quality or performance requirements to a level below that provided for by law (e.g., no warranty for legal defects, such as invalidity of patents, or no warranty for intended use but for normal use);

*(b)* Reduce the guarantee periods provided for by law;

*(c)* Shift the burden of proof from the supplier to the recipient for facts that ought to be established by the supplier or impose additional requirements on accepted evidence (e.g., requiring written certificates from qualified experts);

*(d)* Limit the scope of liability as to type (e.g., no rectification of faults, only liquidated damages), scope (e.g., no compensation for consequential loss),

volume (e.g., a ceiling on damages) or time (e.g., shorter limitation periods); a guarantee provision offered or accepted by the supplier may not necessarily be favourable to the recipient. It may be an instrument of the supplier to limit his own liability under the law applicable to the contract.

Relying only on relevant provisions of the law without the specific formulation of a contractual guarantee provision may introduce uncertainty into the contract because of different possible interpretations and changes of the law.

### *3. Contractual freedom and bargaining power*

Since few norms on guarantees and warranties in transfer-of-technology transactions are binding, the principle of contractual freedom prevails. This enables the contracting parties to shape the contractual provisions to suit the specific circumstances and objectives of the individual transaction. Objectives outside the interests of the parties, however, are easily lost sight of and may not be reflected in the contract. In addition, the principle of contractual freedom usually works for the party with the stronger bargaining position. In this connection, it should be borne in mind that transnational corporations are largely responsible for the flow of technology to developing countries. It is estimated that the share of transnational corporations in the world's technology turnover oscillates between 60 and 70 per cent, representing approximately 90 per cent of the flow of technology to developing countries. Usually the bargaining power of the transnational corporation will prevail over that of the recipient. An analysis of the content of present licensing contracts would show that guarantee provisions are mainly used to limit the liability existing under the applicable non-binding laws, instead of extending it beyond that scope.

The situation may be different only on those technology markets where the suppliers have to compete to secure licences. If transfer-of-technology transactions must be registered, the registration authority may become a third party to the negotiations, usually strengthening the recipient's bargaining position. This may permit the recipient to require specific guarantees under which the technology is likely to be accepted by the registration authority.

## D. The meaning and scope of guarantees and warranties

What follows is a discussion of the meaning and scope of guarantees and warranties and how these may vary depending on the context.

### *1. Meaning*

In legal terminology, the term guarantee is generally used in two ways:

*(a)* It may describe certain types of obligation of the supplier *vis-à-vis* the recipient to warrant against defects;

*(b)* It may describe a secondary obligation in a three-party relationship to answer for a third person's default.

### *(a) Guarantee and warranty as warranty against defects*

Guarantees existing of a primary obligation are an affirmation or promise that the matter supplied will be free from certain legal or factual defects or will meet certain standards. Thus, a supplier may guarantee that the patented technology to be transferred will be free from third-party rights, that the inputs to be transferred will meet specified quality levels or that specified performance requirements will be met.

The terminology for this type of guarantee is different in different legal systems and not entirely coherent in contractual practice. Guarantees of this type are also referred to as warranties,* requirements, (see [5], sects. 2.5.1, 4.5.1, 5.5.1 and 6.5.1), representations,** conditions*** or just obligations (see [7], article 2283). Some laws stressing the effects of guarantee provisions on non-fulfilment treat the matter as a problem of liability (see [8], sect. 459), breach of contract or effects of non-fulfilment. (For more details, see the subsection on consequences and remedies in case of non-fulfilment in chapter III below.) The term used in French is *garantie***** and in Spanish *garantie.****** The Mexican Civil Code combines some of the different approaches (see illustrative case 1).

#### *Illustrative case 1*

"The vendor is obliged:

"I. To deliver to the purchaser the thing sold;

"II. To guarantee the quality of the thing;

"III. To be liable in case of dispossession . . ." ([10], article 2283).

Subsection I of illustrative case 1 describes one of the primary obligations of the supplier, which would be called obligation in most legal systems. Subsection II describes an additional obligation, which would be considered an implied warranty by some laws and a guarantee or condition by others. Subsection III describes a guarantee against third-party claims.

In this *Guide*, the terms guarantee and warranty are used in a broad sense. It can be assumed that the terms have the same meaning unless otherwise stated.

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*"Any affirmation of fact or promise made by the seller to the buyer that 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" ([3], sect. 2-313, para. 1 *(a)*).

It seems that the term warranty has a more restricted meaning in English law than in United States law (see [4], paras. 11-13).

**Under English law, "representation" is usually a statement that induces a party to a contract, but is not part of the contract. Misrepresentation may not give rise to a breach of contract but to a right to rescind it or claim damages, as the case may be. Warranty is an undertaking to fulfil something as part of the contract. Breach of warranty is therefore breach of contract.

***Under English law, "condition" is used for a major term of contract, "warranty" for a minor term. Breaching a condition is considered going to the root of the contract so as to entitle the innocent party to terminate it. If a warranty is broken, the innocent party's remedy is limited to damages (see [6], p. 126).

****"The guarantee which the seller owes to the buyer has two objectives: the first is the peaceful possession of the thing sold; the second, hidden defects of such thing or vices of an annulling character" ([9], article 1625).

*****The terms *evicción* and *saneamiento* are also used in this context (see, for example, [7], articles 2283 and 2119 ff.).

### *(b) Guarantee as surety*

The term guarantee is also used to describe the obligation of one party (the guarantor) to answer to the other party (the creditor) for the fulfilment of an obligation of a third party (the debtor).* In transfer-of-technology agreements, this type of guarantee often takes the form of bank guarantees, performance bonds,** safeties or financial guarantees.***

In this *Guide* the term financial guarantee is used for the various forms of sureties. (Financial guarantees are discussed at length in chapter IV, section I.)

## *2. Implied and express guarantees*

Guarantees may be implied,**** which means that a law may contain obligations that are regarded as being in force in any contract subject to the provisions of the law, even when they are not explicitly stipulated therein. Express guarantees are obligations that will not become part of a contract unless they are explicitly mentioned therein.

In illustrative clause 1, the warranty against physical or legal defects in view of the intended use is implied, whereas more far-reaching warranties will only be applicable in case of express representation to this effect in the contract.

#### *Illustrative clause 1*

> "The seller is responsible for qualities expressly warranted; in addition there is an implied warranty by the seller in favour of the buyer against physical or legal defects of the subject-matter of the sale of a nature destroying or substantially prejudicing its value for the purpose for which it is intended" ([14], article 197 (1)).

## *3. Binding and non-binding legal warranties*

Provisions on guarantees and warranties laid down by law are often non-binding and may therefore be derogated from by contractual stipulation.

Under the provision in illustrative clause 2, the parties are, in principle, free to abrogate the implied warranties in illustrative clause 1, above. Only the warranty against defects that have been fraudulently concealed is binding and may not be abrogated.

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*See, for example, the definition given in [11], sect. 245.

The term used in English-speaking countries is guarantee (or guaranty or surety); for the United States of America, see [12].

French-speaking countries use the term *garantie, cautionnement or* caution; for Algeria, see [13], articles 77-85; according to the Swiss Federal Code of Obligations: "A guarantee *(cautionnement)* is a contract whereby the guarantor promises to the creditor of a third person, the principal debtor, to be responsible for the payment of the debt of the latter" ([14], article 492).

Spanish-speaking countries use the term *guarantía* or *seguridade* (see, for example, [7], article 2796).

**See, for example, [15], annex XIV.

***This is the term used in [16], article V, sects. 2b, 4f and 12f.

****A former Argentine law on technology transfer expressly used the term implicit clauses (see [17], article 8).

*Illustrative clause 2*

"Agreements excluding or limiting warranties are void where the seller had fraudulently concealed defects from the buyer" ([14], article 199).

As already discussed (section C, above) non-binding provisions often enable the recipient to reduce the content of guarantees to below that provided for by law.

### *4. Scope of guarantee provisions*

The scope of the issues covered by guarantee provisions varies considerably in different national legislations and in commercial usage.

Within the context of this *Guide*, the issues considered to be subject to guarantees result from the identification of the parameters that have a determinating influence on the successful implementation of a project. Such parameters could be classified as those relating to the objectives of the project and the corresponding technology transfer (e.g., product quantity and quality, raw material and catalyst consumption, utility consumption, patent validity, improvements, spare parts and the development of technological capabilities) and to the conditions in which the technology is supposed to operate (e.g., local raw materials, stalls, utilities and site conditions).

In order to reduce the risk of failure of the project, technology suppliers are expected to guarantee the fulfilment of their obligations by undertaking guarantees on issues, such as:

*(a)* The completeness and correctness of the documentation transferred;

*(b)* Whether the technology is suitable for operation under specified conditions;

*(c)* The mechanical warranty of equipment and the workmanship guarantee for engineering;

*(d)* The performance of process parameters;

*(e)* Legal titles and infringement;

*(f)* Access to improvements;

*(g)* Spare parts;

*(h)* Training.

This classification of issues that may be subject to guarantees is not without controversy, since, according to current negotiation practice, entrepreneurs in developed countries regard only the first five items in the above list as guarantees in the strict sense, even though the remaining three may be of extreme importance to developing countries.*

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*For a comprehensive discussion of issues considered to be subject to guarantees see [18], in particular, chapter 5, which deals with responsibilities and obligations of parties to transfer-of-technology transactions, [19], pp. 75 ff., especially footnotes 137, 143, 153, 154, 157 and 158, and [20], article 24.

## E. The advantages and disadvantages of contractual guarantee provisions for recipients

Contractual guarantees are an important means of ensuring the achievement of the objectives pursued by the recipient; they also protect the interests of the supplier. The use of guarantee clauses may result in some of the following advantages for the recipient:

*(a)* The supplier is committed to the achievement of certain results. He cannot merely pass on the technology to the recipient; he has to ensure that it is actually working in a specified way under specified conditions;

*(b)* The priorities defined by the recipient guide the plant design. The supplier cannot merely pass on a plant design developed for another recipient or for himself; he has to adapt it to the recipient's needs and requirements;

*(c)* Demonstration of deficiencies may be facilitated and adequate remedies may be provided for in case of delays or defects;

*(d)* Both parties are forced to do adequate preparatory work. The recipient has to specify the results he wants and, for this reason, has to familiarize himself more thoroughly with his own needs, the available raw materials and sources of energy, the requirements of training personnel, the different options open to him etc. The supplier must study more carefully the technical and economic conditions under which the technology will be operated.

In spite of these advantages, current contractual practice and the experience of recipients often show a number of shortcomings in the guarantee provisions that are currently being used. The following problems are encountered most frequently:

*(a)* The supplier may refuse guarantees, especially performance guarantees, on the grounds that he has no adequate control of the conditions under which the technology is to be operated by the recipient. He may be only willing to grant guarantees if he is given supervisory rights, which, in turn, weakens the recipient's independence and may slow down the absorption of the technology;

*(b)* In contracts related to the construction of plants, suppliers often drastically limit the scope of their liabilities if the recipients insist on separate contracts for, among other things, providing know-how and basic engineering and detailed engineering, designing and executing civil works and supplying equipment. Similarly, even in less complex technology transfers, suppliers may only be willing to grant guarantees if substantial inputs are bought from them or from sources designated by them. This may discourage unpackaging, the acquisition of various elements of a project from different sources, and the use of local resources;

*(c)* The supplier may provide capital-intensive technology instead of labour-intensive technology because the former may be less vulnerable to defects caused by insufficiently prepared operating staff;

*(d)* The supplier may overdesign the plant in order to be perfectly sure of meeting a guarantee, thus unnecessarily increasing the overall cost of the plant;

*(e)* The supplier may grant certain guarantees but omit others that permit him to comply easily with his obligations, for example, guaranteeing plant

capacity but not specifying the yield and other important production parameters;

*(f)* The supplier may use guarantees for the purpose of limiting his liability or excluding rights of the recipient that would otherwise be provided for by existing laws.

## F. Alternatives and complementary approaches to contractual guarantee provisions

As already mentioned (section E, above), the recipient may have difficulties negotiating guarantees that satisfy his objectives. Whereas some suppliers may reject guarantees altogether, others will use them mainly to restrict their liability to below the level contained in the non-binding provisions laid down by law. In some cases, satisfactory guarantees may burden the recipient with heavy additional payment obligations. In other cases, guarantees may have undesirable side-effects that contradict other objectives being pursued by the recipient, such as tying arrangements linked to quality guarantees, which exclude the use of local inputs.

For all these reasons, the recipient should consider possible alternatives to guarantee provisions, as well as possible steps that could supplement guarantee provisions and make up for some of their limitations. Such alternatives will be discussed in this section.

### *1. Use of existing laws*

The impact of the legal environment on guarantee clauses has already been discussed (section C, above). Binding legal norms have priority over contractual provisions. In so far as there are non-binding norms, the recipient should compare the content of the guarantee provision proposed by the supplier with the legal situation. If the guarantee provision is more restrictive than the non-binding law, the recipient may negotiate for the deletion of that clause so that the non-binding law would replace the clause, or at least avoid clauses that explicitly exclude the application of implied warranties.

Furthermore, it should be observed in this context that practically all existing laws do not limit the maximum amount of damages to be paid if an implied warranty is not met. To the extent that the norms on implied warranties are also applicable to transfer of technology, the statutory provisions are more favourable to the recipient than is a contractual warranty that limits the maximum amount to a certain percentage of the royalty or payment. Therefore, from the recipient's point of view, a valuable guideline would be not to waive a guarantee laid down by the law applicable to the contract since legislation, and in some cases even the legislation in the supplier's country, may favour the recipient's position.

### *2. The recipient's capabilities with reference to the technology transferred*

One of the main reasons for the recipient to ask for guarantees is his lack of familiarity with the technology and his limited capability to detect defects

and otherwise help himself in case of malfunctioning. All measures that narrow the gap between the technological capabilities of the recipient and the technological requirements of the technology also limit the scope and necessity of guarantees.

The gap can be narrowed by improving the recipient's technological capabilities through training programmes, visits to the supplier's plant, technical assistance from the supplier etc. The gap can also be narrowed by choosing another technology, one which is more familiar to the recipient. In any case, the recipient should consider whether and to what extent he is able to master the technology.

In Yugoslavia, this requirement has even been transformed into a legal obligation (see illustrative clause 3).

*Illustrative clause 3*

"An organization of associated labour may conclude with a foreign person a contract for the acquisition of a material right to technology provided the following requirements have been met: . . . If it qualifies or if it gives a guarantee that it will qualify to manufacture products and/or perform services on the basis of the material right to technology acquired" ([20], article 26(1)).

### *3. Linkage of payments to fulfilment of guarantees*

The interest of the supplier to put the technology transferred into effective operation will be highly increased if the payments due to him are directly dependent on the working of the technology (e.g., when payment is based entirely or partially on the quantity and quality of the production), and if royalty payments for patents and other industrial property rights are linked with the validity of these rights (e.g., if an industrial property right is declared invalid by a court, the licensee will no longer pay the royalties) (see chap. IV, sect. E, below).

As far as rectification of defects is concerned, the supplier will rectify these in order to ensure the expected amount of royalties. It should be borne in mind, however, that the supplier is not likely to rectify defects when doing so would cost him more than the reduction in royalties he would suffer if he did not rectify them.

Performance of the technology and payments may also be linked by withholding part of the payment until the expected level of performance is reached or by making use of performance bonds (see also chap. IV, sect. I, below) when the technology fails to reach certain performance levels.

### *4. Joint ventures and other participative forms of technology transactions*

If the supplier has a direct financial or economic interest in the proper functioning of the technology, guarantees may be of less importance. In the case of joint ventures, any failure of the technology may directly affect the supplier's returns. This may induce him to rectify defects regardless of

guarantee provisions. The impact of the type of organizational forms upon the scope and necessity of guarantee provisions is discussed in chapter II, section C, below.

### *5. State guarantees*

The Government of the supplier's country may assist in obtaining improved guarantees or provide additional guarantees. In cases where the Government of the supplier's country is directly involved, it may sponsor a transfer-of-technology project through loans or other export promotion activities. This may, however, involve the imposition of certain restrictions, such as the Government's insistence on the selection of a specific supplier, one that may not be the recipient's first choice.

### *6. Informal solutions*

Informal links and mutual understanding and trust between supplier and recipient may often, in practice, be highly important to the success of a project. Good personal contact between counterparts is not a substitute for guarantees, but it can help to reduce considerably any inconspicuous unfavourable limitations of guarantee provisions and can obviate many problems at a later stage (for more details, see chap. III, sect. C, below).

# II. The preparatory stage of the project and its impact on guarantee and warranty provisions

In the majority of cases, and particularly in developing countries, the transfer-of-technology transaction is part of a larger project package involving different components. Consequently, the preparatory activities for the acquisition of technology are, as a rule, inextricably connected with the overall project preparation or pre-investment activities.

The pre-investment phase typically comprises several stages: identification of investment opportunities (opportunity studies), preliminary project selection and definition (pre-feasibility studies), project formulation (feasibility studies and associated support/functional studies), the final evaluation and investment decision (for details see [21]). The information collected, the analyses performed and the options taken during pre-investment activities also relate to the technological component of the project package (choice of technology, selection of the technology supplier, selection of the channel and modality of the transfer of technology etc.).

The specific position of the technology within such an overall project context often acts as a "genetic code", determining other constituent parts of the project (such as equipment and skills), the basic conceptual design of the whole project and the interconnections among its constituent parts.

*Within the project preparatory stage different activities and decisions have a specific bearing on the proper—case-specific—allocation of responsibilities and stipulation of corresponding contractual guarantees and warranties. These are the main elements that are dealt with in this chapter.*

## A. Definition of the objectives of the transfer-of-technology transaction

The identification of the objectives of the recipient and a subsequent discussion of them with potential suppliers help to clarify the contract intentions, which are normally reflected later in the contract preamble and which represent important elements for the identification and definition of those parameters that may influence the successful implementation of the project.

The technology/investment profile should contain a first listing of relevant developmental, economic and technical objectives and parameters. In view of the variety of economic and technical parameters, their respective value must be rated to a certain extent at this early stage in respect to its cost benefit to the

project as a whole. For example, in a project intended to improve an existing production line, the technology may be expected to meet the following objectives of the investor: increased use of local raw materials; increased local employment; increased sales of a final product. Each of these objectives may be considered important by the investor and may be taken as the basis for the definition of the critical parameters. If, for example, the sales of a product depend on the quality of the product in terms of its purity, the parameters that influence product purity become critical parameters. The use of local raw materials, for example, though attractive because of its positive impact on product price, continuous supply and foreign exchange savings, may place certain constraints on product purity. It is therefore important that these parameters be considered jointly in terms of an attempt to set a rating.

If the social cost-benefit ratio of improved quality, and, hence, increased sales, proves to be more beneficial than, for example, the use of local raw materials or increased local employment, then increased sales will be placed higher on the investor's list of objectives than local supply or employment, allowing for adequate trade-offs between them.

Having set the rating of the objectives, it is important to establish a rating of the corresponding technical parameters, which would to a large extent determine the choice of technology. If, in the above example, increased sales, and hence high and stable product quality, is an important objective, all those technical parameters that influence product quality, such as raw material specifications, catalyst and utility consumption, should be rated accordingly within the overall context of the techno-economic feasibility of the project. At the same time, national development objectives, especially when formulated in a binding manner, and existing economic, technical and social patterns, must be considered. If, for example, a technology project that is technically and economically very promising depends on specific inputs from abroad that may not be imported because of government policy to reduce imports in certain technical sectors of the economy, the project will have no chance of survival unless local alternatives to the inputs can be found.

## B. Analysis and specification of the operating conditions in which the technology is to be used

Differences in the operating conditions of the supplier and the recipient, which are particularly marked in relations between industrially developed and developing countries (see chap. I, sect. A), require thorough assessment by both parties in order to facilitate a satisfactory transfer of the technology and its safe and efficient operation in the new environment.

The recipient's operating conditions must be specified in order that meaningful case-specific critical parameters may be identified. Like project objectives, the recipient's operating conditions have to be made a constituent part of a concrete reference base for the definition and interpretation of guarantees; otherwise, normal operating conditions will be assumed.

It is of prime interest to the technology recipient that the qualified personnel, raw materials, equipment utilities and other conditions needed for the operation of the technology are taken as the design basis for adapting the technology to the new environment or vice versa. The transfer of unadapted technology to an inadequately prepared or unreceptive environment is one of

the major causes of failure in transactions involving recipients in developing countries and, at the same time, one of the main excuses given by suppliers for not meeting the critical parameters.

## C. Searching for and evaluating information on characteristics of different technologies, potential suppliers and organizational forms

One way of reducing the risk of project failure is to make a thorough evaluation of the information on the characteristics of available technologies, the potential technology suppliers and the organizational form of technology transfer and relate this to the guarantee issues.

### *1. Characteristics of technological options*

A technology that is best suited to the recipent's specific objectives and operating conditions represents, in most cases, the best informal guarantee for actually achieving the expected results of the technology transfer transaction. In evaluating different technological options from the point of view of guarantees, the specifications of different types of technology, such as commercially proven or unproven technology and process and product technologies, have to be taken into account.

### *2. Characteristics of potential technology suppliers*

Technology transfer transactions are usually long-term arrangements in which the technology supplier's capacity, reliability and readiness to co-operate are prerequisites. If the supplier is known to be interested in the proper functioning of the transferred technology in the new environment and is ready to provide the necessary assistance, the risk of project failure is greatly reduced. From the point of view of guarantees, it is useful to distinguish between different types of potential supplier, which are discussed below.

#### *(a) Manufacturing entities*

Manufacturing entities generally conduct research or acquire technology with the intention of using it by building the necessary installations and producing and commercializing products based on the technology. Licensing the technology is usually their secondary objective, particularly in the early phases of the technology/product life cycle. Such firms are usually best equipped to solve the many problems that arise in scaling up the technology from batch to pilot plant and to commercial scale and in operating the technology. They are familiar with the details involved in operating the technology under the proper operating conditions, such as equipment, skills and inputs, and may be expected to guarantee, among other things, the suitability and performance of the technology in a particular context where the specified objectives and operating conditions may be different.

### *(b) Engineering contractors*

Engineering contractors may conduct research and development of their own or may have been given the right to license the technology of a manufacturing entity. Such engineering contractors provide most of the technical support and are also responsible for seeing that the guarantees are met.

When the engineering contractor is also the technology supplier, usually proven technology is involved and the contractor has extensive experience in transferring such technology. Often the contractor has already built a large number of similar plants and, as a result, has a standard set of guarantees that is sometimes difficult to change.

### *(c) Research institutions*

While research institutions often conduct worthwhile basic and applied research and can provide training services, they are usually not equipped to do the development work, scale up the technology and commercialize research results. Such research results (not proven commercially) usually cannot be licensed with guarantees. Therefore, as in the case of unproven technologies, only the recipient with sufficient R and D facilities and experience in scaling up technologies from batch to commercial scale will consider this type of supplier as a possible choice.

## *3. Characteristics of organizational forms of technology transfer*

Technology can be transferred in a variety of forms that allocate and separate the responsibilities of the contracting parties in various ways. Potential suppliers are usually only willing to be responsible for meeting critical parameters that they can influence.

Problems mainly arise in connection with the transmission of a complex project package, including industrial property rights, know-how, engineering, civil construction, equipment, catalyst and other inputs. If the recipient acquires only a single patent or a specific piece of know-how in order to improve on technology that he has already mastered and applied in his own production unit, questions of allocating responsibilities are less complex.

The main types of contract, characterized by the allocation of responsibility, are discussed below.

### *(a) Separate contracts*

In separate contracts, the various elements of the project package are acquired from different sources. Part of the inputs may stem from the recipient himself. Each supplier delivers certain items and is only responsible for the items he delivers; the compatibility of the various items and the functioning of the technology as a whole are the recipient's responsibility. The main advantages of this approach to the recipient may be that he can select the best supplier for each of the items and, in particular, use local suppliers to the greatest extent possible. The recipient, however, bears the risk of failure in the

co-ordination process. If the technology does not function properly, he bears the burden of proof and has to show which of the suppliers is responsible. This approach requires that the recipient be experienced in the co-ordination and control of complex projects.

Since none of the suppliers will give a guarantee for the performance of the project as a whole, how the various items perform on an individual basis is of particular importance. The recipient may also minimize his own risks by employing experienced construction managers to co-ordinate and supervise the different suppliers.

### *(b) Turnkey contracts*

Under a turnkey contract, a single supplier is responsible for the delivery of the whole project package, including everything from the basic design up to the "turning of the key" by the purchaser, that is, up to the moment the plant begins operation. Usually, the supplier is not able to do all the work himself, so he employs sub-contractors. But the responsibility to deliver the entire technology in time and without defects rests with him. In such a cascade-type contract, the risks arising from co-ordinating the different inputs are borne by the supplier. According to the scope of the turnkey arrangement, the arrangement may be a partial turnkey contract, a total turnkey contract or a product-in-hand contract. Under a partial turnkey contract, the scope of the contract is limited to everything directly connected with the technology transfer, while ancillary work, such as administrative buildings, storage rooms and transportation facilities, may be left out. Under a product-in-hand contract, the supplier assumes responsibility not only for the proper functioning of the technology, but also for a certain performance to be achieved by the recipient operating the technology within a specified period. For the purpose of this *Guide*, the term turnkey contract also includes such arrangements as partial turnkey and product-in-hand contracts unless otherwise specified.

In a turnkey contract the most important criterion is performance. The main advantage of a turnkey contract from the point of view of the recipient is that he has only one partner who assumes full responsibility. The responsibility itself covers not only the functioning of the separate parts of the project, but also the proper functioning of the technology as a whole within fixed time-limits. The main disadvantage is that the recipient has less, if any, influence regarding the choice of sub-contractors, especially local sub-contractors. The recipient may partially offset this disadvantage by obliging the supplier to use sub-contractors nominated by the recipient, assuming they are sufficiently qualified, or to involve local sub-contractors for a certain percentage of the project value.

### *(c) Semi-turnkey contracts*

Semi-turnkey contracts combine elements of the separate contract approach and the turnkey contract approach. The semi-turnkey supplier only provides part of the technology, while other parts, such as civil engineering, are provided by the recipient or his sub-contractors. But the semi-turnkey supplier, being the main supplier, is responsible for the functioning of the technology as a whole, unless he can prove that a particular defect was caused not by him but by the recipient or the recipient's sub-contractors.

This type of contract requires a precise allocation of the respective responsibilities of participating parties. Its main advantage is the combination of unpackaging the technology bundle and, at the same time, keeping the involvement of the supplier, who knows the technology best and can therefore specify and control the various requirements best. One disadvantage is that it may be difficult to trace the source of a defect. In addition, the recipient may be left with a non-functioning technology if the defect was caused by one of his sub-contractors. Therefore, the recipient must have an interest in ensuring that the supplier checks and approves the selection of the sub-contractors and the execution of their work and, if necessary, supervises the procuration of supplies by sub-contractors.

### *(d) Participative agreements*

The responsibilities of parties may also be regulated in a more indirect manner by involving the supplier in the financial or commercial exploitation of the transferred technology, thus creating a "community of interests". Apart from joint ventures, the agreement may contain buy-back clauses, it may have the form of a sub-contracting agreement, the supplier may be otherwise engaged in the marketing of the product, or the payments may be directly related to the performance of the technology. In such cases, the supplier, and not just the recipient, would have a commercial interest in seeing to it that the technology functions properly. Such arrangements may supplement guarantee provisions and ensure effective and speedy rectification of defects. At the same time, however, they may reinforce the recipient's dependency on the supplier.

## *4. Evaluation of different options*

Some of the main factors to be taken into account when evaluating the information obtained in the preparatory stage in relation to guarantees are discussed below.

### *(a) Capability of the recipient*

A recipient with a competent engineering department and prior experience in co-ordinating the acquisition and installation of new technologies is more likely to unpackage the technology bundle than a recipient without such experience. The latter may prefer some kind of turnkey agreement or may have to employ consulting engineers to co-ordinate and control the installation of the technology.

### *(b) Legal and institutional requirements*

Generally, institutions or Governments financing the technology may impose certain requirements regarding the form of the transaction. Some countries also have strict rules on the use of local suppliers, especially for civil engineering and consultancy.

In illustrative clause 4, the possibility of these being a total turnkey contract is excluded since the technology must be partially unpacked.

*Illustrative clause 4*

"In case any consultancy is required to execute the project, this should be obtained from an Indian consultancy engineering firm. If foreign consultancy is considered unavoidable, an Indian consultancy firm should nevertheless be the prime consultant" ([22] annexure).

### *(c) Availability of suitable suppliers*

The choice of the type of transaction may be influenced by the type of suppliers. In some cases, a supplier may not be willing to let sub-contractors execute certain parts of the work but will insist on doing them himself. In other cases, the supplier may insist on the sub-contractors doing certain parts of the work. Thus, though a manufacturing entity may be interested in licensing its know-how, it may be unable to provide for other parts of the project package because it may not have sufficient engineering capacity or experience for transferring the technology on its own.

### *(d) Reliability of the supplier*

In turnkey agreements, the success of the technology transactions greatly depends on the supplier's competence and accuracy. While the supplier's capacity is essential in any technology transaction, it is more important in turnkey agreements than in other agreements because the supplier is entrusted with a very wide variety of responsibilities. Thus, the supplier's range of experience may also influence the choice of the type of transaction.

### *(e) Scope of liability*

The choice of the type of transaction may be limited by the scope of liability that can be negotiated with the supplier. As a rule, the supplier has to extend his liability when his share of influence is broadened, that is, when he alone selects the sub-contractors.

### *(f) Price*

Finally, the various types of transactions and corresponding responsibilities may have a different impact on the price of the technology. If the recipient does the co-ordinating work himself, the total cost of the project should be lower than in the case of a turnkey arrangement because he can choose the best offer for each project component and do the co-ordination himself. If he has to employ consultants to do this job, the situation may be different.

The high degree of responsibility of the supplier in a turnkey arrangement may lead to overdesign or other forms of safeguard arrangements that protect the supplier against failure to perform but unnecessarily increase the overall cost of the package, which the recipient has to bear.

## D. The exchange of information between the recipient and potential suppliers

In order to decide upon a technology that will meet the objectives of the project in the expected operating environment, it is important that sufficient information is exchanged between the recipient and the supplier of the technology at an early stage. In order to make the right decisions in selecting the most suitable technology, the recipient should be aware of the different options available, which will also include information on the most advanced technology. He should also be informed whether the technology under consideration is at the same level of development as that used by the prospective suppliers in their own plants. Exchanging information is an iterative process and not a one-way street. To be able to provide the recipient with the necessary information on technology, the suppliers need a clear description of the recipient's requirements. The recipient can provide the suppliers with meaningful information on such matters only if he is aware of the basic characteristics of the technology to be transferred.

The recipient should carefully collect all the information that is necessary for the supplier to be aware of the particular objectives, operating conditions and other relevant circumstances involved and to conform with his own obligation to provide information (on critical parameters of the technology etc.). If the recipient has difficulties in collecting all the information owing to his lack of experience or lack of familiarity with the technology, he should indicate this and require the supplier to review all the information received from the recipient or contract an expert to do the work on his behalf.

The information provided by the recipient usually includes at least the following:

*(a)* Information on the recipient, such as:

(i) Location and site of the plant;

(ii) Scope of the enterprise;

(iii) Existing technological experience;

(iv) Market and market share;

(v) Skill and availability of human resources;

(vi) Specification of available raw materials, equipment and utilities;

*(b)* Information on the recipient's objectives, such as:

(i) Product quality;

(ii) Capacity;

(iii) Use of specified local resources;

(iv) Use and training of local personnel;

*(c)* Information on the area where the plant is to be erected and operated, including:

(i) Climatic, meteorological and seismological conditions;

(ii) Soil conditions;

(iii) Availability of raw materials;

(iv) General infrastructure (transport, utilities and communications);

(v) Local regulations on investment law, transfer of technology, intellectual property, safety, health, pollution, taxes, export promotion, incentives etc.

Prospective technology suppliers will, at first, only furnish a modest amount of information on the technology, so-called non-confidential information. Once they grow confident of obtaining the contract and a secrecy agreement is signed by the recipient, they will generally provide more details. It is usual for suppliers to respond only to specific queries. Hence, recipients should know what to ask. At the same time, recipients should be aware that during the preparatory stage suppliers do not typically reveal any aspects of their know-how that they regard as secret (the catalyst used, refractory specifications etc.).

It is usually possible for a recipient to conclude with the prospective supplier (sometimes for a fee) a secrecy agreement that requires that the recipient refrain from using any of the information he will receive (termed "designated confidential information") or from communicating the same to third parties without the approval of the supplier. The disclosure agreement enables the recipient to study the design philosophy (the "know-why") of the supplier's process and to visit and examine the supplier's manufacturing facilities. The recipient will then be able to identify on his own those aspects of the process that would be most critical to the economy and safety of his intended operations. He can then use the information to identify the hidden risk areas and decide on the desirability of stipulating specific guarantee provisions.

The information provided by the supplier usually includes at least the following:

*(a)* Information on the supplier, such as:

(i) Economic and financial capability;

(ii) General technical experience;

(iii) Specific experience concerning developing countries and the recipient's country in particular;

(iv) Previous activities of the supplier in the field of technology to be transferred (own utilization, R and D activities);

*(b)* Non-confidential information on the technology to be transferred such as:

(i) Information on critical parameters of the technology in question;

(ii) Specifications and characteristics of the raw materials needed;

(iii) Environmental aspects;

(iv) Information on equipment and piping (depending on the nature of the project);

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

*(c)* Information on licensing practices, such as:

(i) General licensing practice (fees etc.);

(ii) Scope and content of guarantees usually granted to recipients;

(iii) Negotiability of guarantees (standard guarantees versus individually negotiated guarantees);

(iv) Other recipients' experience with technology suppliers.

Only when such information is exchanged may both parties work together to establish the critical parameters of the technology, taking into account the prevailing local conditions, and establish the division of responsibility between the parties.

# III. Contract preparation

After having identified and rated the various project objectives and critical parameters, the recipient has to evaluate the risk involved and decide in which way he may be assured that the parameters will be met. Guarantees and warranties are one important way to obtain such assurance. They will fulfil this function, however, only if they are formulated in such a way that the risk involved in not meeting a critical parameter is adequately covered by the guarantee provision.

Before starting negotiations the recipient has to decide how to approach potential suppliers and how to obtain offers. The offers submitted by suppliers on the basis of the recipient's tender documents need careful evaluation.

The preparations for the negotiations require, first of all, the formation of a multidisciplinary negotiating team with clearly defined responsibilities *vis-à-vis* the enterprise management and among the team members. Negotiations usually involve a series of activities in which the negotiating parties have to interact for a relatively long time-span and members of a negotiating team may be different at various stages of the negotiations.

The main objective and function of guarantee provisions are to provide a standard against which the effective performance has to be compared in order to determine whether promises have been met or not, as well as to avoid misunderstandings from the outset and to give clear guidelines for the resolution of differences. For this purpose, the formulation of guarantee provisions must take into account a number of general requirements, such as clarity and completeness, clear definition of responsibilities, the scope of exceptions, and obligations in case of non-fulfilment.

## A. Critical parameters and corresponding guarantees

A specific guarantee relates to particular economic effects and risks involved in not meeting a critical parameter. The economic effects may be of a direct or indirect nature. Thus, a critical parameter may be, for example, the consumption rate. The corresponding guarantee may specify the consumption in a certain quantity per unit. If the consumption exceeds the guaranteed rate, the economic effects show up directly in higher manufacturing costs. Another critical parameter may be the attainment of a certain level of technical skills by the recipient's personnel; thus, one of the contractual provisions may deal with training. Although successful training clearly has an impact on the profitability of the project, negative economic effects of training can be expressed not in terms of insufficiencies in the teaching programme but rather through measurable parameters, such as production delays because of inadequately trained personnel. In this case, the negative economic effects are indirect and

measuring the risk is more difficult. This situation is even more evident if the negative effects are mainly of a social, environmental or developmental nature, such as failure to create local R and D capacities or introduce certain technological improvements by local enterprises. The risk potential of some of the main critical parameters in transfer-of-technology transactions may be summed up as follows:

*(a)* Deviation of product quality, which may be stipulated in a quality guarantee, may entail losses that depend on the degree of quality deficiency. Maximum damage occurs if the newly established plant manufactures products that are defective to the point that they are not marketable and the situation cannot be rectified. The minimum loss to the recipient in this case is the loss of investment costs and the corresponding interest;

*(b)* The consumption of raw materials, catalysts, energy and other utilities, which may be specified in particular performance guarantees, directly influences manufacturing costs. Thus, a consumption rate higher than the one guaranteed will result in a lower than expected profit, especially when expensive raw materials, such as catalysts, are involved;

*(c)* The effect of impurities in, for example, raw materials such as the so-called catalyst poisons may be disastrous, resulting in the destruction of most expensive reaction-inducing systems (catalyst, electrodes, bio-activators etc.). Impurities can also cause plant damage through corrosion. If the supplier guarantees certain results on the basis of raw materials from a specific source, damages can be assessed only "after the fact" because it is difficult to foresee the extent of such damages;

*(d)* Time may be a critical factor, especially if the market is cyclic, as is the case with fertilizers. If corresponding guarantees on the delivery dates of machinery, documents, training schedules etc. are not fulfilled, commercial production will begin later than expected, resulting in a phase characterized by no income and continuing expenses;

*(e)* The entire technology investment often will be based on the expectation that intellectual property is legally protected by valid patents and may be used without interference by third parties. Therefore, one of the guarantees may deal with protection against infringement and third-party claims. If intellectual property rights of third parties are infringed and consequent legal action results in, for example, plant closure or substantial market losses, patent infringement clauses may provide for indemnification of damages to be paid to third parties. If production has to be discontinued by court order pending a final decision of the court, the losses resulting from the production shortfall have to be considered. In case of patent infringement, the indemnity may also include the licence fee to the patent holder, assuming he has agreed to license his patent, or the cost of modifying the plant in such a way that the patent is no longer infringed;

*(f)* The proper functioning of machines and equipment is one of the conditions for the efficient functioning of the whole project. For example, the operation of a plant may have to be temporarily discontinued in order to replace defective equipment, causing a delay in the implementation of the project or substantial production loss;

*(g)* The proper use of technology depends on the communication of all relevant information in a complete and correct form. Not meeting a guarantee

concerning the completeness and correctness of information may result in the need for some rectification or addition of documents or even delays in setting up and commissioning the plant, affecting the entire production;

*(h)* In most cases, recipients, especially those in developing countries, look for industrial technology that is realizable and commercially exploitable, taking into account their objectives and operating conditions. They also look for suitability guarantees. The negative effects of not meeting a suitability guarantee can range from minor additional adaptation costs to complete project failure;

*(i)* If the recipient is to acquire a technology which is unfamiliar to him and which will require maintenance and operating personnel with specific qualifications, training is bound to be one of the most critical parameters. The economic effects of not meeting this parameter will be mainly of an indirect nature;

*(j)* If the technology relates to an area where the pace of innovation is very fast, guaranteed access to improvements is necessary to maintain the profitability and competitiveness of the technology. The economic effects of not meeting the obligation to furnish the recipient with all relevant improvements may be measured by comparing the actual productivity, marketability, consumption rates and product quality with those that could be attained if the improvements would be introduced.

## B. Invitation and evaluation of offers

Before negotiations actually begin, the recipient should decide how bids are to be obtained, how the guarantee requirements are to be phrased and what procedures are to be used for evaluating the bids.

### *1. Non-formal and formal tendering procedures*

After having decided to continue with the project beyond the preparatory stage, the recipient should approach potential suppliers to submit definite offers. He may do this in a non-formal way or in a formal tendering procedure. Both procedures may be preceded by a "pre-qualification of suppliers" procedure.

Government agencies, public enterprises and private enterprises using loans from public national or international institutions are often obliged under national law, international treaties or credit conditions to use a particular tendering procedure.

### *2. Tender guarantees*

Tender guarantees, also called bid bonds, may be requested by the recipient in case of formal tender procedures to ensure that the supplier who has submitted a tender will not withdraw his tender within a set time-limit and will conclude the agreement on the terms offered by him if the agreement is awarded to him. Such guarantees usually consist of a deposit made by the potential supplier or, more often, of a bank guarantee. The latter may actually be part of an overall bank or financial guarantee (see chap. IV, sect. I, below).

### *3. Scope and specificity of guarantees*

The recipient has to decide whether the scope of the guarantees should be specified in detail before starting negotiations or whether this should be left to subsequent negotiations. He has the following options:

*(a)* He may be silent about the scope of the guarantees but invite the supplier to offer guarantees on the issues listed (such as productivity, consumption of raw materials, catalysts, utilities and catalyst life);

*(b)* He may spell out minimum guarantees for the most critical parameters or for all items;

*(c)* He may specify the precise content of the guarantees.

If the guarantee requirements are phrased too loosely, the bids may fall short of the recipient's expectations. Therefore, at least the minimum requirements for the crucial parameters should be listed. If the guarantee requirements are phrased very precisely, some potential suppliers may not be able to fulfil one of the standards and may therefore have to refrain from submitting bids even though they could offer valuable trade-offs. For this reason, in the case of precisely defined guarantees, the suppliers should be allowed to submit alternative offers. Generally, it is a good idea to allow some room for later negotiations while fixing the minimum requirements for the critical parameters.

### *4. Admission of alternatives*

In view of the rapid development of new technologies, a recipient must realize that he may not be aware of all the developments going on in the particular field of technology in which he wishes to make an acquisition. Thus, he may have described some machines or other parts of the technology in a way that would exclude alternative forms of meeting the requirement. For this reason, alternative offers should be invited, though doing so may result in the recipient being confronted with the problem of evaluating the alternatives properly and according to the rating he has given to the various critical parameters.

The recipient may reserve the right to unpackage or package the technology differently from the way it is described in the invitation for bids. He may, for example, reserve the right to acquire certain parts of the equipment from another supplier, even though a turnkey agreement was originally envisaged. In such instances, the guarantees must be phrased in such a way that they can be applied in either case, or they will have to be adjusted in the course of contracting.

### *5. Bid evaluation procedures*

In some countries, general criteria and procedures for evaluating an offer as a whole are stipulated by law. Furthermore, it may be stipulated that certain procedures for evaluating the bids should be followed.

Within the scope set by legal requirements and the obligations imposed by creditors, the recipient has to develop his own set of criteria for the evaluation of the bids. The criteria should reflect the rating of critical parameters

established at an earlier stage. But the content and explanatory notes given by the potential suppliers may necessitate a readjustment in certain cases. Thus, the recipient may have given high priority to the low consumption of utilities, based on the assumption that oil, a rare and expensive utility in his country, had to be used. One of the potential suppliers however, may have then offered a process based on the use of natural gas, which is available at more favourable prices. As another example, the recipient may have requested high product purity on the assumption that products with lower purity could not be sold on the world market. One potential supplier, though unwilling to give such a guarantee, may have then offered to buy all products with lower purity at a certain price. Depending on the level of the price offered, the recipient might then decide to give less importance to product purity.

## C. Preparing for negotiation

As part of the preparations for the negotiations, a negotiating team has to be formed. Apart from familiarizing themselves with the various aspects of the project, the negotiating team should agree on the negotiating position and strategy, working rules and a negotiating procedure.

### *1. Formation of the negotiating team*

The formulation of guarantee provisions, being part of the overall technology transfer negotiations, has to satisfy technical, economic, managerial and legal requirements and therefore necessitates the approval of a multi-disciplinary team. The negotiating team should preferably consist of the members of the project team who have familiarized themselves with the various aspects of the project during the preparatory stage. If necessary, legal advisers should be retained at an early stage.

### *2. Definition of the negotiating position*

On the basis of the preparatory work and the evaluation of the offers received, the negotiating team has to formulate its negotiating position. Where a tendering procedure has taken place, the basis of discussions should be contained in the tender documents. But even in this case, the position must be further specified and possibly modified in view of the offers received. It should define the various critical parameters to be guaranteed and the scope of the expected guarantees. It should also set clear priorities in order not to waste bargaining strength or time on less important issues (see [23], p. 160).

Usually the party presenting the initial draft of a contract will have some advantages later in the negotiating process. Obviously, the draft will reflect the proposing party's own position. The other party may find it difficult to get away from the proposed general framework of the contract during the negotiations or to oppose the whole set of proposed guarantee provisions, for fear of appearing obstructive.

Each party has to yield on certain issues; this is part of any negotiating process. Therefore, the negotiating team should formulate a maximum position

for the beginning of negotiations and a minimum position on which it can fall back during the negotiations. The minimum position should be carefully drafted and then examined in an imaginary test run in order to find out whether the risks involved can still be accepted.

In addition to the maximum and minimum positions, the negotiating team should consider possible alternatives. Thus, trade-offs may be possible between the scope of guarantees and the amount of royalty payments or between two different parameters to be guaranteed. For example, fuel efficiency not guaranteed by the supplier may be far more important to a recipient than product purity guaranteed by the supplier. The recipient may thus want the process to be redesigned to achieve the desired fuel efficiency and guarantee fuel consumption. The negotiating team may also consider alternatives to guarantees as such (for a discussion of these alternatives, see chap. I, sect. F).

### *3. Division of responsibilities and working rules within the negotiating team*

The powers and negotiating latitude of the negotiating team as a whole, as well as the tasks ascribed to each member of the team, must be clearly specified.

The team should agree on working rules, such as the form in which records are to be kept, the team member responsible for drafting and distributing the records and the form of interventions during the meetings.

### *4. Auxiliary support*

On certain questions that have a bearing on guarantees, it may be necessary to consult specialists within or outside the recipient's enterprise. Thus, the supplier may ask for additional clarification on, for example, soil conditions or the quality of local inputs. The supplier may also present new data that must be checked. It is, therefore, important to make sure that suitable experts can be reached on short notice.

### *5. Approach of the parties to negotiation*

The negotiations may be facilitated considerably if the negotiating teams know each other or have at least some idea of the basic attitude of the other side towards the technology transfer agreement to be negotiated. First of all, it is important to clarify whether the other side has the same understanding of the technical, legal and economic terms involved. It should be assumed that a different legal, economic or socio-historical environment may influence the understanding of specific terms or functions. Thus, parties may have a different perception of terms such as "qualified employees", which is often used in provisions on training, or "engineer", which has a far wider function in the United Kingdom of Great Britain and Northern Ireland and in some other countries than in continental European countries; such terms influence the division of responsibilities. This is even more important when neither party knows the other's language.

The general approach to negotiation may differ as well. Thus, according to legal tradition in the United States of America, lawyers should seek detailed provisions in transfer-of-technology agreements, whereas other legal systems may place more emphasis on general concepts of good faith etc., resulting in less concern being given to protective clauses.

In addition, each party should try to get to know the other's corporate policy. Thus, an enterprise may, as a matter of principle, exclude specific types of guarantee formulations; some potential sub-contractors proposed by the recipient may meet resistance because of previous bad experiences, and so on. The negotiation procedure itself also contains psychological components. The negotiating team therefore has to plan a strategy that will not entail an appreciable loss of face or infringe on the social behaviour or the emotional sphere of the members of either party's negotiating team.

## D. The structural aspects of guarantee clauses

The substantive elements of a guarantee provision will depend on the specific type of contract and technology and the subject-matter of the clause (for a discussion of these elements see chap. IV). But there are a number of structural elements that guarantee provisions have in common regardless of their content. These are discussed briefly in this section.

### *1. Clarity and completeness*

Guarantee provisions should be formulated in unmistakable language and, whenever possible, made more concerete through the use of numbers, lists, mathematical formulas and drawings. Ambiguous terms should therefore be avoided or properly defined in a separate section. The standard should be based on local operating conditions. Using as a reference the operating conditions in the technology supplier's plant or country can create great difficulties. It is important that both parties have clearly understand each other's objectives, the meaning and scope of the guarantee provisions and the fact that the purpose of the contract is stated in "recital" or "whereas" clauses. The prerequisites for the fulfilment of guarantees, as well as methods and procedures for determining their fulfilment, should be stipulated in the contract.

### *2. Time element*

Delaying the first day of production or a product's appearance on the market, especially if the market is cyclic, may have a great effect on the overall profitability of a project. It is therefore important to clearly state in the contract the commissioning date of the plant. Furthermore, the delivery dates of machinery and documents, the training time-schedule etc. should be clearly spelt out. In addition, time is an important factor in asserting and enforcing claims.

### 3. *Burden of risk*

Liability clauses only apply when they clearly stipulate who has to bear the risk and for what period of time. Thus, the shipment of equipment by the supplier or its arrival at the site may terminate the burden of risk of the supplier unless it is clearly specified that the risk only passes over to the recipient following inspection, an acceptance test run or a performance test run.

### 4. *Burden of proof*

When the question of non-fulfilment of the contract or a dispute arises, it is often unclear who has to prove whether certain requirements have been met. Although this can be a complex legal subject, in general, it is the party initiating a claim that has the burden of proof. From the recipient's point of view, it is of course preferable that the supplier prove that the requirements were met. But often the recipient has the burden of proof for defects. In any case, it is important to include in the contract who has to bear the burden of proof and, even more important, which requirements are to be met. This applies to time-limits, notification requirements and the means and procedure of proof, such as the number of samples required, the testing institution and the testing procedures.

### 5. *Consequences and remedies in case of non-fulfilment*

Some guarantee provisions may contain specific stipulations on remedies and sanctions in case of non-fulfilment, such as replacement of defective parts or rectification or adjustment of the process. One has to differentiate between absolute and penaltiable guarantees. For example, it is possible to request for a guarantee that states that the supplier should carry out the modifications or repairs until the specified production capacity is achieved (absolute guarantee). It is also possible to specify in a contract that the supplier has to pay liquidated damages if the production reaches, say, less than 100 per cent but more than 95 per cent of the specified production capacity (penaltiable guarantee). In some cases, the two types of guarantee may also be combined by, for example, an absolute guarantee for reaching a plant capacity of at least 95 per cent, whereas shortcomings between 95 per cent and 100 per cent may be covered by a penaltiable guarantee. But it should be borne in mind that penalties or liquidated damages are not enforceable in all jurisdictions (see also chap. IV, sect. D, below).

The non-fulfilment of guarantees most frequently relates to the following:

*(a)* Delays, if the agreed periods contained in the time-schedule for the delivery of equipment, the construction of works, the commissioning or the performance test runs are not met;

*(b)* Defects that prevent the technology from functioning in accordance with the contract or that otherwise affect the quality and durability of the components of the technology;

*(c)* Damage to property or injury to persons that is not the result of faulty technology but the result of negligence, violation of secondary

obligations etc. During the transfer-of-technology process, and especially during the construction period, the property of third persons may be damaged or persons may be injured. In addition, the products, even when produced in conformity with the technology, may have some defects or cause injury to persons.

In case of delays, contractual practice usually provides for liquidated damages or penalties fixed for each day or week of delay.

In case of defects, the primary remedy is often some kind of rectification, where this is possible. If the supplier is unable or unwilling to rectify the defect, contractual practice often provides for the recipient's right to make good the defects himself at the supplier's expense. However, this right is often subject to prior written notice and limited to expenses that are "reasonably and inevitably incurred".

In case of damages, the loss caused by the supplier should be dealt with in a similar way as defects in the technology. But in these cases, the supplier's liability is usually dependent on a certain degree of fault on his part, such as gross negligence, although strict liability may be admitted in some jurisdictions. The liability may consist of the supplier's obligation to hold the recipient free from claims of third parties. Sometimes it is limited to the amount paid by the supplier's insurance.

The type and scope of the remedies in case of non-fulfilment should be formulated in such a way that they serve as an incentive for the supplier to fulfil his obligations and that they compensate the recipient for the damages incurred. The range of the remedies varies considerably and may be distinguished as follows:

### *(a) Rectification*

Since the recipient is interested in obtaining a well-functioning technology, rectification of the defects is the primary and most important remedy for him. Payments, for example, are always a substitute for the main objective. Therefore, proper rectification in a timely manner should be the remedy wherever applicable.

Often suppliers insist on clauses relieving them of their obligation to rectify defects if the rectification is too time-consuming or costly. The recipient should try to avoid such clauses or at least build barriers as high as possible against the likelihood of the supplier freeing himself of his primary obligation with a sum of money.

Even if the supplier fails to rectify the defect, the recipient should not accept damage payments but should reserve the right to carry out the rectification himself or have it done by a third person, the original supplier being obliged to cover all costs. This, however, may not be feasible when expert knowledge that cannot be obtained elsewhere is involved.

Rectification may take the form of repair, replacement or adjustment of the technology to meet the contractual requirements.

### *(b) Alteration of payment*

The various forms of alteration of payment are lower rates of royalties, return of payments, revision of the payment scheme, price reduction and suspension of payments. All these measures may alleviate the financial burden

of a non-functioning technology, but they do not rectify the defect itself. Therefore, they should only be accepted if rectification cannot be attained or if the defects do not substantially affect the functioning of the technology close to the performance level expected. This type of remedy may also be acceptable for defects that can be repaired by the recipient himself or for which it is easy to find a third person who is able to do the repair work. The alteration of payment should be equal to the reduction in the value of the technology (see illustrative clause 5).

*Illustrative clause 5*

> "If it is known at the time of acceptance that the defects are incurable, the purchaser may be entitled only to a price reduction. The contract may provide in these cases that the amount of the reduction is to be the difference between a reasonable price that would have been paid for the works without the defects and a reasonable price that would have been paid for the works at the time the defects are discovered" ([2], p. 208).

The value of the defective technology may also be determined for whenever the purchaser claims the price reduction. The price reduction may also be fixed from the beginning simply by stipulating that it should amount to a certain percentage of the total price for each percentage point below the agreed production capacity.

Often the supplier may try to insist on limiting the reduction of payments to a maximum amount or percentage. This may be acceptable in cases involving reliable suppliers and additional clauses covering damages and insurance. Otherwise, the limitation of the maximum reduction in payment may be an indication that the supplier himself does not trust the technology or is hesitant to believe in its proper functioning at the chosen site under the conditions that exist there.

### *(c) Damages*

Generally the damage provisions relate to direct damages and exclude consequential damages such as loss of anticipated profits. In case of sophisticated technologies, such as chemical or pharmaceutical processes, the potential consequential damages may be far more important than direct damages. In such cases, consequential damages should be dealt with in liability clauses. The possibility of taking out insurance the costs of which may be entirely or partially borne by the supplier, should also be considered as an alternative.

Since the estimation and calculation of damages may be difficult, parties may wish to agree, in the contract, to payment of a sum of money by the party responsible for the damages (liquidated damages). Such a sum often serves as a means of limiting the supplier's liability and rarely covers the actual damage incurred by the recipient. Therefore, liquidated damages should only be agreed to if the potential damage can be foreseen rather easily and if the agreed sum covers this foreseeable damage or if it is extremely difficult to calculate the damage at all.

### *(d) Penalties*

Penalties should be used mainly as an incentive to the supplier to fulfil his guarantees. They are often used in case of delays in completion of the works or delays in rectification of defects.

### *(e) Termination*

If the defects are grave or if the technology transfer has not progressed far enough, the recipient may also reserve the right to terminate the contract (see illustrative clause 6).

#### *Illustrative clause 6*

"The recipient shall be entitled to cancel this contract in full or in part if, despite repairs carried out by the supplier or after he has declined to eliminate the defects, the following conditions remain:

"*(a)* The net power amounts to less than 95 per cent of the net nominal power;

"*(b)* The guaranteed value for specific heat consumption is exceeded by more than 10 per cent;

"*(c)* Within two years following delivery of the nuclear power station, it was determined that the supplies and services provided by the supplier under this contract were defective in such a way as to hamper normal operation of the nuclear power plant;

"*(d)* If, for reasons ascribable to the supplier, delivery of the power plant was delayed for more than one year" [24].

This is admitting that the technology transfer has failed altogether. The loss of time and a great part of the negotiating and implementation efforts are usually very difficult to recover. Termination of the contract should therefore be regarded as a measure to be taken only as a last resort. In the case of turnkey projects and similar transactions, the right to stop construction of the plant may be important if certain defects show up and the continuation of work would increase the damage or make rectification of the defects more difficult and costly (see illustrative clause 7).

#### *Illustrative clause 7*

"The contract may entitle the purchaser to inspect during their manufacture, or upon shipment to the site, equipment and materials to be incorporated in the works . . .

"In addition, construction services supplied by the contractor may be discovered to be defective at any stage during the construction. The contract may entitle the purchaser by written notice to require cure of the defects, to forbid the incorporation of the defective equipment and materials on the works, to forbid the supply of the defective services, and to refuse to pay the price for the defective items. The contract may, in addition,

entitle the purchaser to require the contractor to supply different equipment, materials and services which are in accordance with the contract" ([2], pp. 204-205).

### *(f) Financial securities*

Some technology transactions, especially turnkey contracts, usually provide for some financial security to be provided by the supplier or a third party to the recipient, to be used by the recipient if certain contractual commitments are not fulfilled (see illustrative clause 8). It may take the form of performance bonds, irrevocable bank guarantees, stand-by letters of credit or retention money. In all these cases, the recipient has access to a certain amount of money if the supplier fails to fulfil his obligations properly. Apart from ensuring the coverage of certain damages or losses, such security also gives the supplier an incentive to perform his obligations properly in order to have the financial guarantee or portions of it released. Such security is a comfortable cushion for the recipient, but it usually does not exceed 10 per cent of the total value of the technology transfer. The recipient must also be aware of the considerable costs of such security for the supplier, which raises the price of the technology accordingly.

### *(g) Bonus system*

A bonus system is a positive sanction. It may be combined with a penalty system, granting bonuses in case of early termination of work or better performance than guaranteed and imposing penalties in case of delays or poor performance.

#### *Illustrative clause 8*

"If the supplier is not able, within a reasonable period, to fulfil the guarantees in respect of power and thermal consumption indicated in annex 9, it shall pay the following compensation to the recipient:

"*(a)* For each full percentage point below the net nominal power, an amount of DM 3 million;

"*(b)* For each full percentage point by which the specific heat consumption guaranteed is exceeded, an amount of . . .

"For each full percentage point by which the guaranteed net power is exceeded, and also for each full percentage point below the guaranteed specific heat, the recipient shall extend to the supplier half the amounts provided for in the case of failure to achieve the guaranteed values. The maximum amount to be extended by the recipient as a bonus may not exceed the amount fixed as a penalty in paragraph . . ." ([24], p. 12).

## 6. *Exemptions and* force majeure

Impediments that were unforeseeable at the time of the conclusion of the contract may occur after the conclusion of the contract and may prevent a

party from performing its contractual obligations. They can be of a physical nature (earthquakes) or they may be of a legal nature (the amendment of laws that prevent the use of equipment specified in the contract). Exemptions and *force majeure* can be evoked if it becomes impossible to implement the contract, whether temporarily or permanently, for reasons that are beyond the control of a party or because of problems that could not be overcome or avoided through reasonable efforts.

Circumstances that may constitute grounds for exemptions and *force majeure* should be determined by the parties after considering the nature of the project and the losses that may be caused by a party's failure to perform its obligations. It is generally desirable to limit the scope of exemptions and *force majeure* clauses. The wider the scope, the greater the uncertainty concerning the obligations in the contract, for the parties are excused from performing their obligations in a wide range of circumstances.

It should also be noted that different terms, such as "frustration", are used to express exemptions and that terms such as *force majeure* may have a special meaning in some legal systems.

### *7. Check-list of basic points to be considered for the structural design of guarantee clauses*

Clarity:

- *(a)* Definition of ambiguous terms:
  - (i) In the clauses themselves;
  - (ii) In a "definitions" section;
- *(b)* Definition:
  - (i) By using an exclusive list of examples; or
  - (ii) By using an abstract formulation; or
  - (iii) By using a combination of an abstract formulation and a non-exclusive list of examples;
- *(c)* Use of descriptive terms, not value judgements;
- *(d)* Use of objective criteria, not subjective criteria;

Completeness of the guarantee with regard to the following:

- *(a)* Quantity (and tolerances);
- *(b)* Quality (and tolerances);
- *(c)* Place;
- *(d)* Measurements, methods, procedures, authorized institutions and certificates;
- *(e)* Language;

Time element:

- *(a)* Time of delivery;
- *(b)* Time of start up;
- *(c)* Legal consequences;

Burden of risk:

- *(a)* Bearing of risk;
- *(b)* Passing of risk;

Burden of proof with regard to the following:

*(a)* The party;

*(b)* Quality requirements and tolerances;

*(c)* Number, size and type of the samples;

*(d)* Time requirements (for test and for notification);

*(e)* Involvement of third parties;

Causes for remedies:

*(a)* Delays;

*(b)* Non-compliance with guarantees;

*(c)* Injury or damage caused to persons or property (negligence and omissions);

Consequences and remedies:

*(a)* Rectification:
- (i) Repair;
- (ii) Replacement;
- (iii) Alterations and adjustment;
- (iv) Time;
- (v) Place;

*(b)* Substitute repair:
- (i) By the recipient;
- (ii) By third parties;
- (iii) Criteria for selection of third parties;
- (iv) Consequences of defective performance by third parties;
- (v) Notification requirements;
- (vi) Scope of repair;
- (vii) Scope of compensation;

*(c)* Alteration of payments:
- (i) Suspension;
- (ii) Reduction;
- (iii) Return;
- (iv) Revision;
- (v) Maximum limits;

*(d)* Damages:
- (i) Direct damages;
- (ii) Consequential damages;
- (iii) Loss of profit;
- (iv) Calculation methods;
- (v) Liquidated damages;
- (vi) Maximum amount;

*(e)* Penalties;

*(f)* Termination; discontinuation;

*(g)* Securities:

(i) Performance bonds;

(ii) Irrevocable bank guarantees;

(iii) Stand-by letters of credit;

(iv) Retention money;

*(h)* Bonus system;

Exemptions and *force majeure:*

*(a)* Unforeseeable;

*(b)* Physical nature;

*(c)* Legal nature;

*(d)* Party incapable of performing its obligations:

(i) Problems not to be overcome or avoided by conceivable measures;

(ii) Reasons beyond a party's control;

(iii) Exemption from liabilities.

# IV. The formulation and content of individual guarantee and warranty provisions*

Different issues guarantee and warranty provisions on the following issues are dealt with in this chapter. In discussing each of the different issues, the following basic structure is employed: the terms used are briefly defined, followed by a discussion of the purpose and function to be fulfilled by a guarantee or warranty provision on the issue. This is followed by a description of the type of legal regulations and/or contractual provisions currently in use. An analysis is then made of the problems encountered when negotiating, drafting and executing provisions on the issue. Finally, a summary, presented in the form of a check-list, is made of some of the basic points to be considered by the contractual parties.

## A. Guarantees on the correctness and completeness of the technology

The full and correct communication of the technology to the recipient is the primary obligation of the technology supplier. Even though such an obligation may seem self-evident, experience has shown that incomplete documentation, documentation of insufficient specificity or untimely delivery of documentation may impede the successful implementation and assimilation of technology, particularly in developing countries and in cases where the recipient is not familiar with the technology and the supplier is not aware of the need for additional specifications, instructions for the assembly of equipment, operation manuals etc.

### *1. Purpose and function*

A guarantee on completeness and correctness is closely interrelated with the description of the technology. It usually expressly refers back to the definition of the scope and content of the technology to be transferred and any annexes relating thereto. Care must be taken, however, in drafting such a guarantee clause because any explanation or further documentation requested by the recipient that is not included in the contract may be refused by the supplier.

*The materials consulted in preparing this chapter include various national laws, model contracts developed by private organizations, model contracts developed by various United Nations bodies, especially UNIDO, and individual contracts, mainly between suppliers in developed countries and recipients in developing countries.

Guarantees on completeness and correctness are less relevant in pure patent licensing agreements. When the transmission of know-how is at stake, the completeness and correctness of the documentation transmitted and of the other elements in which the know-how is incorporated are essential to the agreement. This applies even more so if third parties, such as contractors or sub-contractors, have to rely on design specifications or other relevant information from the supplier for carrying out their tasks.

### *2. Current legal situation and contractual practice*

Some countries with specific legislation on transfer-of-technology arrangements prescribe the "detailed", "specified", "correct" or "complete" description and transmission of "all" technical data in a general form (see illustrative clause 9).

*Illustrative clause 9*

> "A contract for the acquisition of material rights to technology shall provide for: . . . a guarantee by the technology supplier that the technology transferred, the mode of its transfer, and the documentation are complete . . ." ([20], article 24(2)).

Brazil has a regulation distinguishing between patent licences (illustrative clause 10), contracts in which the supply of industrial technology or technical and industrial co-operation is involved (illustrative clause 11) and technical service agreements (illustrative clause 12).

*Illustrative clause 10*

> "The contract shall . . . expressly indicate the number and the title of the patent or patent application in Brazil" ([5], sect. 2.5.1.a).

*Illustrative clause 11*

> "The contract shall . . . explicitly define, or give the dimensions or details of, all the technical data and information relating to the technology to be transferred, and accurately and clearly specify the scope or field of activity of the technicians" ([5], sects. 4.5.1.a and 5.5.1.a).

*Illustrative clause 12*

> "The contract shall . . . explicitly define and give details of the amount of the services to be provided and accurately and clearly specify the scope or field of activity of the technicians" ([5], sect. 6.5.1.a).

Other legislations without specific regulations on the issue consider obligations on completeness and correctness as implicit obligations and apply

general principles of law: if it is possible to describe the technology in a sufficiently clear and precise manner, its incomplete or incorrect transmission may be considered as incomplete or faulty fulfilment, or even non-fulfilment, of the contractual obligations.

In contractual practice, provisions on completeness and correctness are often covered in other guarantee clauses in the agreement rather than in specific clauses on completeness and correctness. Recent model provisions, however, include such guarantees, stating that all the documentation supplied by the supplier should be correct, complete and up to date (see illustrative clause 13).

*Illustrative clause 13*

> "Subject to the terms and conditions hereinafter set forth, the transferor makes to the transferee the following guarantees: . . . 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 . . ." ([19], p. 76).

In addition, such clauses may also stipulate that the documentation should be presented in a comprehensible manner to a qualified person in the field. The various aspects related to safety and emergency instructions in connection with the use of the technology in the recipient's country should also be covered in such documents.

The consequences of non-fulfilment vary. Consequences laid down by law include rectification, nullity of the contract, reduction in price or compensation for damages. Contractual provisions may describe in more detail how the supplier is to carry out his obligation to complement and/or rectify the transmitted documentation, regulate an adjustment of the dates of delivery and subsequent guarantee periods or apply the general provisions in the case of non-fulfilment or faulty fulfilment, as in illustrative clause 14.

*Illustrative clause 14*

> "The licensor shall ensure that all information required for the detailed engineering of the plant by the licensee or the contractor is made available in accordance with the time schedule, place of delivery and number of copies required, as detailed in annexures 6 and 7. In the event that documents supplied are incomplete or inaccurate and have to be completed or modified, the date of delivery of the documents shall be the date on which such completions or modifications are supplied by the licensor. If any explanation is required by the licensee or the contractor, such explanation shall not be reasonably withheld by the licensor" ([25], p. 26).

### *3. Problems and possible solutions*

An analysis of some of the problems encountered in negotiating, drafting and carrying out provisions guaranteeing correctness and completeness of technology is presented below.

### *(a) Intangible character of technology*

One major problem in describing some technology arises from its intangible character. While patents and other industrial property rights can be identified by their patent application or registration numbers, manufacturing know-how and organizational advice may present difficulties in that they may lack such documentation (see [26], pp. 497 f.).* Thus, it may only be possible to describe certain aspects of know-how according to the nature of the products to be manufactured with it; technical and professional expertise may only be defined by job descriptions or described in terms of the results or objectives to be achieved. In such cases, additional provisions may be needed such as an express assurance that the supplier will provide additional information at the recipient's request (see illustrative clause 14 above).

### *(b) Completeness*

Due to the intangible character of some technology, it is often difficult to specify when the technology or its documentation has been delivered in its entirety. Thus, the supplier may be willing to assure the completeness of the documentation but not that of non-documented technology. Therefore, it may be important to ensure the completeness by other means, such as the inclusion of "know-why" (an explanation why certain technical solutions have been adopted, thus facilitating the comprehension of the technology), an obligation to transmit the technology to the same extent as it is used by the supplier, and visits to the supplier's plant.

Considering that a mere reference to the completeness may give rise to disputes about what is meant by it, it may be wise to provide a detailed list that is open-ended in that it does not exclude the transmission of additional documents not expressly mentioned, as in illustrative clause 15.

#### *Illustrative clause 15*

"The documentation to be supplied for this purpose shall include, but not be limited to:

"*(a)* The process engineering design package described in annexure 8; and

"*(b)* The other technical information, data and drawings listed in annexure 6" ([25], p. 26).

### *(c) Correctness*

The documentation supplied has to be correct and correspond to the agreed technical specification in order to ensure that the expected results will be achieved. Sometimes it may happen that the drawings supplied to the recipient

*Aselmann gives a figure of 60-70 per cent of the total manufacturing know-how required by a less experienced licensee in a developing country for machine tools or electric equipment, which can be described in the form of drawings, operational layouts, instructions, graphs and procedures ([26], p. 499).

do not correspond with the equipment actually delivered. The supplier should be obliged to provide documentation to which the equipment actually delivered should correspond.

It is not unusual for drawings and other technical documents to contain certain errors. Therefore, it is important that the recipient inspects them. Minor mistakes, though easily detected, might have severe consequences for the project if not discovered at an early stage.

It may even happen that documents are not copied from a master drawing that contains all amendments and changes or that amendments are added to the shop documents and not to the master drawing (see illustrative case 2).

*Illustrative case 2*

"The workshop of the supplier has detected an obvious mistake in one document and corrects it in the working document, but not on the master drawing from which the copies for the recipient 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 recipient got a copy of the incorrect master drawing, but because of his lack of familiarity with the technology he did not recognise the mistake and produced deficient goods for a considerable time" (see [27], pp. 21 f.).

The discussion below illustrates possible ways and means of reducing the risk of incomplete and incorrect transmission of information.

(i) *Quality and content of documents*

The documents and their correctness and completeness can be assessed on the basis of certain criteria in order to prevent the occurrence of problems later on. These criteria include:

*(a)* Reproducibility: documents should be easily reproducible with regard to their print and size;

*(b)* Language: translating the documents into the recipient's language may facilitate their use but also brings in the danger of translation errors or use of ambiguous terms;

*(c)* Measurements, norms, standards: these are especially important if one of the parties uses the metric system and the other does not;

*(d)* Operating conditions: these should be clearly indicated;

*(e)* Description of the technology: this may be too scientific to be understood by the recipient's personnel. Therefore, a criterion such as "comprehension by a normally qualified person in that field" is sometimes used in contractual practice. The term "normal", however, is rather ambiguous. More precise language than this may be desirable (for example, "engineer with a degree in chemistry and three years of experience in an ammonia plant"), but the point here is that different portions of the technology also require different levels of comprehension.

(ii) *Transmission of documents*

In the case of complex technology transactions, documents should be transmitted gradually as the planning, construction and erection of a plant progresses rather than all at the same time. The relevant dates and places of delivery need to be fixed in order to avoid delays. The use of flow-charts and/or other devices, such as numbering codes, may be useful.

(iii) *Changes in documentation*

Very often, some of the documents and the specifications may need to be altered because the technology should be tailored to the recipient's specifications (as agreed upon in the contract) and also adapted to specific local conditions (the local inputs and utilities used) or to changes in the legal requirements (regarding workers' safety or environmental protection). In such cases, it is important to ensure that the supplier introduces the necessary changes and/or approves of any changes to be introduced by the recipient in the documents because the supplier's liability usually ends when the recipient does not comply with all specifications set out in the technical documentation. Approval of changes may be ensured by having the supplier sign the documents that have been changed or by an exchange of letters. The method, as well as the scope of the changes required, should be agreed upon between the supplier and the recipient and included in the guarantee provisions or in another part of the contract. The scope and method should not be formulated in a way that might prevent the project from being implemented smoothly.

Changes may also be introduced by the supplier, such as when he has to provide technology that is up to date or the latest available. As a rule, this is in the interest of the recipient and it should be recalled in this connection that most technology transfer legislation provides for the obligation of the supplier to transmit introduced improvements on the technology to the recipient. The recipient, however, may have an interest in not incorporating certain changes because orders may have gone out already and further changes might, for example, incur additional costs or require changes in the provision of inputs. The provision should specify that the guarantees will apply even if the recipient does not make use of changes transmitted after a certain date. In this context it should be mentioned that often a freezing date is agreed upon which defines the date at which, for the purpose of the fulfilment of the contract obligations, changes in the plant design can no longer be introduced.

(iv) *Other parties*

Apart from the recipient, other parties, such as the contractor, engineering companies and suppliers of equipment, may have to rely on certain parts of the technical information. Therefore, the documents should be drafted in such a way as to be comprehensible to these other parties as well. The supplier may obtain certain parts of information himself from third parties. He may not be ready to assume the same degree of responsibility for this portion of the information. These areas need to be clearly specified. It may also be possible to obtain certain guarantees directly from the original supplier.

(v) *Examination*

The examination and subsequent approval of the documentation by the recipient is one possible way of diluting the supplier's responsibilities regarding the correctness and completeness of the documentation. Sometimes errors in documentation will only show when the technology is being implemented or even later when it is actually being run over a longer period of time (see illustrative case 2 above). It is often impossible to examine the correctness and completeness of the documentation immediately because of the extensive amount of figures, charts, graphs etc. The guarantee provision must provide for an adequate period in which the recipient may examine the documentation and make known any errors he may discover.

(vi) *Liability and exemptions*

Sometimes suppliers try to restrict their liability by excluding errors due to negligence (see illustrative case 2 above) or by guaranteeing the completeness only to the best of their knowledge. An objective standard, such as "good engineering practice in the field", "latest state of the art" or "identical with that used by the supplier", may give less cause for different interpretations.

The supplier may also try to exclude liability for documentation that stems from third sources or to limit liability by obliging the recipient to examine the documentation at once. It is practically impossible for the recipient to examine the completeness and correctness of the documentation at the time of transmission. The correct transmission of the technology is the most important individual aspect and a prerequisite for ensuring its later working. For these reasons, the period for the notification of errors should by no means end before test runs have been finished.

(vii) *Corrective action*

The main remedy should always be rectification of the fault, since the objective of the whole transaction can only be fulfilled if the documentation is complete and correct. As long as rectification has not taken place, the recipient should have the right to withhold part or all of his payments. All remedies, including coverage of consequential damages, may be adjusted to the importance of the fault. Thus, parties may exclude or restrict certain remedies or compensation in case of minor faults.

Faults in the documentation will delay the completion and effective functioning of the technology on the recipient's premises. Therefore, "immediate or prompt" correction is most essential. To avoid ambiguities, a precise time span may be added ("immediately, but in no case later than . . . days after notification of the error or omission").

(viii) *Alternatives*

A precise definition of the technology in the agreement may be sufficient where the law applicable to the agreement considers this to be an implied warranty. It should be observed in this context, however, that many laws underline the risk inherent in technology and, therefore, do not apply implied warranties that would be granted in other contracts, such as sales contracts on goods.

### *4. Check-list of basic points to be considered when dealing with guarantees and warranties on completeness and correctness*

Disaggregation of technology as to industrial property rights, secret and non-secret documented know-how, non-documented know-how;

Patents and other industrial property rights:

*(a)* Listing of patents;

*(b)* Number of patents;

*(c)* Country of application or registration;

*(d)* Present state of the application or registration procedure;

Documents:

*(a)* Type:

(i) Design layout;

(ii) Models;

(iii) Process description;

(iv) Construction documents;

(v) Operation manuals;

(vi) Maintenance manuals;

(vii) Material and energy balance;

(viii) Piping and instrument diagrams;

(ix) Safety records;

*(b)* Number;

*(c)* Reproducibility;

*(d)* Language;

*(e)* Measurements;

*(f)* Size of documents;

*(g)* Standards;

*(h)* Ownership;

*(i)* Safety instructions;

Non-documented technology:

*(a)* Job description of experts involved (see also chap. IV, sects. I and J);

*(b)* Reference to the product to be manufactured;

*(c)* Reference to the process to be applied;

*(d)* Reference to the field of use;

*(e)* Visit to the recipient's plant;

*(f)* Oral or written explanations on request,

*(g)* Inclusion of "know-why";

General criteria to describe completeness and correctness:

*(a)* Use of specific or general language identical to that used by the supplier;

*(b)* Latest developments known to the supplier;

Changes in documentation:

*(a)* Reasons for changes;

*(b)* Approval of changes by other parties;

*(c)* Form of approval;

*(d)* Costs in case of changes;

*(e)* Effects on guarantees in case of changes;

*(f)* Freezing date;

Other parties:

*(a)* Approval of specific documentation by third parties (e.g. specific plant design by a civil engineer or the supplier, as the case may be);

*(b)* Limitation to disclosure for technology supplied by third parties to the supplier;

Examination:

*(a)* Responsibility of examination;

*(b)* Time of examination;

*(c)* Plan of examination;

Liability and exemption:

*(a)* Standard:

(i) "Good engineering practice";

(ii) "Latest"; "state-of-the-art";

(iii) "To the best of the supplier's knowledge";

(iv) Exclusion of negligence;

(v) Unapproved changes;

(vi) Technology from third sources;

(vii) Time-limits;

(viii) Minor faults;

Corrective action:

*(a)* Rectification by the supplier;

*(b)* Rectification by the recipient;

*(c)* Time element:

(i) Immediately; promptly;

(ii) No later than . . . days after notification;

*(d)* "Within a reasonable period of time";

*(e)* Withholding of payments;

*(f)* Direct damages;

*(g)* Consequential losses;

*(h)* Reduction of payments;

*(i)* Termination of contract;

*(j)* Nullity of contract;

Alternatives:

*(a)* Implied warranties;

*(b)* Technical capacity of the recipient;

Legal requirements under the law applicable to the contract.

## B. Suitability guarantees

This section includes a discussion of the purpose and function of suitability guarantees, followed by a description of the type of legal regulations and contractual provisions currently in use. An analysis is then made of the problems related to suitability guarantees.

### *1. Purpose and function*

In acquiring the technology, the recipient pursues certain objectives. If these cannot be fully achieved with the technology transferred, the technology will be of little value to the recipient and the transaction will have been useless to him. A suitability guarantee may ensure that the responsibilities of the parties to achieve one or more of the following functions are defined:

*(a)* Technical exploitability of the technology;

*(b)* Commercial exploitability of the technology;

*(c)* Capacity of the technology for achieving specified results under specified conditions.

Strictly speaking, the first function listed above cannot be considered a suitability guarantee in the developmental context. The last function is somewhat similar to a performance guarantee (for a detailed discussion on performance guarantees, see sect. D below). Actually, there may be no need for a suitability guarantee if a broad performance guarantee has been agreed upon. A suitability guarantee may be particulary important if it is not possible to agree on a performance guarantee. Generally, a supplier will be reluctant to agree to a performance guarantee if he provides only know-how because the set-up of other elements needed for operating the technology is beyond his control or influence. In such a situation, a suitability guarantee could be granted by stating that the technology will meet the intended objectives of the technology transfer under specified conditions. This requires a precise definition of the intentions, expected results and circumstances in which the technology is going to be used.

### *2. Current legal situation and contractual practice*

Very few laws or regulations have specific rules on the suitability aspect governing transfer-of-technology transactions. In some countries, such laws or guidelines require that the technology be a proven process ([28], sect. 1.1). The former Argentine law on the transfer of technology contained the implicit clause provided in illustrative clause 16.

*Illustrative clause 16*

"The supplier guarantees that the technology to be transferred will enable the recipient, through the acquisition, to achieve his proposed technical aims . . ." ([17], article 8a).

The general principles of commercial law concerning the fitness or technological exploitability of transferred technology may apply, however, if the parties have not made specific contractual stipulations on the subject.*

Current contractual practice often restricts the scope of the suitability guarantees to conditions prevailing at the supplier's plant. An example of such a clause is given in illustrative clause 17.

*Illustrative clause 17*

"The licensor guarantees that the patents, technical information and other data transferred under this contract are suitable for manufacturing the drug as stipulated herein if used under the same conditions, and with the same intermediaries and other materials, used by the licensor at the licensor's plant at the time of the signing of this contract."

Often contractual provisions only guarantee commercial exploitability in general, as in illustrative clause 18.

*Illustrative clause 18*

"The contractor also hereby agrees that such documents referred to in article . . . shall cover and be based upon the commercially proven know-how available to the process licensors (such documentation to cover the know-how at the time of the signing of the contract, or if mutually agreed to, at a later date)" ([30], p. 100).

In some cases, the licensor rejects a comprehensive suitability guarantee and only guarantees that the technology is technically exploitable or has been technically tested by the supplier (see illustrative clause 19).

*Illustrative clause 19*

"The grantor guarantees that the process has been technically tested in his works and that it has evinced the following characteristics . . .

"The grantor will take no part in the use made by the grantee of the know-how hereby ceded and accordingly gives no undertaking that the grantee will obtain similar results in the use thereof" ([31], p. 26).

In some cases, a specific termination clause of the contract is stipulated as part of the suitability clause. The need of a termination clause becomes particularly important if the supplier does not warrant the technical or commercial exploitability. The clause is generally used only in cases involving the transfer of research results that the supplier has little or no experience in putting to use at the industrial level.

*See, for example, [3], sect. 2-312; for the Federal Republic of Germany, see [29].

In illustrative clause 20, the recipient is given the right to terminate a contract if he is unable, within a certain time-limit, to achieve the expected technical results. Some clauses may provide for a termination clause rather than a suitability guarantee, in case the technology proves to be unsuitable or economically or technically outdated.

*Illustrative clause 20*

"The licensor does not warrant that the invention is capable of industrial realisation nor shall he be responsible for the consequences of any failure . . . to realise it. If industrial realisation proves impossible or too difficult for the licensee, either party may determine the contract. In such a case neither party shall be liable in damages to the other . . .

"The licensor does not warrant that the invention is capable of commercial exploitation. The risks of such exploitation shall be assumed solely by the licensee" ([32], p. 5).

### *3. Problems and possible solutions*

An analysis of some of the problems encountered in negotiating, drafting and carrying out provisions of suitability guarantees is presented below.

#### *(a) Scope of guarantee*

The main problem encountered is the view of many suppliers that transferring technology, especially to countries with different technical, economic and social infrastructure or different personnel qualifications or to countries that use inputs differently, is a risky undertaking. Suppliers often maintain that this attitude hinders them from granting suitability guarantees.

Entering a transfer-of-technology contract is an even riskier undertaking for a recipient who is unfamiliar with the technology and has not used it. The better the supplier and recipient know each other and can evaluate the operation of the technology as well as the conditions under which it is going to be applied in the recipient's country, the greater the chances of reaching the objectives of the agreement. This underlines the importance of extensive communication and mutual exchange of information in the preparatory stage of the transaction. In some cases, arrangements for testing the technology under specific conditions, such as local inputs, are conceded before the final decision is taken to enter into a technology transfer contract. Such arrangements can provide for specific guarantees on access to the technology if tests are successful.

An extensive suitability guarantee assures the attainment of certain specified results. If such a guarantee cannot be reached, technical and/or commercial exploitability should at least be assured. This may be accompanied by the supplier's assurance that he himself has been successful in operating the technology and by his readiness to let the recipient verify this by visiting his plant. Such a provision may be useful regardless of the content of the other parts of the guarantee.

It may not be possible, however, to obtain suitability guarantees for unproven technologies. Such agreements should always provide for the right to

terminate the contract if, for example, the recipient concludes that, despite his best efforts, he will not succeed in exploiting the technology on a commercial basis. Alternatively, the recipient should ensure that there is no obligation on his part to exploit the technology or to pay remuneration regardless of whether the technology is put to use.

### *(b) Criteria for measuring suitability*

Since the recipient is going to use the technology in his plant, he needs a suitability guarantee that is relevant to the conditions prevailing there. The supplier will only be ready to accept such conditions if they are familiar to him. Usually, he will refer to the conditions of his own plant, in which case a compromise may be reached by specifying the conditions in the contract. The recipient should take care that the specifications are realistic in view of the manufacturing conditions in his own plant. Otherwise, the suitability guarantee may prove to have no practical meaning.

### *(c) Separation of responsibilities*

If several parties are involved, it should be specified in the contract to what extent the suitability of the technology depends on conditions set by third parties and who is responsible for meeting the specifications set forth.

### *(d) Corrective action*

If the technology proves to be unsuitable, measured against the specifications contained in the suitability clause, the general types of corrective action should apply. First of all, the supplier should be obliged to complement, rectify or update the technology so that it corresponds to the suitability guarantee. Subsequently, or alternatively, damage claims should be possible. The right of the recipient to terminate the contract and/or be reimbursed for part or all of his payments might also be provided for.

### *(e) Alternatives*

A performance guarantee may serve as a substitute for a suitability guarantee because the suitability of a technology can usually only be measured in terms of its performance. A performance guarantee is often only obtainable when a high degree of packaging, together with heavy participation on the part of the supplier, is involved, in which case it may conflict with other objectives of the recipient.

If the recipient acquires extensive information on the technology in the pre-contractual phase, he may become acquainted with the technology to such a degree that suitability guarantees may become less important.

An efficient way of securing suitability guarantees is to provide for payment of the technology in the form of royalties based on performance, such as sales. The supplier would then be prompted to assist the recipient in arriving at marketable production in order to obtain royalties. A suitability guarantee provision should not be contracted if the supplier only accepts a "negative" suitability guarantee, the main purpose of which is to disclaim or exclude implied warranties provided for under the law applicable to the contract.

### *4. Check-list of basic parts to be considered when dealing with suitability guarantees*

Type of technology:

*(a)* Proven or unproven (experimental);

*(b)* Familiar or unfamiliar to the recipient;

*(c)* Commercial exploitation by the supplier or others;

Scope of guarantee:

*(a)* Achievement of specified results;

*(b)* Commercial exploitability and feasibility;

*(c)* Technical exploitability;

*(d)* Right to visit the supplier's plant;

*(e)* Access to the technology in case of successful tests;

Criteria for measuring suitability:

*(a)* Conditions in the recipient's plant;

*(b)* Conditions specified in the agreement:

(i) Intention of the parties;

(ii) Expected results;

(iii) Specification of raw materials, intermediates etc.;

*(c)* Conditions in the suppplier's plant;

*(d)* Appropriateness of the conditions in view of the conditions in the recipient's plant;

Separation of responsibilities: third party involvement and its effect on the suitability guarantee;

Corrective action:

*(a)* Forms of rectification;

*(b)* Form and extent of the damage claim;

*(c)* Right of (unilateral) termination;

Alternatives:

*(a)* Performance guarantees;

*(b)* Information on the technology in the pre-contractual phase;

*(c)* Payments based on performance, such as sales;

*(d)* Application of implied warranties provided for under the law applicable to the contract;

Requirements under the law applicable to the contract.

## C. Mechanical warranties

Many technology transactions, such as turnkey contracts, are not restricted to the transfer of patented or unpatented knowledge but include the provision of construction and design plans, as well as the supply of machinery and/or

equipment, tools, spare parts, catalysts, materials or the erection of plants. These different items should meet certain standards or achieve certain results.

The guarantee that the plant as a whole is mechanically capable of meeting the operation, or dry-run, requirements is normally called a mechanical warranty. The terms "engineering guarantee" or "guarantee for designs" (for design, construction plans etc.), "catalyst life guarantee", "equipment guarantee", "material guarantee" or "weight guarantee" (for machines, tools, equipment etc.) and "construction guarantee" or "guarantee for workmanship" (for the erection of works etc.) designate different types of mechanical warranties.

## *1. Purpose and function*

While performance guarantees usually apply to the performance of a complex technological process, mechanical warranties apply to specific parts or equipment to be used in that process or to the mechanical capacities of the plant as a whole. When the supplier of a specific piece of equipment guarantees a certain level of performance of the equipment under specified conditions, the latter are sometimes also referred to as performance guarantees.

Mechanical warranties, like most guarantees, assure the recipient of a certain level of quality and performance (economic viability and durability) of the parts supplied and define the supplier's liability. To facilitate the implementation of the technology in the recipient's country, the mechanical warranty should be established in such a way as to permit the detection of defects of certain inputs not only at the end of the guarantee period, but also at an earlier stage. In order to be in a position to trace the origin of defects detected once the input has been installed and the process has been operating for a time, the recipient should keep proper records, analysis and operation logos etc. Otherwise, precious time may be lost and the damages caused to the entire plant and process may be so great that they may even exceed the maximum amount of liability of the supplier. In addition, the recipient's personnel should become acquainted with the technology during the testing that is to take place at different stages. This will facilitate the absorption of the technology, the development of maintenance and repair capabilities etc.

## *2. Current legal situation and contractual practice*

Legislation usually leaves the specification of quality standards to the negotiating parties. If they have not defined them, the non-binding norms of the law of obligations, commercial law and some specific regulations, such as product liability, will apply. These laws generally require that the goods delivered be free from defects and/or fit for the contractual purpose and that services and workmanship meet the standards expected of a person having the proper skills.

In contractual practice the scope of the items covered depends on the scope of the contract. It may include items such as plant and equipment, materials, tools and supplies, as well as all civil works, which may, in turn, include all the buildings, roads, foundations and other work requiring civil engineering. In some cases the recipient may be interested in a weight guarantee

as an indication of the durability, as well as the reliability, of a mechanical construction.

The extent of the warranties is sometimes defined in very general terms such as "any defects", in a reference to general standards such as "sound engineering practice" or in a reference to "specifications in the contract" and its annexes. It is better when reference is made to the various sources of defects, such as faulty or improper design, workmanship, material, manufacture, fabrication, shipment or delivery.

In case of non-fulfilment, the main corrective action undertaken by the supplier usually consists of remedying the defects by repairing or replacing the defective part or parts. But often the mechanical warranty is subject to a number of qualifications, specifications and liability exceptions, limiting the scope of the supplier's liability, as in the mechanical warranty clause given in illustrative clause 21, which was used in a contract between a developed and a developing country.

*Illustrative clause 21*

> "The supplier warrants the good quality and construction of the supplied machinery and shall be responsible during the warranty period for repairing or replacing free of charge any part in which defects arise by reason of the quality of the material, poor workmanship or improper installation, excluding normal wear and tear or damage made by improper operation by the recipient's personnel, by overloading beyond the contractual limits or by *force majeure*."

Accordingly, the supplier may exclude from his liability defects arising from the following:*

*(a)* Improperly used equipment;

*(b)* Changes undertaken by the recipient without prior authorization by the supplier;

*(c)* Materials provided for or design stipulated by the recipient;

*(d)* The recipient's faulty maintenance;

*(e)* Repairs carried out improperly by the recipient;

*(f)* Normal wear and tear.

The modalities of the remedy are usually further qualified by such elements as:

*(a)* Notification of the defects (different requirements for visible and hidden defects) and inspection rights;

*(b)* Time-limits within which the remedy has to be effected;

*(c)* Place of the repair;

*(d)* Cost and risk of transportation, travelling etc.;

*(e)* Standard of workmanship.

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*See the discussion on limits to the extent of the warranty and exceptions in the next subsection.

Contracts generally stipulate that the recipient is obliged to notify the supplier in writing without delay of any defects that have appeared and to give the supplier every opportunity to inspect and remedy them.

With regard to the time-limits within which the remedy has to be effected, it is often stipulated in contracts that the supplier shall "remedy the defects forthwith" or "promptly undertake the necessary corrective action".

As to the place of repair, it may be stated in a contact that the recipient shall return to the supplier for repair or replacement any part in which a defect has appeared, except in cases where it is appropriate to repair the part on the site.

Regarding the standard of workmanship, it is often stipulated in contracts that the repair of defects is to be carried out with "due diligence". Failure to meet this requirement may entitle the recipient to "proceed to do the necessary work at the supplier's risk and expense provided that he does so in a reasonable manner".

A mechanical warranty clause usually provides for an extension of the warranty period in cases involving non-fulfilment, including defective equipment, materials, tools and supplies for which the supplier is liable. Such a clause may state that a new warranty period equal to the original one shall apply, under the same terms and conditions as those applicable to all items, including those used to repair or replace defective ones. If the items subject to the mechanical warranty are used more intensively than stated in the contract, the contract may provide for a reduction of the warranty period.

If the supplier does not fulfil his obligation to remedy any defects or if he fails to remedy any defects "within a reasonable time", the recipient may take consequential action, such as undertaking the remedies himself at the supplier's cost, which in some legal systems may require court authorization. Since the options may vary according to the law applicable to the contract, this matter should be dealt with in the contract. Alternatively, sanctions similar to those in the general rules of the applicable law will be used, such as the right to withhold part or all of the payments, to terminate the contract in case of severe defects and/or to ask for compensation for damages and consequential loss.

In addition, there is usually a provision in the contract on liability for damages caused by the defective part. But the scope of such provisions is usually rather narrow, excluding certain damages such as loss of profit altogether or limiting the liability to a certain amount or to a specific level of fault, such as gross negligence. In certain countries, however, the law may accept demands for compensation of losses even if they are conventionally excluded, especially in cases involving tort.

### *3. Problems and possible solutions*

An analysis of some of the problems encountered on negotiating, drafting and carrying out provisions of mechanical warranties is presented below.

#### *(a) Types of warranty*

The most important question in connection with mechanical (as well as performance) warranties is whether the supplier is only bound to a certain level of diligent and careful workmanship in providing material manufacturing

equipment *(obligation de moyens)* or whether he is *obliged* to do his best to achieve certain results *(obligation de résultat)*. The recipient should urge for provisions guaranteeing certain objective, well-defined results instead of provisions guaranteeing that the supplier will do his best to achieve certain results. The results guaranteed should not be qualified by a reference to fault. Clauses such as the one in illustrative clause 22 should be avoided.

*Illustrative clause 22*

"The supplier undertakes to remedy any defect for which he has been guilty of gross misconduct (or negligence)."

### *(b) Scope of the warranty*

The scope of the mechanical warranty depends on the subject-matter of the agreement. It may cover any of the items mentioned above, such as equipment, materials, tools or supplies, but the recipient should make sure that all items contained in the technology are covered by a guarantee.

### *(c) Extent of the warranty*

Mechanical warranties mainly cover defects of different kinds. Therefore, parties must have a clear understanding of when a given part may be considered defective. For most of the technological equipment, detailed specifications should be set out. Another possibility would be a reference to international standards and norms (International Organization for Standardization (ISO), Deutsche Industrienorm (DIN)); to avoid any misunderstanding, the titles and numbers of the standards to be used should be expressly stated. For more critical and proprietary equipment, the source of origin may be specified. A more general criterion might simply refer to the usual standards in the business and/or country concerned; however, because of the vagueness involved in doing so, this should be avoided.

### *(d) Limits to the extent of the warranty and exceptions*

Usually, the supplier will only warrant those mechanical elements that are under his control and will exclude defects caused by factors beyond his control. The recipient may seek to involve the supplier in the inspection, control and approval of the inputs provided by the recipient or other parties involved. The supplier may thus be made liable for the consequences of insufficient control of certain inputs, unless he explicitly disclaims responsibility for those inputs.

Ambiguous terms, such as faulty maintenance should be defined or replaced by more objective expressions such as disregard of the supplier's written instructions (see [30], p. 194).

### *(e) Warranty period*

While the recipient should be interested in inspecting each item of the supplied technology as early as possible, it may be that certain items can only begin to function properly once they have been installed in the plant or have

been in operation for some time. Therefore, the mechanical warranty should not only be met at the time of delivery but should also last for some time thereafter. It may be measured according to the calendar or in operating hours. In view of the fact that the construction of a plant may take a number of years, the warranty period should start only after successful acceptance test runs have been made. In return, the supplier may require that the warranty period start even before acceptance test runs have been made, if, for no proper reason, the recipient is unwilling to start the test runs. It may also be practical to refer to the actual operating time, in which case, delays and interruptions would not affect the warranty period. The length of the warranty period will depend on the type of equipment. Catalyst life guarantees, for example, may last up to five years.

A mechanical warranty normally provides for a maximum warranty period of the supplier's liability. Although the stipulation of a maximum warranty period might be understandable, it is commonly considered reasonable to release the supplier of his liabilities after a certain period. The length of the period should be negotiated with sufficient care and flexibility in order to avoid the risk of the warranties expiring before the equipment or the plant has been fully tested under normal operating conditions. In the absence of a contractual provision to this effect, the usual statute of limitation should apply.

### *(f) Inspection and tests*

The recipient should assure himself of the proper functioning of each item as early as possible in order to reduce to a minimum the possibility of damages and time delays occurring. In many cases, initial inspection should take place at the supplier's plant. A second inspection of the items should be undertaken upon their arrival on the recipient's site in order to detect any damages that may have occurred while they were being transported and ascertain how they function under local conditions before they are installed. Such inspection should, if possible, be undertaken in the presence of both parties.

Test procedures, where necessary, should be clearly spelt out. The recipient may not have the testing equipment or the expertise to test the material himself. In such cases, he should ensure that testing equipment is made available to him or both parties should agree on qualified consultants or laboratories to perform the tests (see also the discussion on test procedures in sect. D below).

### *(g) Corrective action: remedying defects*

The recipient is not interested in damage payments but in a properly functioning technology. Therefore, remedying defects is a primary objective and particular care should be taken to see to it that it is done properly. The time period within which a defect has to be rectified, the place of the rectification, the diligence with which the rectification is to be carried out and all cost and risk elements that may arise in the course of the rectification should form part of the warranty provision. Looking at the time element, an expression such as forthwith, which is often used in contractual practice, might be replaced by one asking for the utmost speed, such as with all (possible) speed ([33], clauses 28 and 33.2), expeditiously or within a minimal amount of time. In order to speed matters up, the recipient may be obliged to notify the supplier promptly of the need for repairs or replacement, as in illustrative clause 23.

*Illustrative clause 23*

> "In the event that any defects are found in the equipment, erection or civil works within their warranty period, the purchaser will immediately inform the contractor by telegram/telex and the contractor will promptly respond to the communication" ([30], p. 194).

In principle, all costs directly connected with eliminating the defect, including shipping and travelling costs, should be borne by the supplier, even if the original obligation had to be fulfilled "ex supplier's works" or "free on board" ([30], pp. 192-193). In this case, the recipient has already paid the transportation costs for the first defective part. There is no reason to have him pay this a second time unless the defect falls within his reponsibility.

Other corrective action should only take place in addition to the primary corrective action of remedying the defect or if the supplier fails to remedy the defect. Failure to remedy the defect is considered to have occurred not only when the defect cannot be eliminated but also when it has been unduly delayed or when repair work has not been carried out with the proper care.

In the corrective action proposed in illustrative clause 24, the recipient himself is to take the necessary steps to remedy the defect.

*Illustrative clause 24*

> "If . . . the contractor shall make default or delay in diligenty commencing, continuing and completing the making good of such defect, breakage or failure in a manner satisfactory to the purchaser, the purchaser may proceed to do so independently and to place the works in good operating condition in accordance with the contract, and the contractor shall be liable for all costs, charges and expenses incurred by the purchaser in connection therewith and shall pay the purchaser an amount equal to such costs, charges and expenses upon receipt of invoices" ([30], pp. 192-193).

This approach may also be used in case of minor defects, where involvement of a contractor from abroad would be unjustifiably costly, or in emergency cases. But care must be taken that the supplier is not relieved of his other guarantee obligations on the grounds that the remedial action taken by the recipient was not authorized.

A defective part may cause damage to other portions of the works, injuries to employees and other persons, and loss of profits. Such damage should be covered by a clause entitling the recipient to damage claims. Suppliers, however, often have strong reservations about such provisions. They may be only ready to accept liability to an extent that can be insured at a reasonable premium.

### *(h) Separation of responsibilities*

If the technology supplier is not supplying the equipment as well, the equipment is usually not covered by any guarantee given by him. Therefore, the recipient has to ensure that independent suppliers also agree to guarantees. Since the equipment will be used together with the technology, any guarantee

concerning the technology will be affected by the quality of the equipment. The recipient should try to oblige the technology supplier to inspect all equipment and parts, or at least the critical and proprietary equipment, and to affirm that they are consistent with the specifications on which his own guarantee is based. The same, of course, applies to any equipment supplied or work performed by the recipient himself. If the recipient is not able to commit the supplier to carrying out such extensive inspection, the specifications of any equipment or material acquired from third parties should be scrupulously compared with the specifications given by the technology supplier.

If the technology supplier has to provide all the equipment and uses sub-contractors for this purpose, the fulfilment of any mechanical warranty is his responsibility. Nevertheless, the recipient may be well advised to inspect the material himself. As already pointed out, this will help him to develop a better understanding of the technology; it is also another way to avoid defects at a later stage. This is of particular importance if the maximum amount of liability that may be obtained from the supplier is limited, as is usually the case. The recipient, however, has to take care that by carrying out the inspection he does not relieve the supplier of his liability for the equipment and does not prejudice his own right to claim a warranty at a later stage (see illustrative clause 25). Also, confusion regarding the responsibilities of different parties on the supplying side (between technology partners, contractors etc.) should be avoided.

*Illustrative clause 25*

> "All equipment, materials and work performed in connection with this contract, with the exceptions to be agreed between the contractor and the purchaser, shall be available for inspection by the purchaser (through his duly authorized representatives). The contractor and his sub-contractors shall provide safe and necessary access for the inspection envisaged by this article. The purchaser shall be afforded full and free access to the shops, factories, site or places of business of the contractor, the sub-contractors and/or suppliers for such inspection to determine the condition and progress of work under the contract. Neither the failure to make such inspection nor failure to discover defective workmanship, materials or equipment, or approval of, or payment to, the contractor for such work, materials or equipment (pursuant to this contract) shall prejudice the rights of the purchaser thereafter to require correction, replacement or reject the same as herein provided" ([30], p. 141).

The recipient should bear in mind that not only are mechanical warranties guaranteed to him by suppliers, but he may be the grantor of such warranties as well, to the extent that he provides equipment etc. through his own facilities or own sub-contractors.

### *(i) Alternatives*

It is sometimes suggested that warranties for good workmanship regarding the construction and erection of the works might not be necessary in a turnkey contract because such warranties are only for the construction and pre-

operational stage of the project and expire when the performance guarantees become effective. This only holds true for a turnkey contract. Even then, it may be difficult to establish responsibility for non-fulfilment. In such cases, a mechanical warranty may be useful. In addition, mechanical warranties have the important task of detecting any defects at the earliest stage possible. For these reasons, performance guarantees can only partially replace mechanical warranties.

If the technology supplier does not provide the equipment himself or through sub-contractors, he may be obliged to inspect all parts coming from third parties and/or at least provide the recipient with a list of potential suppliers who are capable of providing equipment with the proper quality.

Since mechanical warranties may also be used to restrict the supplier's responsibility under the non-binding provisions of the law applicable to the contract, in some cases, it may be better to refrain from a warranty altogether and rely on the law.

### *4. Check-list of basic points to be considered when dealing with mechanical warranties*

Types of mechanical warranty:

- *(a)* "Best-effort" obligation *(obligation de moyens);*
- *(b)* Achievements of result *(obligation de résultat);*
- *(c)* Degree of fault necessary;

Scope of the warranty:

- *(a)* Design;
- *(b)* Engineering;
- *(c)* Construction;
- *(d)* Weight;
- *(e)* Catalyst life;
- *(f)* Materials;
- *(g)* Tools;
- *(h)* Equipment, critical and proprietary equipment;
- *(i)* Spare parts;
- *(j)* Foundations of buildings;
- *(k)* Civil works;
- *(l)* Plant;

Extent of the warranty:

- *(a)* Key works:
  - (i) Defects;
  - (ii) Breakage;
  - (iii) Failure;
- *(b)* Definition of defect or other key words:
  - (i) Specification in the contract;
  - (ii) Reference to international standards and norms;

(iii) Reference to purpose of contract;
(iv) Reference to good engineering standards or usual practice in the field;

*(c)* Cause of defect:
(i) No reference;
(ii) (Non-)exclusive list of causes:
a. Faulty design;
b. Material;
c. Faulty manufacture or fabrication;
d. Faulty workmanship;
e. Improper shipment;
f. Improper transportation;

*(d)* Conditions in the recipient's country;

Limits to the extent of the warranty and exceptions:

*(a)* Maintenance carried out by the recipient:
(i) Recipient's fault;
(ii) Disregard of instructions;

*(b)* Changes by the recipient:
(i) Specific disclaimer by the supplier;
(ii) Obligation of the supplier to inspect the inputs and issue certificates of acceptance;

*(c)* Materials and designs of the recipient:
(i) Specific disclaimer issued by the supplier;
(ii) Obligation to inspect (certificate of acceptance);
(iii) Checking procedure;

Warranty period:

*(a)* Measurement:
(i) According to the calendar;
(ii) Operating time;

*(b)* Achievement of results:
(i) Differentiation of the length of the period according to the item concerned;
(ii) Beginning of the period;
(iii) Extension of the period;
(iv) Reasons;

*(c)* Items covered by the extended period;

*(d)* Use of the actual operating time as an alternative;

*(e)* Maximum period;

*(f)* Warranty period for replacement parts;

Inspection and tests:

*(a)* Place of inspection:
(i) Supplier's plant;
(ii) Recipient's plant site;

*(b)* Time of inspection:
(i) Before shipment;

(ii) Upon arrival at the recipient's site;
(iii) After installation;

*(c)* Inspection personnel:
(i) Recipient's personnel;
(ii) Consultants;
(iii) Independent persons;

Test procedures:

*(a)* Test agreements between the parties;

*(b)* Measurements, specifications;

*(c)* Test methods and recording;

*(d)* Expertise of the testing personnel;

*(e)* Availability of the testing equipment;

Corrective action: rectification:

*(a)* Form of rectification:
(i) Repair;
(ii) Replacement;
(iii) Additions;

*(b)* Place of rectification:
(i) Recipient's plant;
(ii) Supplier's plant;

*(c)* Diligence with which the action is to be carried out:
(i) Due diligence;
(ii) Good workmanship;

*(d)* Speed:
(i) Forthwith;
(ii) Expeditiously;
(iii) With all (possible) speed;
(iv) Within a minimal amount of time;
(v) Within a reasonable amount of time;

*(e)* Notification by the recipient;

*(f)* Cost of rectification:
(i) Direct costs/replacement parts;
(ii) Shipping costs;
(iii) Travel expenses;
(iv) Other expenses;

Other corrective action:

*(a)* Reasons;

*(b)* Failure to rectify:
(i) Failure to rectify on time;
(ii) Damage;

*(c)* Injury to persons inside or outside the plant:
(i) Loss of profits;
(ii) Minor defects;

*(d)* Defect remedied by the recipient: prior notification;

*(e)* Form of remedy:

(i) Requirement for reimbursement;

(ii) Effects on the supplier's guarantees;

*(f)* Damages:

(i) For delays;

(ii) For damages to other parts of technology;

(iii) For injuries;

(iv) For loss of profits;

(v) Calculation of damages;

(vi) Maximum amount of damages;

*(g)* Retention of payment;

*(h)* Diminution of payment;

*(i)* Termination of the contract;

Separation of responsibilities:

*(a)* Inspection of equipment from third parties or sub-contractors of the supplier;

*(b)* Pre-inspection by the recipient and consequences;

*(c)* Inspection of equipment of third parties by the supplier;

Burden of proof;

Alternatives:

*(a)* Performance guarantees;

*(b)* Information;

*(c)* Reliability of suppliers;

*(d)* No mechanical warranty: use of (non-)binding provisions of applicable law;

Legal requirements.

## D. Performance guarantees

From the recipient's point of view, the successful setting up of an industrial plant is assessed by the achievement of performance goals that are established by the parties when they sign the contract. The final acceptance of the plant only takes place when it has been shown that the technology will operate and produce specified results measured by such parameters as product quality, production rate, productivity, yield, catalyst consumption, utilities consumption, rejection rate, scrap loss and shelf-life.

### *1. Purpose and function*

While mechanical warranties deal with the proper mechanical functioning of equipment and works, performance guarantees deal with the results of the technology that are to be obtained under specified conditions. Thus, the primary function of a performance guarantee is to define the responsibilities of

the parties in terms of the achievement of results agreed upon as part of the technology transfer transaction. A performance guarantee will also provide for sanctions and remedies if the predicted results, as defined in the contract, are not met.

The value of a performance guarantee is dependent on whether it offers a precise and comprehensive description of the parameters that must be met. In order to be able to define a complete set of critical parameters, the recipient has to familiarize himself closely with the technology. This shows the important preventive function of performance guarantees: since the recipient is interested in a smoothly running technology without defects and the supplier is anxious to avoid costly repairs or damages, a performance guarantee should induce both of them to take steps in the course of transferring the technology to ensure that the performance parameters will be met.

### 2. *Current legal situation and contractual practice*

An overview of the legislation on transfer of technology in force in developing countries reveals that, in most cases, the regulation of performance guarantees has not been expressly dealt with. One exception is the Yugoslav law on technology referred to in illustrative clause 3 above. It stipulates that agreements on the acquisition of technology must provide for guarantees on the achievement of predetermined results (see illustrative clause 27).

*Illustrative clause 27*

> "A contract for the acquisition of material rights to technology shall provide for . . . a guarantee from the supplier of the technology (fixing penalties, damages for losses . . .) regarding the achievement within the envisaged term of the results specified in the contract, account being taken of the conditions under which, as specified in the contract, the technology is to be used . . ." ([20], article 24 (6)).

Another exception is a Mexican law on technology transfer, which stipulates that a contract may not be approved when "the supplier does not warrant the quality and results of the contractual technology" ([34], article 15, sect. XIII).

Among the regulations of developed countries, the International Commercial Contracts Act of the German Democratic Republic deserves to be mentioned. It prescribes that under contracts for plant erection the parties have, *inter alia*, obligations regarding the proof of quality guarantees and the execution of performance tests (see [11], pp. 36-39).

In contractual practice, performance guarantees usually consist of the following elements:

*(a)* Conditions that are prerequisites for the performance guarantee, such as:

(i) Fulfilment of construction requirements;

(ii) Absence of mechanical defects;

(iii) Availability and specified quality of feedstocks;

*(b)* Specification of performance parameters, such as:

(i) Capacity;

(ii) Consumption of raw materials, utilities, quality and quantity of emissions/effluents;

(iii) Product quality;

(iv) Time of the test run;

*(c)* Performance test procedure regulating various aspects, such as:

(i) Starting time;

(ii) Duration;

(iii) Performance test parameters (evaluation criteria);

(iv) Personnel in charge (suppliers, recipients etc.) and their qualifications;

(v) Test methods, sampling and recording;

*(d)* Corrective action and extent of liability in case of failure to meet the performance guarantee, such as:

(i) Repair and modification;

(ii) Compensation for defects and damages.

### *(a) Prerequisites for performance guarantees*

Usually a number of prerequisites for the performance guarantee need to be fulfilled by the recipient before the supplier will guarantee the performance of the technology transferred. Such prerequisites may include:

*(a)* The plant must be free from mechanical defects that would affect the possibility of the performance test run being carried out under constant and safe conditions;

*(b)* The plant must be constructed in accordance with process designs and specifications provided by the supplier;

*(c)* Because the plant must be operated during the test run under normal conditions, the recipient must ensure that sufficient raw materials (feedstocks) of a specified quality are on hand for a test run at the designed capacity for the number of days stated in the contract (see illustrative clause 28, subparagraph *(a)*).

### *(b) Performance parameters*

All performance parameters or performance criteria (e.g. capacity, raw material consumption, emissions/effluents and product quality) relevant to the achievement of the objectives of the contract should be clearly spelt out in the exhibits or in the guarantee provision itself, as in illustrative clause 28, subparagraph *(b)*.

#### *Illustrative clause 28*

"The licensor guarantees the performance of said plant in the following respects and under the following terms and conditions:

"*(a)* In a performance test run, hereinafter described, during which said plant is free from mechanical defects substan-

tially affecting process operability, said plant, if constructed in accordance with process designs and process specifications provided by licensor . . . pursuant to this licence and approved by the licensor for construction and if prepared for operation in accordance with the licensor's instructions and subsequently operated in accordance with such instructions at not substantially greater than the designed capacity but not less than the guaranteed capacity, will meet the guarantees of subparagraph *(b)* of this article when employing:

"(i) . . . tonnes of feedstock meeting the following specifications:

"a. Impurity of component: . . .

"b. Maximum quantity: . . .

"c. Test method: . . .

"(ii) . . .

"*(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 . . . days per calendar year;

"(ii) Yield to specification product as shown below will not be less than . . . weight per cent based on the total weight of feedstocks charged to said plant;

"(iii) The product shall meet the following quality specifications:

"a. Chlorides and other halides: . . . parts per million maximum in total, according to the American Society of Engineers test method . . ."

"b. . . ."

### *(c) Time of the performance test*

Performance tests are normally carried out after certain prerequisites for the performance guarantee have been fulfilled. Usually the contract sets a time-limit for the realization of such tests, for instance, a certain number of months from the effective date of the contract or from the date on which the plant began operation.

Depending on the type of contract, the supplier and recipient often have conflicting interests regarding the amount of time within which the performance tests should be carried out. For instance, in a turnkey contract, the recipient will be interested in having the test run carried out as soon as possible because the time-limit for the test run also corresponds to the date of delivery of the plant.

In a licensing agreement where the licensor is responsible for providing the know-how but not the construction of the plant, the licensor will be interested in having the performance test run completed as soon as possible as it will bring his responsibilities to an end and release a part of the payment that will become due upon the completion of the performance tests. In such a licensing agreement, however, the licensee should take precautions against delays in construction that might result in the completion of the plant on a date later than the one on which the licensor's responsibility with regard to the test run expires. Such a situation would release the licensor from his obligations before the performance of the plant could be tested.

To avoid or reduce to a minimum such a risk, the time-limit for the test run should be negotiated in a flexible way, allowing for delays that usually occur in the construction and completion of industrial plants. Moreover, the licensee should make every effort to see that the guarantee test run is carried out within the time-limit established in the contract and urge his suppliers and sub-contractors to do likewise. Both parties are interested in reducing their risks. A compromise between the different interests of the supplier and the recipient should be made by fixing a time for the test run that is reasonable and acceptable to both parties. A contract could also provide for an additional period in which the supplier's obligations could continue to exist but at an additional cost, in case of delays not attributable to the supplier.

### *(d) Performance test procedure*

If performance guarantees are provided for, the test procedure and testing conditions, such as starting time, place and personnel, should be described. A simplified clause to be completed according to the parties' requirements is provided in illustrative clause 29.

#### *Illustrative clause 29*

"In order to determine whether the warranty set forth herein has been met, once the licensor and licensee have agreed that the licensee's plant has reached normal operating conditions, a test run shall be carried out on the site in the presence of the licensor's personnel, the details of which shall be agreed upon by the parties. The performance test shall be a . . .hour period of continuous operation. The production capacity, raw material requirements and quality of the product shall be measured and analysed. If the warranted results are met, the test run shall be considered successful and a joint confirmation shall give relief to the licensor."

The first sentence in illustrative clause 29 regulates the starting time of the test, the participation of the supplier and the test procedure. The second sentence regulates the duration of the test, and the third sentence, the performance criteria.

Agreement may be reached on the details of the test procedure later. The role and qualifications of the licensor's personnel to be present during the test run would have to be specified in such an agreement.

### *(e) Corrective action and extent of liability*

If the performance test fails to meet the guaranteed results, the supplier usually has the right to repeat the test for a certain number of times, as provided in illustrative clause 30.

#### *illustrative clause 30*

"If the performance test fails to meet the guaranteed results, the licen or, having given the licensee . . . week's notice, shall

have the right to carry out at a time satisfactory to the licensee one additional and continuous . . .-hour performance test under the conditions set forth herein in order to demonstrate the ability of said plant to meet the guarantee."

The supplier is usually obliged to repair any defects or modify the plant design in order to meet the performance guarantee. Alternatively, he may be required to provide all the information necessary for the modification and bear the cost of it (see illustrative clause 31).

*Illustrative clause 31*

"In the event that, on the first or a subsequent performance test run, said plant fails to meet one or more of the production and quality guarantees of section . . . of this article as a result of incorrect design of the licensed process as furnished to the licensee by the licensor, then within . . . days from the first performance test run of said plant by the licensee, the licensor shall undertake at his own expense the examination of said plant and promptly provide the process designs, drawings and specifications for any modifications of said plant or otherwise modify the information furnished to the licensee by the licensor, as deemed necessary by the licensor to ensure that the conditions guaranteed by the licensor as aforesaid will be met . . ."

In some cases, the supplier may, at the recipient's request, be required to reimburse the recipient for the costs of modifications, up to the limit of the supplier's financial liability. Alternatively, the supplier may, at the recipient's request, be required to pay the liquidated damages agreed upon in the contract rather than be obliged to repair the defects and/or modify the plant design. If the contractual payments constitute a royalty on the sales, the liabilities can be established as part of the royalty to be deducted for the purpose of refunding the cost of modifications or payment for compensation as agreed upon by the parties (see illustrative clause 32).

*Illustrative clause 32*

"If any modification recommended by the licensor in accordance with this provision is carried out by the licensee, then the licensor shall credit against one half of the royalty paid and payable by the licensee with reference to said plant up to the appropriate refund of the cost of such modifications determined by the licensor to be necessary for said plant to perform in accordance wit the unmet guarantees."

As in illustrative clause 32, the guarantee provisions normally include an obligation to carry out repair work or modifications required after unsuccessful test runs, which sometimes can be offset against an obligation to pay an amount of money that is normally limited to a sum or a percentage of the fees or royalties established in the agreement. The obligation to pay may be a poor remedy from the recipient's point of view, as it usually provides for limited

financial compensation for failure to repair defects or make modifications in the design so that the technology or plant may operate efficiently. The monetary compensation for not achieving the performance obligation should be negotiated and fixed in such a manner as to compel the supplier to do his best.

Contractual provisions may not only limit the amount of the supplier's liability, but may also narrow the scope of the liability to direct losses and exclude any consequential loss or damage, as well as the loss of anticipated profits. Thus, if not properly negotiated, a performance guarantee clause may provide the recipient with less protection than he would have under the provisions of the general law in most countries.

### *3. Problems and possible solutions*

Even if an agreement provides for technically adequate performance guarantee clauses, it may not prompt the supplier to perform as well as a real compensatory value for the recipient, owing to factors such as the limitation of the supplier's overall liability and the frequent establishment of low liquidated damages.

Performance guarantees, which are the most complex and difficult type of guarantee, often prove to be less than satisfactory for the following reasons:

*(a)* They may be subject to tight pre-conditions that are difficult for the recipient to meet;

*(b)* They may induce the supplier to overdesign the whole plant, thus raising costs;

*(c)* They may only be granted against higher costs for the technology;

*(d)* They may provide for insufficient remedies in case of failure.

#### *(a) Proper selection of critical parameters*

The recipient should ensure that all relevant production parameters are adequately covered in the guarantee provisions, even if in complicated cases this might require his calling on expert advice from outside. Otherwise, the supplier may easily disclaim all liability and still not achieve the recipient's objectives (see illustration case 3 and chap. III, sect. A, above).

*Illustrative case 3*

"When building a plant for the production of alcohol for a public enterprise in Costa Rica, the contractor guaranteed a certain capacity but avoided any specifications regarding the yield and other key parameters. The plant did not operate economically for a long time because the guaranteed capacity could not be reached without making excessive use of materials and utilities."

(i) *Availability of materials*

Some materials with strict specifications may not be easy to obtain or may represent an undue economic burden for the recipient, such as reliance on

expensive inputs from abroad. In order to avoid such inconveniences, the recipient should investigate the effects that the use of raw materials with different specifications would have on the characteristics and commercial value of the final product. 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 the required purity should be discussed with the supplier before the recipient agrees to such guarantee conditions. Perhaps the specifications can be changed. If not, perhaps the licensee may be advised on how the specified purity of the feedstocks can be achieved.

(ii) *Adaptation to local conditions*

Usually the supplier will avoid granting a performance guarantee covering the local operating conditions on the basis that he has only operated the process in his own environment. The recipient, however, must ensure that the technology can be operated under local conditions. An appropriate guarantee should be provided for in the agreement even if additional research and work must be carried out by the supplier before the adaptation can be made.

(iii) *Overdesign*

Too demanding or strict guaranty provisions may lead the technology supplier to overdesign, and the resulting extra cost will be borne by the recipient. For example, a plant with an annual capacity of 100,000 tonnes will provide a guaranteed annual capacity of 100,000 tonnes and will usually be designed to produce 105,000 tonnes per year. Unreasonable insistence on achieving the guaranteed capacity may, however, force the supplier to design the plant to produce 120,000 tonnes per year.

### *(b) Time and place of guarantee*

The performance guarantee test usually takes place only after the mechanical works have been completed and production has been stabilized. Detection of defects at such a late stage may imply considerable delays and costs. For this reason, in some industries, prior to the signature of the agreement, the suitability of the process, particularly with regard to the availability of raw materials, should be tested in the supplier's plant.

### *(c) Test procedure*

Prior to the tests, the parties should establish a test agreement defining the testing, sampling and recording procedures, as well as the role and responsibilities of each of the parties. The parties or their consultants must fully comprehend the test method and be able to evaluate the test results. The test procedure should reflect normal operating conditions as much as possible. Tests should be executed by the recipient's personnel to the greatest extent possible. In so far as some functions are executed by the supplier's personnel, some of the recipient's personnel should be present for the purposes of learning, helping and witnessing. The duration of the test run will depend on the technology. In the chemical industry, a performance test lasting one, two or

three days is normal. In the fertilizer industry, a seven-day test is suggested after the plant has been working continuously at around 80 per cent capacity for 21-30 days.

### *(d) Division of responsibilities*

The type of transaction and the type of contract play an important role as regards the division of responsibilities between the parties, which may have a great impact on the formulation of performance guarantees. The simplest case is that of a turnkey contract, while the most complex one is when separate contracts are established for different supplies and works. This lack of balance has no easy solution. Certainly, it is not advisable to promote the packaging of the transaction, as suggested by ECE, in order to increase the level of guarantees granted by the supplier ([35], p. 9). Such a recommendation contradicts the policies of many developing countries, which encourage unpackaging in order to reduce costs, foster the participation of national suppliers of goods, services and technology and facilitate the latter's absorption (see [36]). Furthermore, the unpackaging of large and complex projects has, in some cases, taken place without prejudicing the technology supplier's overall responsibility. An example of this is the setting up of the first atomic plant in Argentina, where the supplier agreed to guarantee the functioning of the whole plant, including the net electric power, heat consumption and maximum annual loss of heavy water, despite the fact that he was obliged to sub-contract locally to the largest extent possible ([24], pp. 20-21).

### *(e) Corrective action*

The main obligation of the supplier should always be to rectify any defects. As mentioned in the discussion of illustrative clause 32 above, the supplier may terminate his efforts to overcome such failure by paying a certain amount of money instead. The fact that the supplier is permitted to replace an obligation to carry out repair work or modifications, which is the real interest of the recipient, by an obligation to pay an amount of money presents a key weakness in the current modalities of performance guarantees. Even if the amount paid is sufficient, it does not solve the recipient's real problem of putting the technology or plant into operation within a reasonable amount of time. When the supplier has failed, the recipient is generally not in a good position to rectify the existing defects himself. In particular, when the setting up of a new plant is involved, an irreversible situation has been created once the performance test stage has been reached, when the courses of action available to the recipient are subject to serious constraints.

The recipient is not interested in damage payments but in a properly working technology. Therefore, no limitation should apply as regards the work required for rectifying defects for which the supplier is responsible. In order to retain a certain degree of flexibility, performance guarantees may be classified as absolute or penaltiable ([30], pp. 33-34). Absolute guarantees represent the obligation of the contractor to meet the guaranteed parameters without any limitation of liability as to his obligation to rectify the plant to meet those guarantees. Such guarantees cannot be satisfied by the payment of liquidated damages. The contractor is thus obliged to make the plant capable of achieving the guarantees. Penaltiable guarantees are guarantees that can be satisfied by

the contractor on payment of liquidated damages. If the contractor is unable to meet those guarantees, he may rectify the plant to make it capable of meeting those guarantees or, if he prefe ay liquidated damages and thereby free himself of any further obligation gard to the fulfilment of the penaltiable guarantees (see also the discussion in chap. III, sect. D, above, on consequences and remedies in case of non-fulfilment).

### *(f) Alternatives*

If it is not possible for the recipient to obtain performance guarantees, he may reduce the risk of project failure by carrying out performance or demonstration tests at the supplier's plant at an early stage of the transaction. This procedure, which is particularly applicable to process industries, may at least permit a timely verification of whether the technology is capable of attaining the expected parameters. The use of such "look-and-see" agreements and the choice of well-known, proven technology may reduce the recipient's risks. The recipient'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 that may affect the agreed upon performance guarantees. In some instances, technology suppliers may be reluctant to accept such an obligation and may try to substitute for it the duty to check, but not to approve, the elements referred to. Moreover, more extensive use of performance bond guarantees, as practised in the United States, might be explored (for more details see chap. IV, sect. I). Overdesign may also be a means of ensuring the fulfilment of some performance parameters. A supplementary measure may be the duplication of critical items of equipment. Different items of equipment, such as pumps, may have certain parts in common, in which case spare parts for one item of equipment might be used for others.

## *4. Check-list of basic points to be considered when dealing with performance guarantees*

Need for performance guarantees:

- *(a)* Familiarity with technology;
- *(b)* Risk involved;
- *(c)* Cost of guarantee;
- *(d)* Reputation of the supplier;
- *(e)* Type of technology.

Scope and critical parameters:

- *(a)* Locally available materials etc.;
- *(b)* Rating of critical parameters, possible trade-offs;
- *(c)* Adaptation of specifications to local conditions;
- *(d)* Overdesign.

Time and place of guarantee:

- *(a)* At the supplier's plant;

*(b)* At the recipient's plant:
  (i) After the mechanical guarantee;
  (ii) After stabilization.

Test procedure:

*(a)* Test agreements;

*(b)* Prerequisites:
  (i) Mechanical acceptance;
  (ii) Dry run;
  (iii) Official permits;

*(c)* Prior notification;

*(d)* Commencement of the test:
  (i) Delays caused by the supplier;
  (ii) Delays caused by the recipient;
  (iii) Delays caused by third parties;

*(e)* Duration;

*(f)* Personnel:
  (i) Qualifications;
  (ii) Present during the test;
  (iii) Operating crew;

*(g)* Inputs and utilities:
  (i) Quantity;
  (ii) Quality;
  (iii) Responsibility for procurement;

*(h)* Duration of the test;

*(i)* Performance criteria;

*(j)* Test methods:
  (i) Measurement;
  (ii) Methods of analysis;
  (iii) Responsibility;
  (iv) Tolerances;

*(k)* Evidence:
  (i) Certificates;
  (ii) Record books;
  (iii) Samples;
  (iv) Photos;

*(l)* Cost of the test procedure;

*(m)* Effects of failure:
  (i) Supplier's responsibility;
  (ii) Recipient's responsibility;
  (iii) Responsibility of third parties.

*(n)* Repetitive tests:
  (i) Time and requirements;
  (ii) Maximum number.

Changes:

*(a)* Reasons for changes;

*(b)* Effects on performance guarantee;

*(c)* Effects on test procedure.

Division of responsibilities:

*(a)* Unpackaging versus packaging;

*(b)* Co-ordination of various responsibilities;

*(c)* Responsibility for individual items:

(i) Inputs;

(ii) Personnel operating test runs;

(iii) Assistance;

(iv) Notification;

(v) Delays.

Corrective action:

*(a)* Rectification:

(i) Time;

(ii) Changes;

*(b)* Absolute versus penaltiable guarantees;

*(c)* Liquidated damages.

Alternatives:

*(a)* Look-and-see agreements;

*(b)* Demonstration or performance of well-known, proven technology;

*(c)* Packaging;

*(d)* Prior approval of all equipment by the supplier;

*(e)* Performance bonds.

## E. Legal titles and infringement

In this section, the purpose and function of provisions concerning legal titles and infringement are first discussed. This is followed by a description of the current legal situation and contractual practice with regard to such matters. Some of the problems often encountered when negotiating, drafting and carrying out provisions related to legal titles and infringement are then analysed.

### *1. Purpose and function*

If the technology transferred includes patents or other industrial property rights, the licensee can only make full use of the technology if the title to it is valid, that is, if the licensor is in an undisputed legal position concerning the technology.

There are three areas of particular concern to those negotiating, drafting or carrying out provisions related to legal titles and infringement:

*(a)* The actual existence of legal protection (ownership and validity), which may include the maintenance in force of the industrial property rights for the duration of the agreement;

*(b)* The possibility that the use of the licensed industrial property rights may infringe the industrial property rights of third parties (third-party claims);

*(c)* The possibility of operating without legal interference by third parties (infringement suits).

For practical purposes, a distinction could be made between refusal of an application for a patent and invalidation of a granted patent as a result of third-party claims. A patent application is refused when the industrial property administration declines to grant the patent because the application fails to conform with the requirements of the patent law. A granted patent is declared invalid after claims are made on the patent right by third parties.

### *2. Current legal situation and contractual practice*

As far as the ownership of the technology is conerned, most laws stipulate that a licensor who concludes a transfer-of-technology agreement implicitly warrants that he is the owner of the technology or has other rights to the technology that empower him to conclude the agreement (see [37], p. 148). As for the validity of the technology, the legal situation varies. Under the laws of some countries, patent licences, for example, do not imply a warranty of the validity of a patent (see [38], pp. 186-187). Under the laws of other countries, the general rules of civil law apply. These stipulate that if subject-matter of a contract is not free from legal defects, the licensee may claim damages (see [37], pp. 59 ff.). Brazil has taken a unique approach by limiting the possibility of granting a patent until the patent application has been published and a request for examination has been filed ([5], sect. 2.1.2).

Some laws stipulate that the licensor has to ensure that the industrial property rights of third parties are not infringed, as in illustrative clauses 33 and 34.

*Illustrative clause 33*

"The patentee shall guarantee, for the duration of the contract, that third parties shall have no right under the patent that would prevent or limit its exploitation" ([39], sect. 18*(i)*).

*Illustrative clause 34*

"The Ministry of Patrimony and Industrial Development shall not register the acts, agreements or contracts referred to in the second article hereof in the following cases: . . . If it is not expressly established that the supplier shall be liable for the infringement of industrial property rights of third parties" ([34], article 15, sect. XII).

Other laws only require that the licensing contract must contain express contractual provisions on this issue (see illustrative clause 35).

*Illustrative clause 35*

"A contract for the acquisition of material rights to technology shall provide for . . . the rights and obligations of the contracting parties in case the assignment of the material rights to technology and the sale of products manufactured thereby have violated the rights of third parties" ([20], article 24 (9)).

The legal consequences of acts by third parties that infringe the licensed rights are usually not expressly regulated. Under the general principles of law, the licensor may be required to take steps to ensure that the licensee can enjoy the full rights of the licensed patent. But the solution itself is mainly left to contractual practice.

In contractual practice, the licensor will usually give a warranty of title, which means that he has the right to possess the patent etc. as stated in such a warranty of title (see illustrative clause 36).

*Illustrative clause 36*

"The licensor has complete property rights and/or the right of disposal for all patent rights . . . and other industrial property that are used for the engineering or in the process within the scope and terms of this agreement."*

A full warranty of legal validity, stating that the licensor or technology supplier is the true and first inventor of the invention or that, to the best of his knowledge, there are no lawful grounds of objection to granting the patents to the licensee, is unusual because it is difficult to be sure that there is no reason for challenging such legal validity (see [19], p. 59). But a warranty of the licensor as regards his own knowledge of the legal validity and steps taken by him to ensure such legal validity is quite common (see illustrative caluse 37).

*Illustrative clause 37*

"The licensor hereby warrants that to the best of his knowledge the technical information to be disclosed pursuant to the agreements do not constitute infringement of patents of third parties."

### *(a) Third-party claims*

The consequences of a patent infringing third-party rights vary in contractual practice.

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*Guarantee clause in an agreement between a developed and a developing country for the production of ammonium nitrate.

(i) *Licensor takes full responsibility*

The licensor may bear the full risk of third-party claims as to the responsibilities for the defence and for any damages or sums that may become payable, as well as the adjustments necessary to cope with the obligations and restrictions emerging from such claims.

If the licensor takes full responsibility with regard to third-party claims, he will undertake at his own expense the defence against any such suit or action. In such a case, the licensee is completely dependent on the licensor with respect to legal action, as the licensor will have sole charge and direction of the defence and the right to be represented by an advisory council of his choice at his expense. The licensee may be expected to co-operate as much as possible in such a suit or action and to furnish any evidence he may have.

When a clause defines the licensor's full responsibility to bear the full risk of third-party claims, "the licensor shall . . . indemnify and hold harmless the licensee" of any sums payable due to infringement and "shall reimburse in full to the licensee any royalties, licence fee or damages paid to a third party as a result of a ruling of a competent court" ([25], pp. 70-72).

In the event of any notice or claim of infringement of third-party patents, the licensor may stipulate the right to eliminate the alleged or adjudicated infringement by procuring for the licensee an appropriate licence or making such changes in the technology as necessary to avoid such infringement. The costs incurred by making use of such a right should be borne by the licensor, and the required changes should not release the licensor from meeting the performance guarantees as stipulated in the contract (see [19], p. 61).

(ii) *Limited responsibility of the licensor*

The responsibility of the licensor may be limited, in which case the licensee may not be held harmless in all respects. Usually the licensor undertakes the defence of such a suit or action at his own expense. In the event that the alleged infringement is denied by court, however, some clauses state that the licensee must repay the licensor the costs incurred in the case. Other clauses go even further, obliging the licensee to undertake such suits and action at his own expense.

The licensor's responsibility may also be limited if he is obliged to hold the licensee harmless of any judgement or damages that may result from a suit alleging infringement of a third party's patent up to a limit, such as a certain percentage of the total payments previously received by the licensor from the licensee.

(iii) *Consequences with respect to royalty payments*

Some clauses provide for suspension of royalty payments or their continuation at a reduced percentage during legal proceedings challenging the validity of the patent. In the event of invalidation of the patent, usually all royalty payment obligations related to the patent will cease.

If the contract does not specify the conditions for reimbursement of royalty payments paid by the licensee, the outcome will depend on the legal situation in the country in question. This may require reimbursement of all or

part of the royalties paid on the grounds that the invalidation of the patent affected the patent licence from the beginning. It may not require the licensor to reimburse the licensee for any funds paid on the grounds that the value of the information initially given to the licensee, as well as the opportunity to enter the market for the patented products under the shield of what appeared to be valid exclusive rights, was a fair exchange for the sums paid.

In this connection, it should be pointed out that, to avoid uncertainty, a provision on reimbursement should indicate whether the compensation for royalties paid on product sales is to be for the total amount paid or for a specified maximum or minimum amount paid during a certain period prior to a specified date, such as the date of the final decision annulling the patent.

### *(b) Infringement by a third party*

If the valid patent is infringed by third parties, contracts usually oblige the licensee to inform the licensor but may also state that the parties shall promptly inform each other of any infringement of the patent that may become known to them. In present contractual practice, the obligation to take the necessary steps in case of such an infringement may rest upon the licensor, the licensee or both.

There are a number of ways of dividing between the licensor and licensee the costs and expenses incurred in proceedings undertaken to stop an infringement by a third party and the right to retain any benefits, such as damages, that may be recovered from such proceedings. Such costs, expenses and benefits are not always passed on to the one responsible for initiating and undertaking the proceedings against infringers, as indicated in the following examples:

*(a)* The parties may jointly undertake the proceedings against infringers and determine their respective responsibilities and the distribution of costs and expenses;

*(b)* The licensor may be obliged to undertake the proceedings at his own expense. He will then also enjoy the benefits of any sum payable by the infringer in the form of royalties, license fees or damages. In the event that the licensor fails to undertake the proceedings as stipulated, the licensee may take legal action against infringers if he is permitted to do so by law or on the basis of powers or authorization provided by the licensor. Any sum payable by infringers will belong to the licensee, but he will also be responsible for all costs and expenses incurred;

*(c)* The licensee may be obliged to undertake at his own expense the proceedings against infringers. As mentioned in paragraph *(b)* above, he can do this directly if he is permitted to do so by law or on the basis of powers or authorization provided by the licensor. The licensee will in this case enjoy the benefits of any sum payable by an infringer. If the licensee does not take prompt legal action, the licensor may choose to do so. The costs and expenses will be paid for by the licensor, who will also enjoy any benefits of a successful outcome of such action.

If the licensor does not take legal action against an infringing third party and, as a result of the infringement, the licensee's income from the product or process is substantially reduced, some contracts may provide for a reduction of the contract price to an extent commensurate with the reduction.

### *3. Problems and possible solutions*

Although warranties regarding legal titles and infringement of industrial property rights are not a recent phenomenon and there have been many court cases, legal views on a number of issues are still divergent and certain legal principles have not been settled in a number of developing countries. Even if patents only play a subordinate role in technology transactions, texts on patent-related matters need to be drafted carefully because insufficient regulations in this area may lead to other portions of the transaction being affected. A provision on the separability of different elements such as industrial property rights and know-how should, if possible, be provided for in the contract, since some courts do not consider partial invalidation of a transaction.

#### *(a) Legal title and ownership*

The licensor's ownership of the licensed patent is considered an implicit warranty. Nevertheless, it may be stated in the contract in order to avoid any misunderstanding and to clarify matters regarding the state of the registration/application of each of the patents and its scope (see illustrative clause 36 above).

#### *(b) Validity*

Licensors are hesitant to give blanket warranties with respect to legal validity because a patent could be invalidated at any time. When a patent application has been filed, there is a risk that the patent will not be granted to the licensor. This may occur if the application fails to conform with the requirements of the patent law, for example, when an invention is in public domain or someone holds the patent right. For this reason, licensors are usually reluctant to warrant that the application will result in a full patent title at a later stage.

The disclaimers currently used in contractual practice do not divide the burden of risk between the licensor and licensee in a balanced way. The validity of the patent lies mainly in the sphere of risk of the licensor; he is also in a better position to be aware of the rights of third parties, having developed the technology and being more familiar with the current state of technological activities in the field than the licensee. The main problem consists of determining the extent of care that must be taken by the licensor to make sure that the patent will be granted or remain valid. A minimum requirement would be for the licensor to give detailed information on which steps he has taken to find, for example, prior patent applications. Such information would facilitate the licensee's assessment of whether or not the legal validity of the patent has a reasonable chance of surviving. Thus, the contract should at least state that the licensor, to the best of his knowledge, guarantees that there is no action being taken, including any pending official procedure or litigation, that might adversely affect the validity of the patent.

#### *(c) Postponement of the contract*

It is sometimes suggested that an agreement should enter into force only after the patent has been granted. Since patent registration procedures can be

lengthy, following such a suggestion may lead to undesirable delays and costs stemming from investments made by the licensee during the preparatory phase.

### *(d) Adaptation of the contract*

If the technology as a whole is still valuable, the primary goal of the recipient should be to obtain the technology in spite of the invalidation of one or more of the patents involved. This may require adaptations and modifications by the licensor on the technical side and the commercial side.

On the technical side, infringement of third-party rights may be avoided by making modifications in the technology or, if necessary, by procuring the licensee a third-party licence, which would assure him of his right to continue using the technology. The costs required would normally be borne by the licensor. Such changes on the technical side should not release the licensor from meeting his guarantee obligations.

On the commercial side, payment conditions may have to be adjusted. It would only be fair for the licensor to take over all fees, royalties and damages that the licensee has to pay to a third party as a result of a court ruling, since it was the patent licensed by the licensor that was the cause of those expenses. The situation is different when the licensee has been alerted during the contract negotiations and is fully aware of disputes or claims concerning the legal validity of a patent. The licensee should also negotiate a provision on the liability of the licensor for the licensee's damages and losses.

### *(e) Consequences of full invalidation without the possibility of adaptation because of third-party claims*

If an adaptation of the technology and the contract terms is not possible or not desirable, termination of the contract should be provided for. National jurisdictions take different views on whether royalty payments should be reimbursed once the patents are invalidated. To avoid uncertainty, a provision on reimbursement should be included in the agreement wherever possible (see the discussion in this section entitled "Licensor takes full responsibility").

### *(f) Consequences of patent application refusal*

The possibilities of terminating the contract and of having royalty payments reimbursed should also be provided for when a patent application is refused and the patent is the crucial component of the technology transfer contract. If the important component is not the patented invention but industrial know-how, the goal of the recipient may be to make use of the technology, in which case he will still have to pay that portion of the royalties that compensates for the transfer of know-how. Only that part of the royalties that he has paid for having the benefit of the patent monopoly should be removed from his obligations.

If the right to terminate the contract is recognized, reimbursement is usually determined from the date of the refusal of the patent application. But the extent of such reimbursement could easily be disputed, particularly when the recipient has profited from the use of the know-how, received technical information or otherwise benefited from his protected situation prior to the refusal. A provision on partial reimbursement could avoid such disputes or uncertainties.

### *(g) Infringement by a third party*

It is important to have a co-operative, speedy procedure to stop infringement by third parties in order to minimize damages. Both parties should therefore be subject to strict and expeditious notification procedures. In principle, the obligation to undertake proceedings against the infringer should stay with the licensor. The licensor will often undertake the proceedings himself in order to be able to defend himself against the inevitable counter-claim of the infringer that the licensor's patent is invalid.* Moreover, a licensor may be reluctant to entrust the court proceedings to the licensee if he thinks that the licensee has less experience in the technology concerned and in patent litigations.

Nevertheless, there may be situations where the licensor shies away from court action. He may be afraid of the high costs of the litigation procedure, fear invalidation of his own patent or be unfamiliar with the local legal or administrative conditions (see illustrative case 4).

#### *Illustrative case 4*

"An inventor licensed a patented textile machinery innovation exclusively to a small enterprise. The innovation proved to be quite popular. International manufacturers soon discovered the value of the product and out-produced the small licensee. The licensee's sales revenue, though growing, was not as high as it might have been had the licensor taken legal action against firms that were producing competing equipment coming within the claims of the patents. The licensor, however, was not willing to litigate and risk his patents, even though his royalty income would have been higher. The licensee had no possibility of forcing him to do so, having failed to insist upon a clause requiring the licensor to take legal action against firms that produced competing equipment coming within the claims of the patents" (see [41], p. 34).

To avoid such situations, the contract should provide for the obligation of the licensor to undertake proceedings against infringers and, in the event that the licensor fails to do so, provide for the right of the licensee to take legal action. If the licensee is entitled to undertake proceedings against an infringer, care should be taken that this does not affect the licensor's guarantees *vis-à-vis* the licensee. The recipient should also make sure that the licensor will hold him harmless of damages to infringement by a third party, at least to the extent that he can recover them from the third party.

### *(h) Alternatives*

A measure that would complement rather than replace patent warranties is extensive information on the patent situation. The more familiar the licensee is with the R and D currently being carried out in the field, the easier it is for him to evaluate the potential validity of the patents.

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*See, for example, [40], p. 105.

Patent warranties may be partially replaced by implied warranties in some national legislations. Caution, however, is called for because legislation differs: even within a single country, the scope of an implied warranty may vary according to the circumstances of a given case.

### *4. Check-list of basic points to be considered when dealing with provisions related to legal titles and infringement*

Legal titles and ownership:

*(a)* Ownership or other legal position of the licensor with regard to the technology;

*(b)* State of the patent application/registration;

*(c)* Type of patent-awarding procedure.

Validity:

*(a)* Knowledge of prior applications (names of persons and countries and dates);

*(b)* Knowledge of the right of other persons;

*(c)* Knowledge of public use;

*(d)* Degree and kind of activities undertaken to discover eventual third-party rights (patent search etc.).

Invalidation:

*(a)* Reasons:
- (i) Non-payment of fees;
- (ii) Non-fulfilment of requirements;
- (iii) Third-party rights;
- (iv) Contestation by licensees.

Corrective action in case of invalidation:

*(a)* Postponement of contract validity:
- (i) Subscription of the contract after filing of the patent application;
- (ii) Pending validity of the contract (granting of the patent);

*(b)* Adaptation of the contract:
- (i) Adaptation of the technology;
- (ii) Procurement of licences from third parties;
- (iii) Adaptation of payments;

*(c)* Termination of the contract;

*(d)* Royalties:
- (i) Retention;
- (ii) Reduction;
- (iii) Termination;
- (iv) Reimbursement

*(e)* Damages;

Third-party claims:

*(a)* Notification:

(i) By the recipient;

(ii) By the supplier;

*(b)* Responsibilities:

(i) Of the licensor;

(ii) Of the licensee;

(iii) Co-operation requirements;

*(c)* Costs;

*(d)* Damage claims.

Infringement by a third party (see the items listed under the previous entry).

Alternatives:

*(a)* Information;

*(b)* Implied warranties under applicable law.

Requirements under applicable law.

## F. Improvements

Because of the fast pace of innovation in many fields of technology, a newly acquired technology may become highly uneconomical, if not obsolete, within a few years. Other innovations may permit the substitution of locally available raw materials for raw materials that must be imported.

### *1. Purpose and function*

Since the recipient may lack experience and extensive R and D efforts may exceed his financial and technological possibilities, the recipient's access to improvements made by the supplier may be essential to the viability of the technology project and should thus be considered within the context of guarantees. A provision on improvements is even more important in contracts involving relatively new processes than in those involving relatively old and widely used ones. The recipient is likely to be more interested in such a provision if the supplier himself is using the technology and actively promoting R and D activities. Finally, the recipient's familiarity with the technology and his own R and D capacities will determine whether a provision on improvements is needed.

### *2. Current legal situation and contractual practice*

Many legislations treat access to improvements as a problem involving restrictive practices. Many contracts, especially those involving recipients in developing countries, contain grant-back provisions obliging the recipient to grant, sometimes free of charge, in the form of a licence or even an assignment any improvements made by the recipient. For this reason, some countries with technology laws object to grant-back clauses in broad terms and differentiate

between exclusive and non-exclusive, reciprocal and non-reciprocal grant-back obligations with or without remuneration (see illustrative clause 38).

*Illustrative clause 38*

"Provisions of the following type shall be among those regarded as unfavourable terms or aspects of the contract: . . . Provisions for the obligatory transfer of patents, improvements or innovations introduced or developed by the recipient after acquiring the technology covered by the contract" ([42], sect. 3(2)).*

Other countries only prohibit grant-back clauses that are non-reciprocal, without remuneration or exclusive (see illustrative clause 39).**

*Illustrative clause 39*

"The Ministry of Patrimony and Industrial Development shall not register the acts, agreements or contracts referred to in the second article hereof in the following cases: . . . If the obligation is set forth to assign or grant a licence onerously or free of charge to the supplier of the technology, in connection with the patents, trade marks, innovations or improvements that are obtained by the acquirer, except when there is reciprocity or a benefit for the acquirer in the exchange of the information" ([34], article 15, sect. II).

Some laws stipulate the obligation of the supplier to keep the recipient informed of improvements; the recipient can then choose whether he wants to request the supplier to place a given improvement at his disposal (see illustrative clause 40).

*Illustrative clause 40*

"The obligation of the supplier of technology to keep the recipient informed of and, at the recipient's request, place at his disposal all improvements, including registered and/or protected discoveries in connection with the technology transferred, which are available to the supplier of technology, as well as the know-how needed for the use thereof . . ." ([20], sect. 24(4)).***

In so far as improvements are dealt with at all in current contractual practice, provisions usually concentrate on the supplier's obligation to inform the recipient of improvements and to place them at his disposal. In addition, the time period for this obligation and the issue of remunerations is normally spelt out (see illustrative clause 41).

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*See also [43], article 2, and [44], sect. 6(2)*(d)*.

**See, for example [20], article 37(2) and [45], rule V, sects. 1*(c)*, 3 and 4; see also the acts of some market economy countries, such as [46], sect. 20(2), No. 3, and [47], sect. 1.7.

***See also [48], article 6.1.

*Illustrative clause 41*

"The licensor agrees to communicate to the licensee and to put at his disposal every modification and improvement introduced during the present contract time without resulting in additional payments."

Usually improvement provisions are formulated as reciprocal provisions imposing identical obligations upon the recipient. Only recently have such provisions begun to be formulated in greater detail, in particular when drafting model contracts, as in illustrative clause 42.

*Illustrative clause 42*

"Transfer of improvements:

"*(a)* The licensor shall promptly furnish to the licensee, without additional payment, all improvements on the technology transferred developed by the licensor during the lifetime of the contract;

"*(b)* The licensor shall also inform and, subject to a reasonable fee to be agreed upon, furnish to the licensee any improvements acquired by the licensor upon terms requiring payment by the licensor to any third party;

"*(c)* For the purpose of subparagraphs *(a)* and *(b)* above, the term improvements shall constitute any modification of the technology transferred, including operating technologies and process developments, whether patentable or not, which has been developed or otherwise acquired by the licensor during the lifetime of the agreement, the application of which may improve the yield, reduce costs or entail other technical or economic advantages in the production of the drug. Major changes that essentially alter the technology transferred do not constitute improvements within the meaning of this clause;

"*(d)* If the improvements transferred to the licensee are patentable and the licensor acquires patent rights thereon in (country of the licensee), the licensee shall be entitled to use such patent rights without making additional payments;

"*(e)* In the event that the licensor decides, with respect to such patentable improvements, not to apply for patents in (country of the licensee), the licensee shall have the right to apply for a patent in the licensee's name and at his own expense."

Illustrative clause 42 defines in detail the scope of improvements (see subparagraph *(c)*) and clarifies the inclusion of patented improvements (see subparagraph *(d)*). It distinguishes between different sources of the improvements, the licensor (see subparagraph *(a)*) and third parties (see subparagraph *(b)*), and their remuneration. It specifies the time (promptly) and duration (during the lifetime of the contract) of the obligation (see subparagraph *(a)*). Finally, it empowers the licensee to apply for a patent for patentable improvements if the supplier does not do so himself (see subparagraph *(e)*).

### 3. *Problems and possible solutions*

An analysis of some of the problems encountered in negotiating, drafting and carrying out provisions on improvements is presented below.

#### *(a) Definition and scope of improvements*

The term improvement should be defined because it is sometimes understood as not covering patentable or patented improvements. One major difficulty is deciding which improvements are still related to the technology. Any of the following elements, or a combination of them as in subparagraph *(c)* of illustrative clause 42 above, may be used:

*(a)* Relationship with the technology: modification, change, advance of the technology, including its operation, maintenance and process;

*(b)* Type of improvement: invention or design, whether patentable or not;

*(c)* Results to be achieved with the improvement: technical or economic advantages, reduced costs, increased sales, improved yield;

*(d)* Exclusions: substantial alterations of the basic technology, new technologies;

*(e)* Improvements of third parties acquired by the supplier.

In case of disagreement between the parties, the contract could stipulate that an independent expert is to be consulted to decide whether improvements are still related to the technology covered by the contract.

#### *(b) Form of transmission*

Since improvements are usually made internally, proper communication channels must be set up. Information on recent developments could be exchanged periodically or meetings or visits to exchange experience could be organized on a regular basis in order to ensure that improvements are in fact passed on. The actual transfer of the improvements may require transmission of documents, practical training at the supplier's or recipient's plant or other forms of technical assistance.

Parties should also clarify whether the improvements are to be granted on an exclusive or non-exclusive basis. The supplier may be more willing to grant improvements on an exclusive basis in order to limit the number of users. This may also work to the advantage of the recipient, who is the only one to benefit from the improvements; however, it would exclude other potential users of the technology, thus limiting the broad absorption and dissemination of the technology in the recipient's country.

#### *(c) Time of transmission*

The recipient must weigh two conflicting interests: on the one hand, he will be interested in getting the improvements as soon as possible; on the other, he wants to obtain improvements that can be utilized without further research and can produce commercially proven results. The choice will depend on the recipient's capability to do his own research or adaptive work. In any case, the stage of development of the improvement should be clearly indicated.

### *(d) Duration of transmission*

Frequently, the duration of the obligation ends with the termination of the contract. In some cases, however, especially in turnkey contracts, the supplier may be obliged to transmit improvements on the plant design for a certain period after its final acceptance in order to keep the plant up to date. In other cases, such as patent or know-how licences, the obligation to supply improvements may end before the licence expires, when the recipient does not need additional information or when he wants to avoid restrictive grant-back obligations.

### *(e) Confidentiality*

The readiness of the supplier to transmit additional improvements will often depend on the recipient's assurance that he will maintain confidentiality. Thus, a supplier may be particularly reluctant to transmit improvements when the expiration date of the contract is drawing near, for fear of an early disclosure. The recipient may therefore accept a certain period of confidentiality that would extend beyond the end of the agreement if he expects improvements of sufficient importance. The transfer of minor improvements, however, should not be used to extend confidentiality or other burdensome obligations beyond the contract period.

### *(f) Utilization*

Utilization of the improvements is usually not compulsory. The supplier, however, can disclaim any liability *vis-à-vis* the recipient or a third party (in case of product liability) if the new technology is not put to use by the recipient.

### *(g) Remuneration*

In case of reciprocity, improvements for both sides are usually free of charge. But even if the supplier alone provides improvements, they are usually remunerated through royalties or other regular payments, since improved products usually result in higher output or higher prices, thus raising the supplier's income through royalties. The situation may be different in a lump-sum agreement or when the price for the basic technology has been expressly reduced because the chances of there being improvements had been slight when the transfer-of-technology agreement was concluded.

### *(h) Corrective action*

The recipient should ensure that the relevant rules governing the transfer of the main technology, such as remedies in case of delayed transmission or faulty documentation, also govern the supply of improvements. In order to avoid any misunderstanding, the contract should state which general rules of the contract apply. It should also clarify how the use of improvements will affect the guarantees.

The general rules of the contract should be carefully scrutinized to see whether their application will be adequate in all instances. Thus, the agreement

may provide for a fixed period for notification of faults that is too short or too early for improvements that are to be transmitted at a later stage; or the supplier may be obliged to transmit improvements when they have yet to be commercially proven.

It should also be mentioned in this connection that if the improvements or developments substantially alter the terms and conditions of the technology, renegotiation should be provided for.

### *(i) Alternatives*

In some cases, especially when the recipient is entirely unfamiliar with the technology, the transfer-of-technology agreement may be complemented by a technical assistance agreement that obliges the supplier to operate certain elements of the plant, supervise the operation of the plant or, failing that, give continuous advice for a given period. Under such contracts, access to improvements may be given within the framework of technical assitance. The recipient should be aware of the financial implications of such a contract and, above all, of the implied continuous dependence on the supplier. This may slow down the absorption of the technology in the recipient's country and its mastery by the recipient.

Another alternative might be not to include any improvement provision. This might be the proper approach if the technology has reached a high degree of maturity and further improvements are not likely. A similar situation may arise if it is unlikely that the supplier will be able to supply any improvements because he is not operating the technology himself or is no longer doing so. The recipient may also take this course of action if he is relatively certain that he can rely on his own R and D resources or other such resources that are readily available to him.

A useful complementary measure may be regular meetings of technicians of both parties and regular visits to each party's plant. Such meetings and visits would facilitate the task of demonstrating and comprehending all improvements made by either side. This would ensure that the transmission of certain improvements would not be forgotten and that both sides would fully comprehend the implications of a new development.

## *4. Check-list of basic points to be considered when dealing with provisions on improvements*

Definition and scope of improvements:

- *(a)* Connection with the main technology:
  - (i) Modification, change, advance;
  - (ii) Referring to operation, maintenance etc.;
- *(b)* Type of improvement;
- *(c)* Results to be achieved with the improvement;
- *(d)* Patented, patentable and non-patentable improvements;
- *(e)* Exclusions.

Form of transmission:

*(a)* Information channels;

*(b)* Documents;

*(c)* Training;

*(d)* Technical assistance.

Time of transmission:

*(a)* Development stage;

*(b)* Production stage.

Duration of transmission:

*(a)* Shorter than the duration of the contract;

*(b)* Equal to the duration of the contract;

*(c)* Longer than the duration of the contract.

Confidentiality:

*(a)* Subject-matter of confidentiality obligations;

*(b)* Duration;

*(c)* Impact on sub-licensing;

*(d)* Effect on other obligations of the transfer-of-technology agreement;

*(e)* Effect on the use of other parts of the technology that must not be kept confidential.

Reciprocity:

*(a)* Extent of the supplier's R and D activities;

*(b)* Extent of the recipient's R and D activities.

Exclusivity:

*(a)* In the supplier's country;

*(b)* In the recipient's country;

*(c)* In third countries;

*(d)* Obligation to grant back improvements;

*(e)* Right or obligation of either party to obtain legal protection when the other party is not willing to do so.

Utilization:

*(a)* Compulsory

*(b)* Non-compulsory.

Remuneration:

*(a)* Type of contract (reciprocal or non-reciprocal);

*(b)* Type of remuneration for main obligation (lump sum or royalties);

*(c)* Extent of innovative activities of either party;

*(d)* Source of improvement (party to the agreement or third party).

Corrective action:

*(a)* Reference to the general rules of the contract;

*(b)* Specific rules:

(i) Non-fulfilment;

(ii) Type of improvements;

(iii) Stage of development of improvements;

*(c)* Renegotiation.

Alternatives:

*(a)* Technical assistance scheme;

*(b)* Regular meetings of technicians of both sides;

*(c)* Access to improvements from third sources;

*(d)* Use of own R and D facilities.

Legal situation:

*(a)* Prohibition of certain types of grant-back provision as restrictive practices;

*(b)* Obligation to give access to improvements.

## G. Spare parts

Interruptions resulting from the breakdown of certain parts of a plant must be reduced to the shortest time possible in order to limit their negative effects on productivity, capacity and cost efficiency. For this reason, from the recipient's point of view, access to and availability of spare parts are prerequisites for the continuous running of the plant and the satisfactory operation of the technology. When the supplier is the major or sole source of certain spare parts, it is particularly important that the supply of such parts is ensured at the time of the agreement.

### *1. Purpose and function*

The provision of spare parts may be an important source of income for the supplier. Thus, the supplier may see the technology transfer as a way to ensure a recipient's dependence on him for spares for as long as possible. In such cases, the payments for the provision of inputs over a number of years may easily outweigh the royalties paid for the technology itself. A guarantee to provide certain spare parts is often turned into a tying clause by the supplier, whereby the acquisition of additional goods is a condition for obtaining the technology itself.* Thus, the recipient must be aware that, though such a provision looks like a guarantee, it may, in reality, enable the supplier to enjoy a monopolistic position regarding the supply of spare parts. To avoid this, the recipient should ensure that a provision is included for the possibility of obtaining spare parts from a third source.

*See, for example, [49], paras. 372-377.

### 2. *Current legal situation and contractual practice*

Most national laws are mainly concerned with the negative aspects of obligatory supply of components and spare parts, that is, with tying arrangements. They usually prohibit contractual clauses that oblige the recipient to acquire from the supplier additional goods that are not needed or not wanted. Only a few laws expressly stipulate that the recipient shall be entitled to obtain spare parts if he needs them (see illustrative clauses 43 and 44).

*Illustrative clause 43*

"The transferor shall, if the transferee so requires, continue to supply spare parts and raw materials for a period of up to five years following the termination of the agreement" ([50], sect. 15 *g*).

*Illustrative clause 44*

"An indication that components, spare parts and services related to the technology concerned will be supplied at the request of the recipient of the technology as well as an indication of the terms governing the supply thereof . . ." ([48], article 6.1 *(d)*).

In contractual practice, different approaches may easily be found. One approach is to specify all relevant intermediate products, spare parts etc. in great detail, to attach designs, documents etc., to make projections regarding the quantity needed, to indicate supply sources and, in some cases, to prepare procurement documents. This enables the recipient to decide for himself where and when to purchase the items. Illustrative clause 45 is taken from a turnkey contract in which spare parts of a proprietary and non-proprietary nature are to be procured by the supplier or contractor. Similar rules would also apply if the recipient were to purchase the spare parts himself.

*Illustrative clause 45*

"10.1. The contractor shall supply to the purchaser the following services in connection with the procurement of spare parts for a two-year period beginning with the successful completion of the performance guarantee tests . . .

"10.1.1 The contractor shall submit a list of spare parts for the approval of the purchaser . . .

"10.1.2 Where spare parts of a proprietary nature are to be procured, the contractor shall obtain from the suppliers directly in the name of, and for, the purchaser a list of a two-year supply of spare parts as recommended by the supplier, for approval by the purchaser.

"10.1.3 For all other spare parts to be purchased through the contractor, the contractor shall prepare bid documents

on the basis of the technical specifications prepared by him and submit the same to the purchaser, for approval, and shall issue the same to the vendors.

"10.1.4 The contractor shall send the bid documents on behalf of the purchaser to the respective vendors listed in the list of vendors, which shall be previously agreed upon by the parties.

"10.1.5 The contractor shall use his best endeavours to obtain from the vendors a minimum of three competitive offers" ([51], p. 78).

Another approach provides for the supply of the necessary spare parts or other goods directly from the supplier for a specified period. This is particularly important for inputs that are legally protected or cannot be produced by the recipient himself. A two-year period is common but it may also be a far longer period, as in illustrative clause 46.

*Illustrative clause 46*

"The supplier guarantees the availability of spare parts for 10 years from the date of commissioning of the equipment at reasonable prices to the owner."*

The term reasonable prices may give rise to different interpretations. Some laws and contracts therefore require that the prices be consonant with current world market prices or not less favourable than the price usually charged by the licensor or by other reliable sources for the same intermediates, and under comparable circumstances.**

## 3. *Problems and possible solutions*

An analysis of some of the problems encountered in negotiating, drafting and carrying out provision related to spare parts is presented below.

### *(a) Classification and identification of third sources*

A pre-condition for any regulation of the supply of components and spare parts is to have a clear picture of all the items needed and of their function, such as normal maintenance and strategic and emergency spares. It may be desirable to classify the various spare parts, since special provisions may be made with respect to certain types. In addition, the design, documentation and quality requirements must be spelt out in detail, the projected demand must be calculated, the sources of supply must be identifed etc.

The identification of the supply sources is of the utmost importance if the recipient is to purchase spare parts directly from a third source. He must know

*Provision in a contract for the erection of a bottling plant in Africa.

**See, for example, Commission of the Cartagena Agreement, decision 24, articles 20 *(c)* and 25 *(b)*.

who those source suppliers are and why they were chosen by the supplier. This information is particularly valuable when it concerns items that tend to change from a technological point of view as a result of process and market developments. The information should be given by the supplier and such an obligation should be stated in the contract.

### *(b) Availability of components and spare parts*

On the basis of an analysis of the availability of components and spare parts, a decision can be taken on how the supply of such goods is to be ensured. A simple obligation by the supplier to furnish components or spare parts requested by the recipient can create obstacles, especially if the supplier does not produce the parts himself. Thus, for example, the supplier might charge the recipient a handling fee that is higher than the cost of spare parts obtained from a third source; the recipient could avoid this by dealing directly with the third source.

It is important for the recipient, however, that the supplier guarantees the availability of important spare parts or those requiring special procurement procedures. If important spare parts are only available from the supplier because they are legally protected or the supplier is the most economical source, the contract should provide for the supplier to be obliged to furnish, at the recipient's request, spare parts produced by the supplier that are necessary for using the technology.

For reliable procurement under reasonable conditions, it is important to find out which parts and components must be obtained from the supplier and, at the same time, avoid inclusion of items that can be obtained from other sources. For instance, some spare parts may be available from a number of sources at competitive prices. It may also be that the recipient, at least after a certain time, will be able to produce the spare parts himself; or they may be produced by companies in the recipient's country. In certain cases, standardized equipment can be procured for the replacement of old or worn-out items.

### *(c) Conditions of supply: quantity and time*

In principle, the quantity of the goods to be delivered and the period of time within which the deliveries are to take place will be determined by the recipient. If he is obliged to acquire a certain number of spares to cover his requirements for a certain period according to the supplier's recommendations, the recipient should be entitled to refuse any items not required for that period.

### *(d) Freedom of choice*

The recipient should provide for enough flexibility to adjust to economic or technical changes, especially in long-lasting contracts of supply. Thus, he may be able to produce certain materials himself after some time. Such materials may also be available from other sources; or it may be possible to replace them with other materials. The recipient should therefore strive for a provision that entitles him to produce spare parts etc. himself or to buy them from other sources. The supplier's interests may be taken into account by giving preference to him when his prices and quality are comparable to those of other potential suppliers.

### *(e) Duration*

The recipient needs maintenance and spare parts as long as the technology is being operated. He therefore has to ensure that especially critical items such as catalysts can be obtained throughout the plant's lifetime. This is particularly relevant when the supplier or a third person is the only or the best source for certain parts of equipment. Thus, production may be adversely affected if the supplier ceases to produce the item, changes the design or transfers the production rights to a third party who is less willing to supply the recipient. For these reasons, long-term supply contracts or the right to production drawings and technical assistance for the production of spare parts are essential.

Even when equipment is available from a variety of suppliers, however, the provision of spare parts by the supplier of the main technology may greatly facilitate the task of overcoming start-up and maintenance difficulties in the inital stage of operation of the technology. A two-year period beginning at the time of commissioning is common, but it may also be a longer period, as in illustrative clause 47.

#### *Illustrative clause 47*

"in respect of any equipment acquired by the licensee from the licensor . . ., the licensor shall continue to be obliged to maintain, replace or repair such equipment or parts thereof for a period of five years after the acceptance of the equipment."

### *(f) Pricing*

The supply of components and spares is an important source of income for the supplier; the prices charged are a decisive factor in the overall cost of operating the technology. This is particularly true when the recipient is obliged to purchase a number of items from the supplier (see illustrative case 5).

#### *Illustrative case 5*

"Where it is unavoidable to agree to channelize procurement of equipment through the collaborators, ministries/undertakings as far as possible should not agree to pay prices that are higher than the world market prices as tested through global tenders or through consultants or otherwise by comparison with the prices of similar or nearly similar items supplied by the same collaborator to other parties in India and abroad. The prices to be charged for the equipment, components and stores should not be left to the collaborators. Right to procure components/equipment directly from the concerned supplier ought to be provided in the agreement in case the prices quoted by such suppliers are lower than those quoted by the collaborators. The enterprises should examine carefully this aspect and resist any attempt by the foreign collaborator to supply equipment/materials at higher prices than the global tender prices" [28].

Since the procurement obligation may cover a long period, the price formula must allow for some flexibility in order to be able to reflect economic and technological changes. At the same time, it must contain safeguards against excessive pricing. The most commonly used safeguard is a reference to world market prices or to the prices charged to other purchasers by the supplier. But even the use of such a references may create problems: it may be difficult to determine world market prices, especially if the respective goods are not sold in large quantities or if world market prices differ depending on the individual circumstances; or it may be difficult to find out the actual prices charged by the supplier to third parties, especially if hidden rebates and other price reductions are practised in the particular industrial sector in question.

### *(g) Corrective action*

Spare parts may not be considered part of the main technology covered by the contract. The contract should therefore clearly specify the rules to be followed if spare parts have faults, are not delivered on time etc. The contract should also clarify the effect of, for example, delayed delivery or faults of spares on guarantee periods. Im most cases, a reference to other parts of the contract is sufficient. Often an analogous application of the provisions concerning mechanical guarantees may prove to be adequate.

### *(h) Alternatives*

The need for a provision on components and spare parts depends on the type of technology, the general market situation, that is, whether the goods are available from other sources, and the technical capabilities of the recipient. If the recipient is not dependent on the supplier for such goods, the omittance of a provision to purchase spare parts from the supplier may be a solution, but this applies in only some cases. A detailed specification of all the intermediate products and spares needed should at least be part of the general documentation. When the recipient needs inputs, the supplier may provide some kind of technical assistance: he could assist in the procurement of the inputs, by providing information about the sources of supply and about prices and by preparing tender documents, and in the evaluation of offers. He could also be charged with the operation and/or maintenance of the plant, including the procurement of spare parts etc., for a certain period.

In some cases the supplier may guarantee access to certain spare parts or other goods for a certain period. If he stops producing those items before the end of that period, he may be obliged to transmit all relevant know-how and possibly all the machines etc. to enable the recipient to produce the items himself.

## *4. Check-list of basic points to be considered when dealing with provisions on spare parts*

Clarification of objectives.

Specification of relevant items:

*(a)* List of items;

*(b)* Designs and documentation,

*(c)* Quality requirements;

*(d)* Projected quantity requirements;

*(e)* Sources of supply.

Availability of components and spare parts:

*(a)* Sources of supply;

*(b)* Legal or factual monopoly by the supplier;

*(c)* General market situation;

*(d)* Quality, quantity and price of goods from other sources;

*(e)* Separate lists/differentation according to availability.

Quantity:

*(a)* Quantity needed for specified time periods;

*(b)* Remittance of excess quantities purchased.

Time of delivery;

Freedom of choice:

*(a)* Obligation to purchase versus option to purchase;

*(b)* Obligation to supply versus option to supply;

*(c)* Adapting to changing conditions;

*(d)* Criteria for preferential treatment of supplier:

(i) Price;

(ii) Price offered to other recipients;

(iii) Recipient's right to choose the lowest price offered.

Duration:

*(a)* Start-up period;

*(b)* Defined time after start-up;

(i) One or two years;

(ii) Until expiry of the last guarantee;

*(c)* Period equivalent to the normal lifetime of the technology.

Pricing:

*(a)* Firm price;

*(b)* Firm price and indexation;

*(c)* Consonant with world market prices;

*(d)* Consonant with prices charged by other recipients;

*(e)* Cost reimbursement formula.

Corrective action:

*(a)* Specific regulations;

*(b)* Exemption from some of the general regulations;

*(c)* Reference to the general contract regulations, especially those governing equipment.

Alternatives:

*(a)* More prohibition of tie-ins;

*(b)* Omission;

*(c)* Technical assistance provision;

*(d)* Transmission of all relevant information to enable the recipient to produce the item himself.

Legal requirements:

*(a)* Prohibition of tie-in provisions;

*(b)* Restrictions on importation;

*(c)* Obligation to provide inputs.

## H. Training

Training can be dealt with under a separate contract or as part of the technology transfer agreement. In this section training is discussed only in the context of a technology transfer agreement and not when provided for under a separate contract.

### *1. Purpose and function*

A complete technology transfer requires adequately trained personnel to operate the technology. It is essential that the technology recipient's personnel has the knowledge and expertise to operate the technology efficiently, maintain the plant, replace broken equipment, trace the origin of defects and undertake necessary adjustments. The adequate training of personnel for these different tasks is crucial for the effective functioning of the technology.

Particularly for developing countries, which often lack skilled personnel and specialized local facilities to carry out training, the technology supplier could well be the main source of such training. If this is the case, the supplier should also be responsible for and guarantee a certain level of quality in the training so that the plan can be operated effectively.

Because the supplier's personnel usually leave the site shortly after the commissioning of a plant, the training of local personnel is essential. Even if the supplier is willing to provide his own key personnel to operate and maintain the technology, this would run counter to the recipient's interest in absorbing the technology and minimizing the costs. Above all, a technology that is not operated by local personnel will remain elusive and not be absorbed or assimilated by the technical, economic and social infrastructure of the recipient's country.

### *2. Current legal situation and contractual practice*

The laws of most developed market-economy countries are such that the matter of personnel training is usually left to be settled by the parties concerned, whereas all developing countries that have enacted legislation on the

transfer of technology have made specific provisions for the training of personnel, thus demonstrating the particular importance this aspect of technology transfer has for them.

Some laws only require that a training programme or some form of training be included in the contract, leaving the details to the parties, as in illustrative clause 48.

*Illustrative clause 48*

"Agreements for the transfer of technology shall include, whenever possible, appropriate programmes for the training of personnel" ([48], article 6.3).*

The type and quality of training required is often described as appropriate or adequate. Often such training may be required to ensure that the local personnel will be able to handle, operate, master or assimilate the technology to be transferred or make the best use of it (see illustrative clause 49).**

*Illustrative clause 49*

"The contractual obligation . . . shall establish the period deemed necessary to enable the recipient to master the technology by fully assimilating it and making correct use of it" ([5], sect. 5.4).

Some laws set out some of the requirements for training that must be met, such as the qualifications of the personnel to be trained, the qualifications of the trainers, the fields in which the training is to take place,

*Illustrative clause 50*

"Any technical assistance shall, where necessary, include technical personnel as well as full instructions and practical explanations expressed in clear . . . English on the operation of any equipment involved . . ." ([50], sect. 15*d*).

A number of laws represent attempts to ensure that the training actually results in the employment of local personnel. To this end, some laws include requests for reports on the implementation of training programmes,*** authorize government authorities to follow the progress being made in the training programme**** or set percentage requirements on the portion of local personnel that must be employed.*****

*See also [45], rule VIII, sect. 1.3.

**See, for example, [52], article 5B, and [20], article 24(3). timetables, and the period, place and methods of training (see illustrative clause 50).

***See, for example, [45], rule VIII, sect. 1.4.

****See, for example, [5], sect. 5.4.4.

*****See, for example, [53].

Contractual practice varies considerably, depending on the complexity of the technology transferred and the technical capabilities of the supplier and the recipient. A short version of a training clause may only contain the number of persons to be trained, the period and place of training and the distribution of expenses (see illustrative clause 51).

*Illustrative clause 51*

> Owner's technicians numbering up to three shall receive training at the supplier's or sub-supplier's works for a period of eight weeks each.
>
> Round-trip air tickets for the trainees shall be paid by the owner. The supplier shall pay all expenses in the supplier's country including their pocket-money."*

Such a short version leaves a number of ambiguities as to the qualifications of the technicians, the field and type of training and the time of training. Thus, some contracts spell out the qualifications and prior experience required of each person to receive training. Sometimes even the selection or pre-qualification testing is carried out by the recipient together with the supplier (see illustrative clause 52).

*Illustrative clause 52*

> "The licensor will provide training to qualified employees of the licensee nominated by him and agreed upon by the licensor at the licensor's plant, with respect to the manufacture, quality control and packaging of the products, including on-the-job training for . . . the production and control of at least . . batches from the beginning to the end.
>
> "The number and qualifications of the trainees will be as follows: . . ."

The level and quality of the training may be referred to in general terms, as in illustrative clause 53.

*Illustrative clause 53*

> "The training services provided by the transferor to 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" ([19]), p. 76).

The contract may also indicate details such as the language training equipment and teaching method to be used and the number of lessons and working days.

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*Excerpt from a contract for a bottling plant in Africa.

### 3. *Problems and possible solutions*

An analysis of some of the problems encountered in negotiating, drafting and carrying out provisions related to training is presented below.

#### *(a) Field of training*

The contract should specify the different areas of training according to the various categories of personnel. It is important to train the personnel not only in normal operating procedures, but also in product testing, workshop practices, emergency shut-down procedures, problem solving etc. Often trainees form a fundamental team that will eventually train their own staff. The trainees should therefore also be given a basic understanding of teaching methods, including the use of technical documentation and other media that they can use when training and organizing their own staff.

#### *(b) Place of training*

Usually training should start well in advance of the commissioning of the plant in order to enable the recipient's personnel to play an active role in setting up the plant. The training during this first phase often takes place at the supplier's plant. It is essential, however, that the technology used there be similar to the technology to be transferred. It might even be possible for the training to take place in a similar plant built by the supplier in another developing country. This would enable the trainee to become acquainted with specific problems encountered in operating and maintaining the technology in a developing country over a number of years. Certain improvements and R and D activities, however, may only take place at the supplier's home plant and a visit to his plant may be necessary. Such a visit may be more worth while after the recipient's personnel has become familiar with the basic technology and is in a better position to understand and discuss its intricacies.

#### *(c) Time of training*

In general, three training phases may be distinguished:

*(a)* Training before the technology is actually transferred or the plant is set up: this is particularly important for those who will assume supervisory functions during the setting up phase;

*(b)* Training during the pre-operational and commissioning activities at the plant site: this mainly concerns the operating staff;

*(c)* Training after commissioning: this is necessary in order to cope with unexpected problems, shortcomings of previous training and new developments in the field. This type of training is often referred to as technical assistance.

#### *(d) Duration of training*

Training programmes should be set up so as to ensure a speedy absorption of the technique. Continuing training programmes could be an indication of continued dependence on the supplier. A technology can only be operated efficiently, however, if the personnel is adequately trained. The parties involved

should therefore agree to a realistic and flexible time-schedule. The supplier may be obliged to extend the training if the personnel is not adequately trained after the initial period. Doing so should not, however, result in additional payment obligations on the part of the recipient, unless the supplier can show that the extension was solely the result of developments for which the recipient was responsible, such as the selection of personnel against the advice of the supplier.

### *(e) Qualification criteria for trainees*

In most cases, the supplier will not guarantee the successful outcome of the training unless the criteria for selecting trainees, such as possession of a diploma and/or practical professional experience, has been clearly specified. A qualification test may also be used. The qualification criteria should be mutually agreed upon. Trainees are usually selected by the recipient.

One frequently encountered problem is what to do with a trainee who is not able to follow the training programme. The parties involved should provide for a procedure on how to deal with such cases by mutual consent, for example, an obligation on the part of the supplier to inform the recipient of the progress of the trainees and the right or obligation of the recipient to replace trainees who fall short of the original expectations (see illustrative clause 54).

#### *Illustrative clause 54*

"The client shall be informed of any trainee who, despite the selection process, does not, during the training period, prove to have the qualities required to fulfil the job designated to him, so that he can be immediately replaced."*

Another problem is the danger that qualified personnel, instead of staying at the site, may choose to move to other localities or may be moved to another area, perhaps to one having higher national priority. Illustrative clause 55 contains a directive to public enterprises in India issued by the Indian Government with a view to overcoming such problems.

#### *Illustrative clause 55*

"Adequate safeguards and stipulations should be made to ensure that the trained technicians on return are obliged to serve the sponsoring undertaking for considerably long periods so that the advantages of training are not lost to the undertaking" ([28], sect. 4.1.3).

### *(f) Qualifications of trainers*

Little attention is given to the qualifications of trainers. Their background experience and educational abilities will strongly influence the success of training. For this reason, minimum requirements for the qualifications of the

*Excerpt from a contract for the construction of a pharmaceutical glass factory in northern Africa.

trainers should also be laid down. Once the names of the trainers are known, it may be useful to insert them in the relevant contract provision.

### *(g) Content and methods of training*

Often one of the recipient's greatest concerns is that the training of his personnel may be reduced to theoretical class-room teaching and may not include practical experience in operating the technology. Opportunities to discuss questions with practitioners, take notes and photographs, obtain instruction material etc. can be very useful in helping the recipient's personnel to become acquainted with the technology (see illustrative clause 56).

#### *Illustrative clause 56*

"Personnel designated by the transferee shall be given adequate opportunity to study the method of manufacture of the product at the manufacturing plants of the transferor. Such personnel shall be given adequate opportunity to acquaint themselves with the production design, production engineering, processes of production and testing of the product and with related shop practices and operations at such plants, and to discuss such production design, production engineering, process of production, testing practices and operations with the transferor's appropriate engineers and production personnel at such manufacturing plants. The transferee's designated personnel shall be permitted to make notes and sketches and to procure pertinent information and photographs in the possession of the transferor relating to the foregoing including purchase material costs and methods of quality control which may be in use in connection with the manufacture of the product" ([19], p. 81).

### *(h) Remuneration*

Different modes of remuneration for training are used when it is part of the main contract. For example, the training cost can be calculated as part of the technology fee (e.g. as royalties) up to a certain extent. The training costs can also be paid separately, for instance, as a fee per trainee per day. The latter mode of remuneration is common when a team is trained abroad, either on the supplier's premises or, if the supplier does not have any training facilities of his own, elsewhere.

When training is provided on the project site in the recipient's country by representatives of the supplier, payment is calculated not as a training fee but as a fee for covering the salary and daily allowances (living expenses) of the supplier's representative(s).

From the point of view of the government authorities of the recipient's country, a solution that reduces to a minimum the use of foreign currency is often preferable. Such a solution may prove useful in dealing with problems associated with local regulations, availability of resources etc. In any case, the training provisions should have clear stipulations on the various expenses of the personnel of both the supplier and the recipient, such as local living allowances, accommodation, transportation, medical care, taxes, and import of household essentials and foodstuffs.

### *(i) Dissemination*

From the recipient's point of view, the dissemination of knowledge acquired by the trained personnel, at the enterprise level and possibly at the national level as well, is of particular importance. In order to be able to fulfil this task, trainees should not only become acquainted with the technology, but also learn how to train others.

### *(j) Alternatives*

The supplier may not always be able to provide for training, especially if he is a contractor and not running his own plant. Apart from that, the recipient may be interested in acquiring information and training independently of the supplier. Thus, a third party may be better suited for providing the training. The third party could be another supplier in a developed country or a producer or consultancy firm in another developing country or even the recipient's country. Some national laws already prescribe that, whenever possible, already existing local facilities should be used. In some cases, international organizations or non-profit-making institutions may be able to provide training facilities. An important supplement to training may be a system in which experience and information are exchanged among recipients. In most areas, however, such information systems, if they exist at all, have not yet proved to be very effective.

## *4. Check-list of basic points to be considered when dealing with provisions on training*

Field of training:

- *(a)* Production;
- *(b)* Design;
- *(c)* Maintenance;
- *(d)* Repair;
- *(e)* Marketing;
- *(f)* Training others.

Place of training:

- *(a)* Supplier's plant;
- *(b)* Recipient's plant;
- *(c)* Plant of a third party using similar technology;
- *(d)* Plant operating effectively for several years;
- *(e)* Up-to-date plant;
- *(f)* Access to recent improvements and R and D activities.

Time of training:

- *(a)* Before the technology transfer:
  - (i) Supervisory personnel;
  - (ii) Preparatory activities;

*(b)* During transmission:
  (i) Participation in supervision;
  (ii) Participation in commissioning;

*(c)* After transmission:
  (i) New development
  (ii) Unexpected difficulties;
  (iii) Adaptation.

Duration of training.

Criteria for selecting trainees:

*(a)* Qualifications;

*(b)* Professional experience;

*(c)* Qualification procedure;

*(d)* Responsibility for selection;

*(e)* Replacement;

*(f)* Continuity.

Qualifications of trainers:

*(a)* Qualifications;

*(b)* Professional experience;

*(c)* Inclusion of trainers' names in the contract.

Content and methods of training:

*(a)* Theoretical;

*(b)* Practical;

*(c)* Watching, doing, asking and discussing;

*(d)* Designs, photographs, notes and drawings;

*(e)* Teaching methods;

*(f)* Teaching aids and equipment;

*(g)* Language of instruction;

*(h)* Training hours;

*(i)* Working days;

*(j)* Size of groups.

Remuneration:

*(a)* Living allowances;

*(b)* Transportation;

*(c)* Accommodation;

*(d)* Medical care;

*(e)* Accident insurance;

*(f)* Additional equipment;

*(g)* Currency;

*(h)* Remittances abroad;

*(i)* Fiscal status.

Dissemination:

*(a)* Teaching ability;

*(b)* Right to pass on information.

Exemptions.

Legal requirements:

*(a)* Programme of training;

*(b)* Implementation reports;

*(c)* Maximum duration;

*(d)* Minimum percentage of local personnel to be employed.

Legal consequences in case of failure.

Alternatives:

*(a)* Other suppliers;

*(b)* Other recipients;

*(c)* Other consultants;

*(d)* International organizations;

*(e)* Non-profit-making institutions.

## I. Financial guarantees

Financial guarantees may refer to the bidding procedure or to the contractual performance. Those referring to the former are also called bid bonds or bid deposits; they ensure that the bidder, if selected, will actually conclude the contract under the terms and conditions contained in his offer. In this section, only the other type of financial guarantee, the performance bond, is dealt with.

### *1. Purpose and function*

Financial guarantees such as performance bonds and bank guarantees ensure that if the supplier fails to perform his obligations, at least a guaranteed sum of money will be available to compensate for the non-fulfilment of certain guarantees or other obligations.

The use of financial guarantees has spread considerably in recent years, especially in large-scale contracts between suppliers in developed countries and recipients in developing countries, because the latter often lack experience in selecting reliable suppliers and evaluating their performance.

The experience of recipients in developing countries shows that a long and costly dispute may arise over whether a guarantee has been met. This is why in recent years so-called unconditional or independent guarantees, or guarantees on first demand, have evolved. Payment obligations under such a guarantee are independent of proof by the recipient that the supplier has failed to perform. In such cases, to establish the failure to perform, the recipient need only assert the non-performance and demand payment by the guarantor.

## 2. *Current legal situation and contractual practice*

Most civil laws take into account the type of surety or guarantee that involves a contract (see illustrative clause 57).

### *Illustrative clause 57*

> "A guarantee is a contract whereby the guarantor promises to the creditor of a third person, the principal debtor, to be responsible for the payment of the debt of the latter" ([14], article 492).

Most conditional or accessory guarantees would be covered by such a contract. But it seems that there is no law prescribing that financial guarantees should be used in connection with transfer-of-technology transactions. There are, however, a number of state agencies or institutions that will only enter into a contract if a financial guarantee is included in the agreement.

Financial guarantees in which the amount is determined as a percentage of the contract value or the agreed upon payment are quite common.

## 3. *Problems and possible solutions*

An analysis of some of the problems encountered in negotiating, drafting and carrying out provisions related to financial guarantees is presented below.

### *(a) Subject-matter of the financial guarantee*

Usually financial guarantees secure advance payments and/or the full and faithful discharge of performance and other guarantees and obligations. In the context of this *Guide*, the latter may be considered more important. A financial guarantee should clearly define all obligations and guarantees covered by it.

### *(b) The guarantor*

The guarantor is usually a bank or insurance company. Normally the supplier is requested to present a guarantee by a first-class bank in order to ensure that the guarantee will be fulfilled. In the United States, the guarantor may also be a bonding company that guarantees that the contract will be finished by another supplier or by the bonding company itself.

### *(c) Types of guarantee*

The guarantee may be a conditional or unconditional guarantee. Under conditional guarantees, which are also called accessory guarantees, usually the guaranteed payment must be effected if the recipient shows some kind of evidence that the contractual guarantees or obligations have not been met. Under unconditional guarantees, which are also called first-demand guarantees, the payment is due on demand by the recipient. The demand as such is conclusive evidence of the supplier's failure to comply with his contractual guarantees.

Conditional guarantees often yield unsatisfactory results from the recipient's point of view because he is the one who has to initiate court proceedings to establish proof of non-fulfiment of guarantees, which must be done before the financial guarantee can be drawn upon. This lengthy and costly procedure puts the recipient at a disadvantage *vis-à-vis* the supplier, especially if the supplier has not acted in good faith.

Unconditional guarantees have no such disadvantages to the recipient: he can draw upon the guarantee without any prior litigation. It is the supplier who bears the risk, especially if a recipient has not acted in good faith. For this reason, licensors are usually reluctant to grant straightforward first-demand guarantees. In order to find a balance between the interests of both parties, a number of intermediate solutions have been developed that either limit the first-demand guarantee to a certain extent or reduce the recipient's obligation to provide evidence. These solutions include:

*(a)* Subsidiary guarantees: the recipient may have a first-demand guarantee that he may draw upon only after he has given the supplier prior notice and an opportunity to make good the default within a certain time-limit, as in illustrative clause 58. The subsidiary clause could also be applied to conditional or accessory guarantees;

*Illustrative clause 58*

"If the employer considers himself entitled to any claim under the bond or guarantee, he shall inform the contractor, specifying the default of the contractor upon which he relies. Should the contractor fail to remedy such default within 40 days after the receipt of such notice, the employer shall be entitled to consider the bond or surety to be forfeit to the extent of the loss or damage incurred by reason of the default."

*(b)* A conditional guarantee in which the recipient may establish proof of non-fulfilment of the guarantee by a certification of an independent engineer or other expert: in this case, the recipient need not initiate court or arbitration proceedings;

*(c)* A conditional guarantee in which the burden of proof is shifted to the guarantor: in this case, it is not the recipient who has to prove non fulfilment of the guarantee but the guarantor who has to prove fulfilment of the guarantee. Such conditional guarantees may come very close to first-demand guarantees if the type of defence avaiable to the guarantor is restricted;

*(d)* A guarantee that is payable on first demand after notification to the supplier, unless the supplier can present *prima facie* evidence in a speedy summary arbitral proceeding that he has fulfilled his obligations: this is a variation of the type of guarantee described in subparagraph *(c)* above. The time-limit for obtaining such a provisional ruling should be determined in the contract.

Such intermediate solutions have been used to release the recipient from a lengthy and costly procedure before benefiting from the guarantee while, at the same time, protecting the supplier against unjustified seizure of the guarantee.

### *(d) Scope of financial guarantees*

The guarantee may be a payment guarantee or a performance guarantee (bond). Payment guarantees consist of a sum of money usually representing 5-10 per cent, sometimes 15 per cent, of the contract price. The amount of the guarantee may also be determined on the basis of the liability assumed by the supplier. It should be high enough to provide adequate security to the recipient. Thus, it will depend on the reliability of the supplier and the complexity and difficulty of the technology transfer. In some cases, the guarantee may even reach the total value of the contract if it is phrased in such a way that the amount of the guarantee must be re-established by the supplier once the recipient has seized the guarantee for the first time.

Performance bonds with bonding companies usually provide for the obligation of the bonding company to remedy any defects and/or complete the agreement. The completion may be carried out by the bonding company itself, by a new contractor selected by the bonding company, by the recipient or jointly by both parties, the bonding company bearing the additional cost. While performance bonds may be a viable solution for construction works etc. their use may be more difficult in cases involving defects of the core technology because persons other than the supplier himself may be less familiar with the technology or have no access to the technology at all and will thus be less likely to be able to cure defects.

### *(e) Period of validity of the guarantee*

In principle, the period of validity of the financial guarantee should be linked to the duration of the supplier's guarantees. Especially in the case of first-demand guarantees, the duration should be loosely interpreted in order to avoid a situation in which the recipient claims the guarantee because the period is close to expiration and it is not yet entirely clear whether all guarantees have actually been met. The clause could also provide that the duration may be extended by the recipient upon request. A fixed guarantee period without the possibility of prolongation should be avoided in complex technology transactions because delays are frequent and defects often become apparent only at a later stage.

Problems may arise if the defect occurs during the period of validity of the guarantee but is only discovered after the expiration of the guarantee period or if the guarantee is only drawn upon at a later stage. Such problems may be solved by having the original performance guarantee and the financial guarantee terminate on the same date and also having the notification time-limits terminate on the same date. In the latter instance, the legislation and jurisdiction of some countries may set limits to contractual stipulations. In Turkey, the Supreme Court treats financial guarantees as guarantee contracts, which means that the beneficiary has the right of action for 10 years under the mandatory statutory provisions on limitations (see [14], article 127).

### *(f) Reducing the scope of financial guarantees*

In order to make financial guarantees less costly, the amount of the guarantee may be reduced as work progresses and certain portions of the work are accepted by the recipient. The reduction scheme may be phrased in general terms or it may specify the steps at which certain percentages of the guarantee are lowered (see illustrative clause 59).

*Illustrative clause 59*

"The guarantee required in a contract between an international organization and a contractor from an industrialized country for the supply of iron plant in a developing country provides that: . . .

". . . the amount of this guarantee shall decrease automatically according to the value of supplies provided and/or services performed by the contractor upon submission to the international organization by the contractor of sufficient documentary evidence such as progress reports and invoices ([54], part two, sect. IV B, para. 109).

### *(g) Variations*

Usually the scope and extent of a financial guarantee, as well as the guarantor's fee for issuing the guarantee, are based on the original content of the transfer-of-technology agreement. In complex transfers alterations may become necessary. The financial guarantee should be formulated in such a way that it also applies in case of alterations, at least to the extent that the supplier's obligations are not extended substantially. It may even provide that all variations will be covered, by simple notice to the guarantor or automatically. The automatic inclusion of variations in the financial guarantee may, however, only be acceptable to the guarantor if the variations do not go beyond a certain scope.

### *(h) Alternatives*

The rationale behind financial guarantees is based on the recipient's unfamiliarity with the supplier and with the technology to be transferred. The better the recipient knows the supplier and has well-founded confidence in his capabilities, the less imperative financial guarantees are. Similarly, financial guarantees are less important in a case involving a proven technology that is well known to the recipient than in one involving a new technology unknown to the recipient. An alternative to financial guarantees is a payment scheme that provides for partial payments only after completion and acceptance of parts of the technology transfer. Such a payment scheme may also provide for a certain percentage of retention money. The supplier may also be obliged to take out insurance and entitle the recipient to the payments of the insurance in case of defects. In some cases, the use of revolving letters of credit or stand-by letters of credit, which are less costly, may be sufficient.

## *4. Check-list of basic points to be considered when dealing with financial guarantees*

Subject-matter of the financial guarantee:

*(a)* Tender;

*(b)* Advance payment;

*(c)* Final payment;

*(d)* Performance and other guarantees;

*(e)* Financial guarantees from the recipient.

Guarantor:

*(a)* Bank (first-class or other);

*(b)* Insurance company;

*(c)* Bonding company;

*(d)* Government or governmental institution.

Types of guarantee:

*(a)* Accessory (conditional);

*(b)* Unconditional (first demand);

*(c)* Subsidiary/non-subsidiary;

*(d)* Proof (evidence) to be established:

(i) By the recipient;

(ii) By the supplier;

(iii) Certification by an independent engineer or expert;

(iv) Arbitral award;

(v) Court decision;

(vi) Summary arbitral or court procedure.

Scope of the financial guarantee:

*(a)* Payment:

(i) Percentage of the price;

(ii) Percentage of the contract value;

(iii) Percentage of liability;

(iv) Remedy of defects;

*(b)* Fulfilment of the contract:

(i) By the bonding company;

(ii) By a third party selected by the bonding party;

(iii) By a third party selected by the recipient;

(iv) By a third party selected jointly by the bonding party and the recipient.

Period of validity of the guarantee:

*(a)* Indefinite period;

*(b)* Definite period;

*(c)* Extension at the recipient's request;

*(d)* Linkage to the duration of the supplier's guarantees:

(i) Identical duration;

(ii) Fixed time-limit beyond the duration of the supplier's guarantees;

(iii) Notification requirements fixed to the duration of the supplier's guarantees;

*(e)* Statutory requirements.

Reducing the scope of financial guarantees.

Variations:

*(a)* General extension:

(i) Upon acceptance by the guarantor;

(ii) Upon notification;

(iii) Automatically;

*(b)* Extension only to specified variations:

(i) Which do not increase the liability of the supplier;

(ii) Which do not substantially increase the liability of the supplier;

*(c)* No extension: only the original obligations of the supplier.

Alternatives:

*(a)* Well-known, proven, reliable suppliers and technologies instead of unknown, new suppliers and technologies;

*(b)* Payment scheme according to work progress;

*(c)* Retention money;

*(d)* Insurance.

Statutory requirements.

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