THE EVOLUTION AND EFFECTS OF TECHNOLOGY TRANSFER IN LATIN AMERICAN COUNTRIES

Comments From The Viewpoint of Technology Suppliers

After reviewing the background and the legislation enacted in Argentina, Brazil, Mexico, Venezuela, and the other Andean Pact Countries, some common denominators can be identified. In order to present some comments from the perspective of technology suppliers to these countries, however, it is necessary to identify and comment upon some of the political and socio-economic factors which have influenced developments in recent years.

Many learned articles and speeches of governmental officials, educators, economists, and others have identified structural problems in the marketplace as among the many factors leading to the passage of technology transfer regulatory and control laws in Latin America over the last decade. This has placed in the spotlight a fundamental problem in these countries: competition vs. protection.

In order to promote economic development and growth, it is necessary to take steps to increase competition and promote efficiency in the productive sector. Productive efficiency is required to increase exports, which is a favorite policy objective of many of the countries. These exports must compete in the marketplace with products from third countries. Therefore, they must be high quality products available at competitive prices. Advocates of the market theory take the position that it is competition which breeds increased efficiency.

But in order to promote economic development, these countries have, in the past, offered incentives to attract new industries. These incentives have included protective tariffs and other barriers in order

to enable new industries to survive the difficult early stages to facilitate maturity into viable enterprises.

Thus, the dilemma has arisen: competition vs. protection.

Another element lurking in the background which has influenced the policies and decisions made by these governments is the multinational corporations. During the mid-sixties, attacks against the multinationals began in earnest. At that time a wave of nationalization swept Latin America, particularly in the extractive sector, although there are well known examples of expropriation in the manufacturing and service sectors. It was believed by some that the multinationals were only interested in the strangulation of the developing countries for their own profit motives, and responded to no sovereign government anywhere in the world. When it was not so believed by key individuals, similar rhetoric directed at the public at large was politically expedient and popular in view of the increased frustration which arose from the failure of economic integration movements in Latin America. It was identified by many of the government technocrats that the local private sector (frequently referred to as the "productive sector") had to be strengthened in order to minimize dependency and reliance on these foreign sources of capital and technology.

The choice was made in favor of state intervention to correct this imbalance. The planning models for all of the countries discussed here today were designed to "lean" in the direction of state intervention on behalf of the local private sectors. This was part of the overall objective of strengthening the local national enterprise.

However, as the laws were implemented in the four countries discussed here, it is clear that each has evolved in quite different

directions. It is useful to comment on each of them briefly, and also to distinguish between different types of technology and different modalities of transfer.

First, however, it should be noted that changes in political philosophy in each of these four Latin American countries have occurred since the passage of the first or most significant law in each country, and subsequent policy has modified the original position in almost every case.

Secondly, as experience has been gained from the application of the laws, different approaches have been discussed and modifications made in some countries. The results in terms of law and practice have been a reflection to some degree of the views of more recent governments in these countries with respect to how much state intervention was required, how equal or unequal was the bargaining power between foreign multinationals and local recipients of technology, how much foreign interference could be tolerated in the management of local enterprises (and the resultant impact on the ability of the country to conduct research and develop new technology locally), how much of the foreign exchange could be allocated to purchase foreign technology, and also of the basic philosophy of the host government as to whether oligopolistic market patterns would permit the "free market forces" to make decisions which would also benefit the host society.

The following comments will be addressed to the results of these internal discussions (as expressed by each country's law as applied in practice), and some problems remaining to be resolved.

IMPLEMENTATION OF POLICIES

In order to understand the practical application by the various countries in the region, it is useful to consider a spectrum from left to right (no political suggestion intended) in summary form before dealing with the individual countries more specifically. On the left would be the most rigid policy with respect to application of the technology transfer control and regulatory system. Brazil would have to occupy the position at the extreme end of this spectrum. Although their stated policy does not always read as the most rigid, the practical application in Brazil, usually administered by extremely able and well informed individuals, produces among the most intransigent results. Because of their balance of payments problem they try to negotiate the best possible terms and to use the "great Brazilian market" as an attractive bait to lure the foreign technology supplier.

Next to Brazil would be Colombia, the most rigid of the Andean Group. Part of the intransigence of the Colombian policy arises from attitudes of the Royalty Committee within that government with respect to the role of transnational corporations in their economy. Next to them would be Venezuela, with its Decree 746 of February, 1975, imposing some additional restrictions which go well beyond those enumerated in Decision 24. Perhaps Peru would then fall next on the spectrum, approaching the middle of the array.

It is believed that Mexico falls squarely in the middle. Mexico's pragmatic application of its laws and policies has resulted in considerable flexibility in order to accomplish the results the country

deems to be in the national interest. Continuing toward the more liberal end of the spectrum, we would encounter Ecuador and Bolivia of the Andean group, but which have not applied Decision 24 with the same attitudes as those mentioned earlier. Ecuador has implemented that code, as indicated earlier, but has made creative interpretations to accommodate its development needs. Bolivia has not yet fully implemented that law, but has developed guidelines to suit its own development needs.

Continuing to the other end of the spectrum we find Argentina with its 1977 revision of earlier laws on the subject. Officials of that government had expressly stated their intent to reverse the trend of the prior laws which had, in their words, resulted in a virtual "drying up" of technology flow to that country. At the far right of the spectrum we find Chile, which now boasts Latin America's most open and flexible laws and rules regarding Technology Transfer. Chile's Decree Law 600, although based to some degree on Decision 24, establishes a "rule of reason" approach and permits technology to be utilized as a capital contribution when fair market value can be established, even going so far as to permit the supplier to establish that value by a sworn affidavit which, if not challenged within 120 days, is accepted. Argentina has also permitted technology to be capitalized, and the value must be established by negotiation between the supplier and the Registry. Both of these laws would appear to give great emphasis to the ability of local entrepreneurs to negotiate more effectively than some of the assumptions made by other governments.

BRAZIL

The largest country of this group with a population of approximately 120 million people, and projections to increase to 200 million people in a relatively short time, Brazil has a more sophisticated system for regulating and controlling technology than the other countries in the group. Brazil also has a more serious balance of payments problem than any of the other countries mentioned. When Brazil enacted its exchange control law in 1962, the scene was set for increased regulation and control of license agreements and other forms of technology transfer. During previous years through various political changes, Brazil had begun the fundamental thrust toward diversification in many senses of the word. At that time Brazil's technology policy was not as clearly defined as it has become during this current decade. But even then the country adopted an approach toward diversification away from reliance upon one dominant export (coffee), including the large scale attempt to increase the light manufacturing capabilities of the country in various sectors. Thus, the need was identified to develop technology locally to support this "import substitution" drive. When the (primarily agricultural)exports of the country were reduced as a result of harmful crop damage, the country had no foreign exchange to import technology. It was clear that technology had to be developed locally. With great foresight the country established a series of technology development centers across the country. Then came the period of the "great economic miracle" wherein the growth rate met or exceeded ten percent per annum for approximately ten straight years from 1964 until 1974. This period also saw increased diversification away from dependence on basic agricultural exports. The foreign exchange earned supported the purchase of

substantial foreign technology, primarily accompanying foreign capital in large investment projects. As of January 1, 1974, the entire picture changed drastically. With the tremendous increase in the price of oil, Brazil faced a serious crisis. Because of their tremendous dependence on the importation of foreign oil (approximately 85 percent of Brazil's oil is imported), the country faced a serious BOP deficit. After the payment for the oil, required to fuel industrial growth, very little was left for importation of foreign technology. Thus, the screws had to be tightened. They were.

It is clear from a review of the principle operative regulations in Brazil (Normative Act 15, 17 and 32) that the supplier of technology must be prepared to relinquish control over that technology within a relatively short period of time. But owners of dynamic technology, developed at great expense, are reluctant to relinquish control for the limited amount of royalties and technical assistance fees which can be earned over the limited period of time allowed by the Brazilian government.

The result may be a stand off. The Brazilians want "effective transfer" of the technology to the local economy. They have gone so far as to use Brazilian engineering companies in certain projects to absorb the technology from the foreign supplier and retransfer it to other Brazilian entities.

The problem has been described by some analysts as a problem of "design mentality." By this is apparently meant that the belief is that Brazilian engineers and scientists can modify or redesign various equipment and processes to maintain the same overall performance capability, while redesigning some elements of the equipment or process to incorporate more labor intensive activity in certain stages of the

process, or in various stages of the manufacture of the equipment. This "design mentality" is also believed to be able to incorporate more abundant local materials into the equipment as appropriate to result in a lower net import cost to the Brazilian importer, without sacrificing performance levels, resulting in a greater utilization of local resources, and a reduced drain on the scarce foreign exchange.

In its desire to accomplish a "true" transfer of technology, Brazil apparently places less value on trade secrets or "know-how" than it does on tangible property such as patents or trademarks. Normative Act 15 does not permit the licensing of know-how, but only the assignment of this intangible technological property.

We know, however, that the inventor need not disclose in his patent application the best manner of applying or utilizing the invention. This complimentary knowledge, the ability to apply the invention to realize commercial gain in an efficient manner, is thus valuable property and must be protected by the technology supplier.

In addition to this "know-how", there is the concept of technical assistance which can be provided by the supplier of technology to train the personnel (including engineers, technicians, and production and quality control personnel) of the technology recipient, in the techniques and skills required to understand the technology in such a way as to be able to commercialize it effectively.

The "know-how" and the technical assistance are the concepts of "intangible technological contribution" which until now have not received the attention and corresponding protection under the laws of the countries discussed here today, which suppliers of technology believe are vital to safeguard the transfer process.

Until now, the increased rigidity of the application of the Brazilian policies in practice does not appear to have resulted in a substantial reduction of the flow of valuable foreign technology to Brazil. However, it has been noticed that the negative feedback level has increased. The key question is whether the increasing complaints by multinationals will rise to the level at which decisions will be made to change their policies. Thus far, the irresistible attraction of the "great Brazilian market" has been powerful.

MEXICO

The second largest country, in terms of population, Mexico presently numbers approximately 65 million, with projections reaching 120 million around the end of the century. Mexico also boasts tremendous natural resources, including a comfortable position in production and reserves of a number of minerals and precious metals, and what has now been established as one of the world's largest reserves of hydrocarbons. Mexico now has the world's 15th largest economy.

An earlier administration in that country, which had embarked on a direction apparently patterned to some degree after laws enacted in Colombia, the Decision 24 of the Andean Pact, and Argentina, took steps that were interpreted by foreign suppliers of technology as a serious threat to the continued exercise of the rights of control of valuable technology by those owners including the multinationals. Even more than the technology law itself was the law on inventions and trademarks, with its controversial approach to the linking of foreign trademarks with new marks of Mexican origin. Other provisions in this new industrial property code included the establishment of a certificate of invention,

presumably patterned after the Soviet model, valid for a period of ten years. The law also reduced fields of patentable subject matter, and established mandatory "working" requirements, both for patents and trademarks.

But the change of political administration appears to have had an effect on the prevailing government policy with respect to technology transfer, particularly in view of the important role technology had to play in the revised industrial development goals of that country. This has been dramatized in the face of regular upward revisions in the proven and probable reserve figures of oil and the higher level of revenues coming into Mexico from the export of larger quantities of oil at higher prices.

After five years of operation of the Mexican Technology Transfer Registry, the government reported a reduction of some 500 billion U.S. dollars in royalty payments for foreign technology. At the same time, however, a reevaluation of internal policies and priorities resulted in a merger of the technology registry into the Foreign Investment Commission. Statements made by the government at that time indicated a shift from emphasis on the quantitative aspects (particularly a preoccupation with royalty rates) to the more qualitative features of the technology transfer transaction. Early indications received from Mexican and foreign licensing specialists, however, suggests that these objectives may not yet have been realized. However, it has been observed that the Mexican government has a tendency to apply the policies in a pragmatic manner particularly where the transaction involves technology which they identify as being important to their industrial expansion.

One of the critical factors in Mexico appears to be the requirement for the creation of approximately 800 thousand new jobs per year. Thus it has been observed that the government is exceptionally creative in the application of the technology policy when the transaction being reviewed would appear to result in the creation of substantial numbers of new jobs.

ARGENTINA

Change of governments appeared to have a substantial effect in Argentina as well. We have seen the 1971 law, bearing strong resemblance to Decision 24 of the Andean Pact, and then the 1974 law which was even more severe, the effect of which was to effectively stop the flow of foreign technology to that country according to the public statements of Argentine government officials, and the 1977 version which completely reversed some of the most difficult concepts in that law. Not surprisingly, the government had changed in 1976 and brought with it a totally different philosophy with respect to the attraction of foreign capital and technology.

But Argentina, with a population of between 25 and 30 million, has neither the balance of payment problem faced by Brazil, nor the critical requirement for job creation faced by Mexico. It is nearly self sufficient in oil, and boasts abundant natural resources, and (in the "Pampa") one of the most fertile agricultural regions on the continent. It is said that nearly anything can be cultivated in the Argentine Pampa.

Argentina has, therefore, taken a totally different direction than the other countries under discussion. They have practically flung their doors wide open, retaining only the form of the regulation and control system shared by the other countries, but in practice

applying more of a "rule of reason" approach on the case by case evaluation than the "per se" rejection of many of the provisions in the license agreements that are prohibited in Brazil, Venezuela and Mexico.

This country appears to have adopted the philosophy that the market forces will, in fact, determine the types of technology to be acquired, and a reasonable level of compensation to be paid. Argentina, at the same time, has made major adjustments in its import policy, designed to increase the level of competition in its internal markets with the objective of increasing productive efficiency. This, it is presumed, will result in a rationalization of production in various sectors, which will contribute to the industrial expansion and diversification, thereby building a strengthened economy which is export oriented.

Only Chile in Latin America has gone further than Argentina in adopting classical "free market" competition policies. It appears that Argentina has directed its attention to the recipients of technology, the individual enterprises which will acquire the technology, and utilize it for production of goods and services for domestic consumption and some cases for export. It is not surprising that the flow of foreign technology to Argentina since the enactment of the new laws and subsequent regulations has increased dramatically.

VENEZUELA

The smallest of the countries under discussion here, Venezuela also is blessed with an abundance of certain natural resources, particularly including oil and iron ore. It has been speculated that during the euphoria existing in the oil producing and exporting countries (OPEC), including Venezuela, in late 1973 surrounding the dramatic

increase in the price of oil, which happened during a presidential election in Venezuela, some fundamental conclusions were reached in that country. One of these conclusions was that Venezuela had so much oil (and therefore wealth) that it really did not need the foreign capital and technology. This contributed to the decision to join the Andean Pact and adopt its Decision 24 governing foreign investment and transfer of technology. Shortly after the inauguration of the new administration in Venezuela, the decrees were issued which implemented Decision 24 in that country.

However, with the euphoria apparently prevailing and continuing for some time, an additional law was passed in 1975 (Decree 746) which contained some provisions which were even more restrictive than some of those contained in Decision 24. Among these were two which limited the supplier of technology from restricting the use by the recipient of confidential information after the expiration of the transaction, and a second one which limited the right of the technology supplier with respect to the system of quality control which he could impose upon the licensee producing products to the specifications of the licensor, products which also presumably bear the internationally known trademark of the licensor.

These troublesome provisions have been the subject of fundamental discussions ever since. In addition, the Venezuelan decrees contain a provision in respect of trademarks which would appear to reverse a basic provision in the industrial property code of that country.

Leading Venezuelan private sector interests have declared that the figures on new investment and technology published by the last Venezuelan administration were misleading and inaccurate. These interests maintain that the restrictive laws and their equally restrictive appli-

cation resulted in a substantial decrease in the flow of desired technology and capital into that country.

One of the contentious provisions was modified in 1977 by new language that indicated that agreements might be extended as long as fifteen years with the approval of the appropriate ministry.

Once again a new government has been installed in Venezuela this year. The new government has made public statements about the role of the state and state intervention in these kind of transactions. Perhaps it is too early to see any result and any potential effect. on policy in that country, from the new team at SIEX.

Of the remaining four Andean Pact countries, Colombia, which is larger than Venezuela in terms of population but does not have the tremendous oil reserves, has established a reputation for a strongly anti-multinational attitude. According to many observers, the Royalty Committee in Colombia, an interministerial committee representing the appropriate organizations of that government, has imputed a strong policy which disfavors the payment of royalties or technical assistance fees for intangible technological contributions which run from a multinational corporation to its majority controlled subsidiary in that country. This is Article 21 of Decision 24, but it appears to have been extended even further in Colombia. However, recent activity in that country may suggest some re-evaluation of long standing attitudes within the government agencies administering the technology policy.

Because of grave financial difficulties, Peru is in the middle of apparent modifications to its technology and investment laws and policies, in order to facilitate the economic recovery. Ecuador and Bolivia have never implemented Decision 24 in as restrictive a manner

as some of the other Andean countries, because of their greater needs for industrial development.

Recently in the subregion there has been a movement towards standardization of certain industrial property code aspects. This is manifest by Decision 85 of the Andean Pact now adopted in Ecuador, Colombia and Peru.

SOME COMMON DENOMINATORS

In the final analysis the technology policy of each country will be determined by what works best for that individual nation. Promotion of exports is a high priority in each country. Reduced inflation in Argentina is important, as is increased competition. In Brazil, the balance of payments problem will remain the single most important factor determining the technology policy as well as a number of other policies which effect the economic growth rate and a variety of related statistics. For Mexico, job creation will remain a high priority throughout the next two decades. The creation of indigenous technology is an objective of all of the countries in the region. This will be a function of the natural resources available in abundance in each country, the prevailing situation with respect to labor availability as well as skill levels of the labor force, and the general prevailing climate for technological innovation.

We are beginning to see a shift in emphasis in the countries which we have discussed in Latin America. This includes a slight shift of attention from the sources of technology, primarily the multinationals, to the recipients of technology. This involves more attention to the selection of technology, the acquisition process, and most particularly the infrastructure - the capabilities of the local economy to absorb the

technology and effectively utilize it for the benefit of its society. As this trend picks up speed, suppliers of technology will be encouraged to cooperate and contribute to the growth and development if their requirements for minimum protection and control will be met.

DIFFERENT TYPES OF TECHNOLOGY

In the early stages of the implementation of these systems for regulation and control of technology, attention appeared to be directed toward the license of patents and trademarks. It is becoming increasingly apparent to government regulators, however, that such other forms of technology as technical assistance and licenses of "know-how" are even more important than the licenses of patents and trademarks. Various kinds of engineering services, particularly including process engineering and the basic and detail engineering required to build a plant have also been receiving more attention in recent years. The entire role of engineering services in this technology transfer process may be one of the most interesting areas to watch in the future.

The recognition that the most important elements of the transfer process include the unpatented "know-how" and the ongoing technical assistance required to commercialize the technology, including training the key user personnel, is clearly significant. As the realization becomes more widespread, it may be that the balance will again be restored. This would facilitate the accommodation process whereby the technology supplier may receive the minimum level of protection he desires, along with the reasonable value of the technology, in return for greater commitments for training of user personnel in ongoing technical assistance for the commercialization process.

DIFFERENT MODALITIES OF TRANSFER

In addition to the forms in which technology is transferred that have been discussed already, the joint venture is a form being increasingly discussed as a potential solution to many of these problems. Brazil, Mexico and Venezuela through their laws and policies all place a strong emphasis on the foreign multinational entering into a joint venture in which that party has a minority interest.

It must be recognized, however, that for a technology supplier to transfer valuable corporate property into a joint venture where they do not have clear legal control, is essentially against the basic interest of the corporation and its directors and stockholders. Thus the issue of control extends far beyond the apparent issue of voting control of the operations of the venture. The issue also involves control of the technology. This is at odds with the fundamental desire of the recipient countries to accomplish "true" technology transfer.

Self reliance is a highly desirable objective. Hardly anyone will quarrel with the desire that the ship of state in each country be steered by its own nationals. Thus, when phrased in that manner, the objective of reduction of dependence on foreign sources of control of local enterprises, as well as foreign suppliers of technology and capital, may be better understood.

However, the issue may not necessarily be reduction of dependence on these foreign sources. The issue may well be what kind of inter-dependence can be created in order to facilitate the economic growth and development of the host countries. Furthermore, what kind of interdependence can be created to provide the opportunities for these Latin American countries in various stages of development, to be able to export the technology they have developed and are continuing to

develop increasingly in the future, without attracting retaliation? This problem has preoccupied experts in international trade matters for a number of years, and has resulted in a series of rounds of trade negotiations under the General Agreement on Tariffs and Trade (GATT). All of the countries being discussed here are continuing to develop technologies which may well have application in many other foreign markets.

REVERSE TECHNOLOGY TRANSFER

In the heated debates about technology transfer, it has been overlooked it seems to me that a new stage has been reached where some developing nations have already become "developed" nations in the sense that they have become technology exporters. In some countries and notably Latin American countries, such as, in particular, Argentina, Brazil and Mexico this has already reached very pronounced proportions. Mexico is the best example one can find in this regard but of universal validity.

Mexico is still classified as a developing country. And insofar as the development of truly new products is concerned, e.g., synthesis of new chemicals, it certainly does not come close to the major European countries or Japan or the U.S. However, Mexico without a doubt has come a very long way as regards technological progress.

Mexico has already sound technology of its own in such fields as agricultural infrastructure as well as such industries as petroleum, beer, cement, glass, steel and others including some in chemical areas. What is more, a full-fledged campaign is under way in Mexico to export "home-grown know-how". (See Business Week, August 30, 1977, p. 40.)

For instance, the HYLSA process for direct reduction in steel making, which was developed by Hojalata y Lamina, the largest private steel company in Mexico, was first sold to Brazil in 1969 and has since also been bought by Venezuela. The technology DEMEX, invented by PEMEX the state oil monopoly, in order to extract metals from crude petroleum during the refining process, has been sold to ECOPETROL, the state Petroleum company of Columbia as well as to Jamaica. The method CORTINA to reinforce steel structures is used in Columbia and Venezuela. And Peru and Argentina have bought the CUSI process, a method developed by the Bufete Industrial for the manufacture of paper pulp. Lately, Mexican technology has also been found outside of Latin America. Steel plants which incorporate the HYLSA process are being constructed in Iran, Irak, Indonesia and Zambia. The CORTINA technology has been bought by Saudia Arabia to be used in projects of the Department of Housing, and the DEMEX process is even being used in the United States in an expansion of a multi-million dollar refinery in Corpus Christi, Texas.

The success and spread of Mexico's HYLSA process was highlighted at the Third LES Mexico Meeting in Mexico City on November 10, 1978 by Lic. Ricardo Ortiz Chacon, an official of HYLSA, S.A. (as well as by the NEW YORK TIMES, April 2, 1979, D-1 and BUSINESS WEEK, June 11, 1979, p. 53).

Mexico is also developing a hydrometallurgical process of its own to make copper electrolytically. It went into the pilot plant stage in 1977 in Baja California to produce 10 metric tons/day and later 9,000 m.t./year. And by now this process may well be ready for export.

As far as Argentina is concerned I understand from Dr. Cikato of Montevideo that all the technology that Uruguay is importing comes from Argentina and it is more than likely that not only Uruguay is importing technology from Argentina but other neighbors, too.

It is also very interesting to note that there is a drive on in Brazil not only to export goods but also, and more recently, to export less sophisticated technology or to re-export technology adapted to the conditions of a developing country to countries which have not yet reached the industrial level of Brazil, such as, Arabic, African and some of the other Latin American countries. INTERBRAS, has been negotiating the transfer of technology involved in about 30 projects from Brazil to such other countries including, for instance, two ceramics plants in Nigeria. These and similar developments were related by Peter Dirk Siemsen of Rio de Janeiro in a talk which he gave at a John Marshall Law School Program in Chicago in February 1977.

In this connection it is also very interesting indeed to note that truly multinational companies already exist in Latin America as described in an article in "VISION" November 15, 1976, p. 13 and have been emerging from developing countries in general for some time now as discussed in a recent Harvard Business Review article (See David Heenan et al., "The rise of third world multinationals", Harvard Business Review, January-February 1979, pp. 101-109).

This is just an illustration and possibly only the tip of an iceberg. But these are not isolated instances; it is becoming a pattern, a systematic practice and a logical development. This ought to be kept in mind for the sake of objectivity and perspective. I don't think there is a clearcut division or gulf or dichotomy between developed and developing countries. From the point of view of technology transfer it is a dynamic ever-changing picture. The point can be made and this should be born in mind that with respect to the Code of Conduct and restrictions in Technology Transfer agreements, the "chickens may come home to roost" (as we say in the United States) to the developing countries when they start to export technology and practice export of technology themselves.

From this the following question arises. What kind of deals, contracts or license agreements are these developing countries as for example Mexico, Brazil and Argentina, or rather the state or private companies involved, concluding with their licensees in other countries? I am sure they don't give their technology away free or for a very nominal royalty-fee and without any strings whatsoever attached.

On the other hand, I don't suppose they can charge what the traffic will bear in view of the criticism and condemnation leveled against the transnational companies and the highly developed countries on account of past abuses such as excessive royalty charges and royalty repatriation.

It would indeed be interesting and intriguing to know what kind of deals are being made in cases of technology transfers between developing countries to other developing countries. A strict Code of Conduct and elimination or outlawing of all or any restrictive clauses would come back to haunt them.

In spite of all this and this is very ironic, Brazil and Mexico as Dr. Barr-David pointed out in his talk at the LES International Conference in Sydney in March of this year, lead the attack by the developing countries on the developed countries and the multinationals. In this regard it was most interesting to hear also at the Sydney LES Conference, that the switch from developing to developed countries which is fast coming about also in Asian/Pacific countries such as Korea, Taiwan, Singapore, is taking place without any resort to such restrictive practices as are prevalent in Latin America.

But in private discussions with Mexican attendees at the November 1978 LES Mexican Meeting I detected a recognition on their part that they are going to be paid "in their own currency". Other expressions they used were "the shoe is on the other foot" and they "find themselves on the other side of the table".

THE IRONY OF IT ALL

In view of all this it is indeed very strange and ironic that Mexico would have so radically modified its patent and trademark laws which was also done perhaps to a lesser degree in Brazil and other countries at the threshold or past the threshold of technology export. These new industrial property laws are so restrictive that they may harm the progress made so far and discourage further progress. Do they not amount to a policy of cutting the nose to spite the fave and reveal short-sightedness and socialist tendencies?

This is indeed unfortunate because patents are an important element in stimulating the working of new and useful inventions and of complementary know-how, and consequently, facilitate and increase technology transfer. Therefore, strong rather than weak national patent laws in developing countries are, under cost/benefit evaluations, the best method of contributing to an increased inflow of desired and suitable technology and know-how for the benefit of industrial and agricultural progress. It is recognized that national patent laws may have to be adjusted to the specific needs and priorities of each country in line with a domestic policy that favours a fair internal distribution of income, quality of life, and indigenous culture. Nevertheless, the essential exclusivity of patent rights must be preserved. The first consequence of such an adequate patent system is an improved access to international technology and valuable non-patented know-how. The inducement of protection for the benefit of local

manufacture eases, as a second consequence and in the long run, balance and trade deficits by generating domestic 'added values', possibly coupled with some exports of quality-controlled products. The third consequence is, or at least may be, a spill-over effect on secondary industries and on the consumption of national resources, leading also to more employment, professional training, and autonomous improvements. These net benefits cannot, however, be achieved without mutual understanding among all private and official partners as regards the legitimate interests to be respected in support of any long-term co-operation for the exploitation of patented or confidential technology to the benefit of genuine economic and social progress. In these circumstances, the recognition of effective patent protection is, on balance, an important element in encouraging and facilitating the acquisition and exploitation of suitable technology in developing countries and which brings about adaptation of the imported technology to local needs and in turn leads sooner or later and perhaps inevitably not only to export of products produced by this technology but also to export of the technology itself to lesser developed countries.

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