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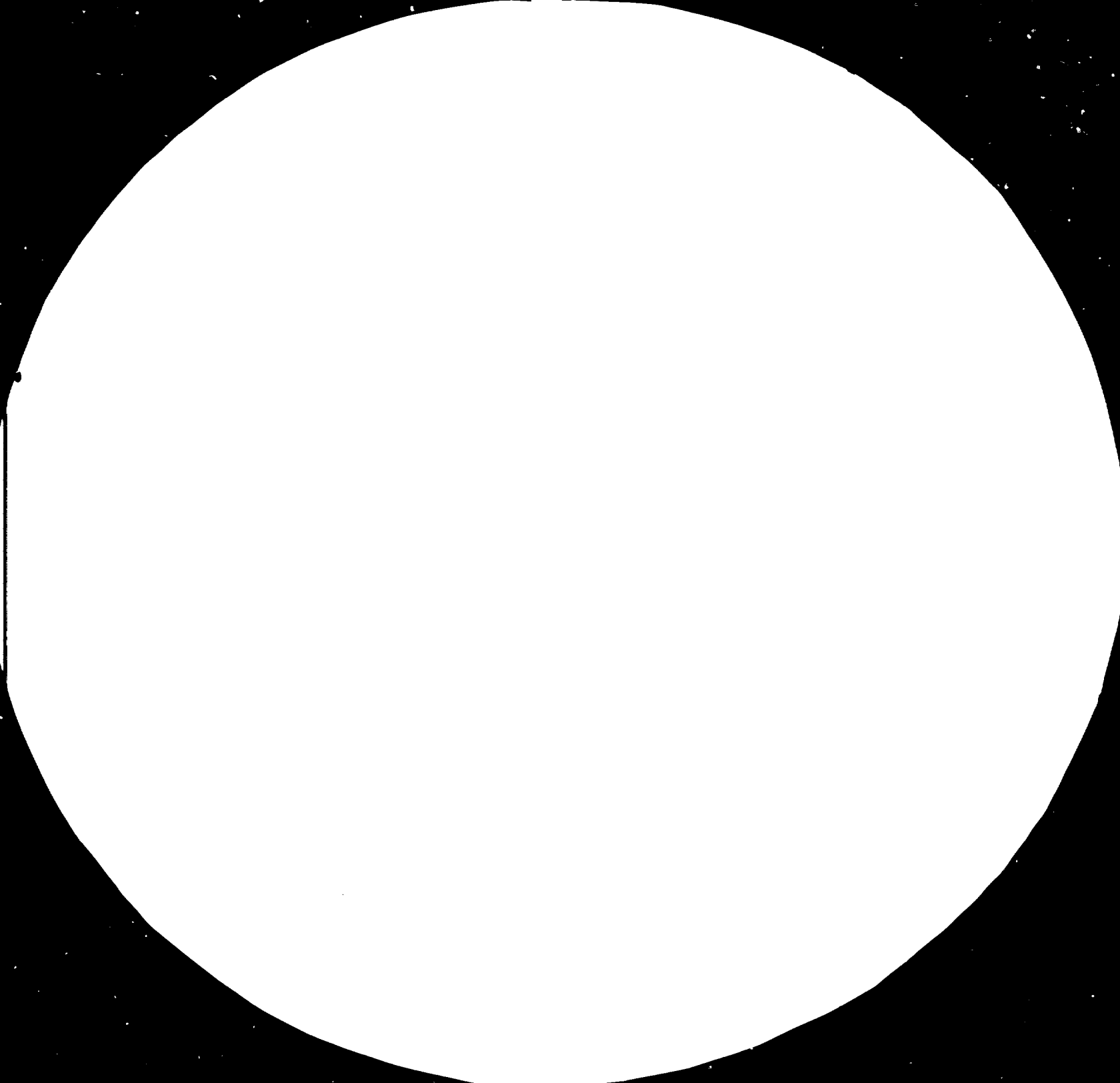

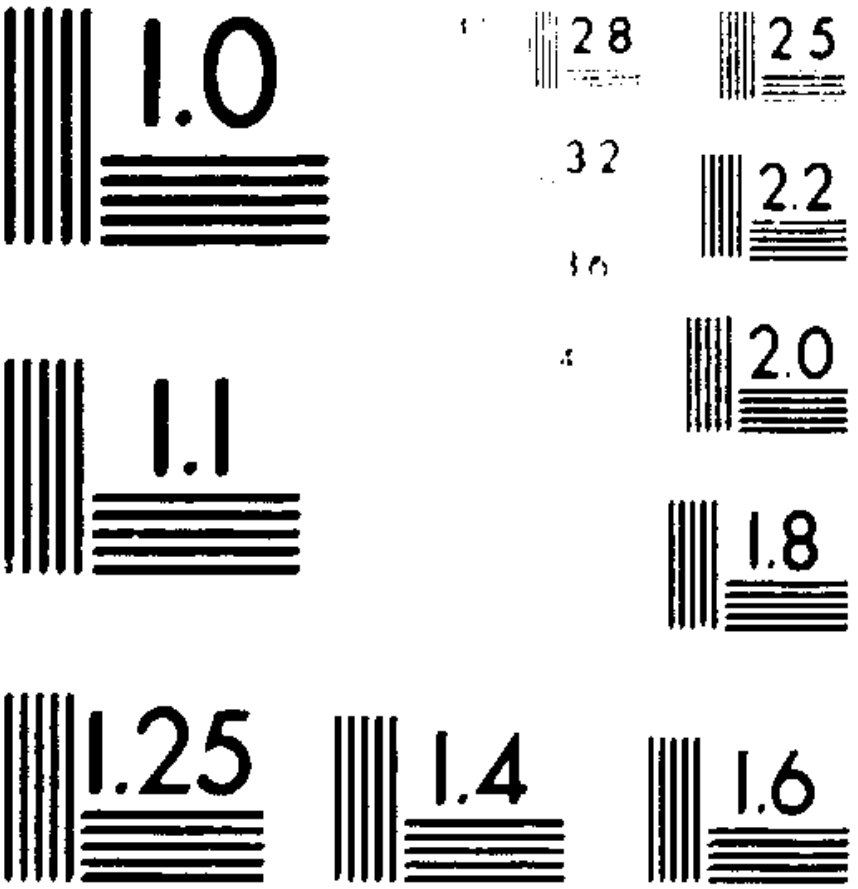

14593

TIES NEWSLETTER

TECHNOLOGICAL INFORMATION EXCHANGE SYSTEM

Issue No. 27 January 1985

Dear Reader,

The Ninth Meeting of Head of Technology Transfer Registries took place in Beijing, China, from 8-12 October 1984 and was hosted by the Technology Import Export Bureau of the Ministry of Foreign Economic Relations and Trade. This department is responsible for co-ordinating all technology influx into China and in that capacity, has been the TIES focal point over the past years.

I am pleased to report that the meeting was a great success, and the warm hospitality of the Chinese hosts will long be remembered. The timing of the meeting was very opportune as the country has adopted several measures of economic reform which bring the issue of technology transfer to the mainstream of policy and action.

I should like to refer to the decision of the Central Committee of the Communist Party of China on the reform of the economic structure adopted by the Twelfth Central Committee of the Communist Party of China at its Third Plenary Session on 20 October 1984, and I quote:

> "We must mobilize all positive factors if we are to achieve rapid growth in all fields of production and construction and make our country strong and prosperous and our people rich and happy at a fairly fast pace. Under the guidance of state policies and planning, the initiative of the state, the collective and the individual should all be encouraged. We must work to develop diversified economic forms and various methods of management. And we must actively expand foreign economic co-operation and technological exchange on the basis of independence, self-reliance, equality and mutual benefit, and mutual good faith."

and "The productive forces including science and technology in our times are developing ever faster. Although international relations are complex and ridden with contradictions, international economic and technological ties are, generally speaking, very close, and national seclusion cannot lead to modernization. Since the Third Plenary Session of the Eleventh Central Committee, we have taken opening to the outside world to be our long-term, basic state policy, a strategic measure for accelerating socialist modernization. Practice has already yielded marked results. We must continue to pursue flexible policies, reform our foreign trade structure in line with the principle of both arousing the enthusiasm of all quarters and developing a unified approach in our external dealings. We will work to expand economic and technological exchanges and co-operation with other countries, strive for the success of the special economic zones and open coastal cities more fully. Using foreig funds and attracting foreign businessmen for joint ventures, co-operative management or exclusive investment in enterprises are also a necessary and beneficial complement to China's socialist economy."

This policy was the underlying factor in the discussions on national experiences on technology transfer by the Chinese participants and they were keen to learn respective experiences from other TIES members.

A principal concern of the Chinese Government was related to information systems on technology transfer. A visit was organized to the computer centre of the Ministry of Foreign Economic Relations and Trade, where a pilot operation on the establishment of a computerized information system on technology transfer contracts was demonstrated. As power to approve technology transfer contracts is more and more delegated to provincial authorities, the need to develop a national information exchange system based on the principle of TIES, was recognized. This would enable the Ministry of Foreign Economic Relations and Trade to perform its co-ordinating function and enable provinces, autonomous municipalities and coastal cities to have reference data on contracts negotiated in other parts of China.

I would also like to mention that through the courtesy of the Government of China we had the opportunity of visiting several cities in China to exchange views on technological co-operation, foreign investment and choice of technology with the local authorities. Stimulating informal seminars were held in Xian, Shanghai, Hangzhou and Guangzhou on these topics. The interest demonstrated gives reason to believe that there is great scope for organizing training seminars on technology acquisition negotiation in order to acquaint more people with the basic issues concerned.

G. S. Gouri
Director
Division for Industrial Studies

Compiled by the Technology Group of UNIDO P.O. Box 300, A-1400 Vienna, Austria

UNIDO activities

TIES MEETING

The Ninth Meeting of Heads of Technology Registries was held in Beijing, China, from 8-12 October 1984. Present were 25 participants from 19 countries and nine observers. In his opening statement the chairman of the meeting, Mr. Wang Zhixi said that the Ministry of Foreign Economic Relations and Trade was responsible for the co-ordination of technology transfer in China, and in that capacity had established a long history of co-operation with TIES. With respect to the TIES achievements, he observed that good results had been obtained through this co-operative scheme and it was hoped that the co-operation between his department and TIES could be improved to mutual benefit.

Mrs. Trina Michelangeli de Rodriguez of Venezuela, in her capacity as Chairman of the Eighth Meeting of Heads of Technology Transfer Registries, held in Caracas from 17-21 October 1983, commented upon the need for developing countries to strengthen their co-operative contacts in order to stimulate increased trade between themselves. She commended the results so far achieved through TIES, as the information obtained had been very useful in assisting entrepreneurs in the negotiation of technology contracts. In addition to this type of information, she expressed the hope that TIES may be expanded to include the exchange of information on available technologies within the regions. She referred to the recommendations of the Caracas meeting of TIES, particularly stressing those related to training and compatibility of registry information systems and again expressed the hope that the Ninth Meeting would elaborate on these important issues and reach some concrete conclusions to strengthen TIES further.

Mr. G. S. Gouri, Director of the Division for Industrial Studies of UNIDO, thanked the Government and the nation of the People's Republic of China for kindly hosting the meeting and for the excellent organizational arrangements. Mr. Gouri described TIES as a good, practical example of mutual co-operation among the developing countries. While speaking of the favourable results so far achieved through the TIES programme, he reiterated the wish that the Ninth Meeting may arrive at concrete recommendations for action on the key issues to be considered, especially those on the regionalization of TIES activities and the training programme.

Referring to the regionalization of TIES activities, Mr. Gouri commended the efforts already made in the Asian and Latin American regions, and stated that similar efforts were to be started soon in the African region. He expressed the hope that TIES members would continue to extend assistance and training opportunities to the African countries, who were just now beginning to establish technology transfer registries. On the matter of training, Mr. Gouri expressed the desire that a long-term training programme be developed on specific aspects of technology transfer processes. UNIDO would prepare a compilation of the various training materials used by UNIDO and other organizations as a means of enhancing the effectiveness of the training programmes to be initiated.

The meeting then discussed current TIES matters, in particular its organizational aspects and such issues as training, compatibility of registry information systems, monitoring of transfer of technology agreements and case studies on contractual arrangements in food processing and software. A list of documents related to these items and the report of the meeting has been included in this issue under the heading "Recent Publications".

Particular mention is made to CORIS, a simulated computerized technology transfer registry information system. This model, prepared by UNIDO in collaboration with the Foreign Trade Data Centre of Poland, created great interest among the participants, and further work in this area was welcomed. The issue of technology transfer payment evaluation was extensively discussed and it was agreed that a thorough review of this issue would be necessary in order to establish some sort of guidance for a common approach. An expert group meeting will be held within six months and several registrars agreed to do some further research on such issues as taxation, service fees, the role of market size and export orientation, parent/subsidiary payments, etc.

The meeting closed with an increased awareness of the value of co-operation among technology transfer registries and due credit was given to the Chinese Government for their generous hospitality and friendship which contributed considerably to the success of the meeting.

SECOND MEETING OF HEADS OF NATIONAL TECHNICAL CO-OPERATION AGENCIES

Following the recommendations of the High-Level Conference on Economic Co-operation among Developing Countries held in Caracas from 13 to 19 May 1981, the Group of 77, in co-operation with the International Center for Public Enterprises in Developing Countries (ICPE) and the Research Center for Co-operation with Developing Countries (RCCDC), organized the Second Meeting of Heads of National Agencies for Technical Co-operation among Developing Countries in Ljubljana from 30 July to 2 August 1984. The Meeting was attended by delegates from 23 member countries of the Group of 77 as well as representatives of international organizations.

Strengthening of Technical Co-operation Among Developing Countries

(a) National Mechanisms:

The Meeting noted with satisfaction that most of the developing countries have taken effective steps in establishing or designating national focal points for ECDC and TCDC, and in this connection, noted with appreciation UNDP's initiative in issuing a comprehensive Directory of Focal Points for TCDC which

includes information on the focal points of governments, intergovernmental organizations, and organizations of the United Nations development system in four languages (Arabic, English, French and Spanish). It was felt, however, that the information in the Office of the Chairman of the Group of 77 and in the UNDP's Directory of Focal Points be expanded to cover relevant details on the functions and operating procedures of the focal points. This would facilitate periodical review and possible improvement of the functions and procedures at the national level. It was felt that a global seminar or a workshop such as UNDP's successful experience in organizing the seminar for TCDC focal points of Asia and the Pacific Region in New Delhi in 1982, would be helpful in exchanging views and disseminating experiences on the establishment and evolution of the functions of these national focal points.

The meeting also discussed the project proposal on the co-ordination and exchange of information, multisectoral information network (MSIN) and it was envisaged that the pilot project phase would start with one or more sectors in order to test and summarize data and information on particularities, problems and experiences of participating countries in collecting, processing, transmitting and disseminating information in one or the other chosen sector. This would provide a base for further elaboration of the development strategy of the MSIN. The meeting expressed general support for the idea of setting up the Network which would satisfy a large variety of the developing countries' needs in the exchange of information and experience on TCDC/ECDC matters. While on the subject of information exchange, the Meeting was informed by the representative of UNDP of the progress in the development of the TCDC Information Referral System (INRES), and its computerized Inquiry Service, which initially would include in its data base information on the capacities of 8,000 developing country institutions in the fields of education and training; research and technological development; consultancy and expert services; scientific and technical information services; and bilateral and multilateral project experiences. The Meeting noted that MSIN should complement and not duplicate the work of INRES. UNCTAD's representative spoke of their Trade Information System (TIS) developed for South-South trade, which would serve, inter alia, as a basis for the forthcoming negotiations on GSTP (Global System of Trade Preferences among Developing Countries). The data collected by TIS on tariff and non-tariff restrictions are to be processed and analysed in order to assist developing countries in the preparation of their negotiating positions on the various elements of the GSTP. Again, there will be no duplication between TIS and MSIN, especially since the member states of the Group of 77 are deeply involved in TIS. The Meeting suggested that the services of institutions of developing countries be used in the implementation of the TIS. The Meeting was informed also by the representative of ILO on the ILO information networks which would be examined with the view of re-orienting their operations to meet the needs of South-South co-operation to be synchronized with the proposed MSIN. He also mentioned the two specific information systems relevant to TCDC:

- the Management Development Referral System (MDRS) which provides information on existing or planned management development institutions in both developed and developing countries with regard to training capacities, programmes, materials, research and documentation;

- the Interregional Training and Research Information System (IRTIS) which is being developed by the ILO in co-operation with regional training and research centres in Africa (CLADFOL), Asia and the Pacific (APSDEP), Latin America and the Caribbean (CINTERFOR) in collaboration with the International Centre for Advanced Technical and Vocational Training in Turin, Italy. The system provides for collection, processing, correlation and dissemination of information to governments and institutions in developing countries on training systems, facilities and capacities for TCDC, national legislation and standards, training materials and relevant information.

Another subject on the agenda was inter-enterprise co-operation and it was considered of special importance to systematically integrate the inter-enterprise TCDC activities into the overall efforts of developing countries to promote TCDC as an instrument of collective self-reliance. The important TCDC potentials of enterprises in developing countries remain at present to a great extent outside the mainstream of organized TCDC efforts of developing countries. The inter-enterprise TCDC activities are also to a great extent undertaken on an ad hoc basis, utilizing the instruments and mechanisms which have been developed in the North-South context.

The Meeting underlined the need to develop a qualitatively new framework and the necessary guiding principles and instruments for inter-enterprise TCDC through the joint efforts of developing countries. A framework and instruments have to be developed simultaneously for the direct TCDC activities of developing countries' enterprises in the form of guidelines and operative instruments at the macro level in the form of "differential" and "preferential" legal treatment and other supporting instruments and mechanisms on the national, regional and international levels. The specific potential of public enterprises of developing countries as a channel for enterprise TCDC was especially stressed. In this connection, the representatives of the ICPE and the RCCDC announced their readiness to provide professional support for the activities of the Group of 77 geared towards the proposed action committee on inter-enterprise co-operation.

Representatives of the following member states of the Group of 77: Brazil, India, Mexico, Romania, Thailand, Tunisia, Venezuela and Yugoslavia recommended the creation of an Action Committee on the basis of the Final Report of the Second Meeting of Heads of National Technical Co-operation Agencies,

para. 34, to elaborate an operational mechanism and propose guidelines on the intensification of inter-enterprise TCDC, and on the basis of an offer of ICPE and RCCDC, provide professional services to the work of the Action Committee.

Informal readiness to create an Action Committee for inter-enterprise TCDC, pending the decisions of the respective governments was expressed, and the representatives of UNDP and UNIDO voiced their support for action-oriented TCDC activities which may stem from the deliberations of the proposed Action Committee, subject to the availability of funds.

It was agreed that the preparatory activities for the formal establishment of the Action Committee start as soon as possible, with the ICPE and RCCDC preparing a draft outline of the objectives, programmes and methods of work to be sent to representatives of the above-mentioned States and the Office of the Chairman of the Group of 77 in New York, for circulation among other member States of the Group of 77 in order to facilitate decisions and speed up the formal establishment of the Action Committee.

At the same time, professional preparatory work will be undertaken by ICPE and RCCDC in co-operation with the experts of the interested member countries in order to convene an Expert Group Meeting on inter-enterprise TCDC, either at the end of this year or at the beginning of 1985.

The interim contact point in Ljubljana will be:

ICPE, telex No. 31400 YU ICPE,
Att. Mr. Rasto Macus or
RCCDC, telex No. 32139 YCS,
Att. Dr. Boris Cizelj

MONITORING TECHNOLOGY TRANSFER AGREEMENTS: PHILIPPINE EXPERIENCE

The creation of the Technology Transfer Board on 11 June 1978 established a regulatory mechanism which screens, evaluates and registers technology transfer agreements in order to ensure that technology is acquired under fair and equitable terms. The setting of clearcut rules and regulations, however, has been viewed as only an initial step to make technology transfer really an effective instrument in the technological transformation of the country.

With the increase in the number of agreements submitted for registration and subsequent renewal, expansion and diversification of the agency's role have become necessary. Moreover, ascertaining that the technology purchases meet the immediate and long-term development goals which include evaluating the effects of the execution of the approved agreements have been integrated into the existing concept of technology transfer regulation. Importance is likewise attached to this emerging issue in view of the foreseen need of the TTB to reassess its own performance in the effective management of technology transfer in the country.

It is within this broad context that the monitoring function of the TTB has been established and incorporated into the overall strategy for technology transfer regulation. Rule VI, Section 3 of the TTB Rules and Regulations provides that "the Board shall monitor compliance with the conditions for registration of technology transfer arrangements. For this purpose, it may enter into arrangements with appropriate government offices which have supervision over the technology recipient to avoid duplication of work and for a more effective supervision of the applicant firm". Thus, the objectives of monitoring have been clearly translated in its Rules and Regulations, which provide the legal framework for technology transfer regulation in the Philippines. The integration of this function in its legal framework is deemed necessary in order for the Board to perform its function more effectively.

The TTB has also incorporated, as part of the general terms and conditions for registration, the submission of annual progress reports to achieve its objective of effective monitoring. Information derived from the annual reports include the following:

(1) economic data based on actual operations of the firm related to the licensed product(s)/activity;

(2) report on the benefits derived by the recipient company from the specific technology transfer including new developments and improvements availed of under the Agreement;

(3) programme of activities which includes a report of services being rendered or to be rendered for recipient companies with alien employees discharging technical or advisory functions and a programme of training Filipino understudies in said function.;

(4) report on the implementation of the above training programme or training programmes offered by the supplier in its industrial units for the recipient's personnel;

(5) steps taken by the recipient company to establish research and development facilities to enable the absorption of technology;

(6) report on steps taken in the adaptation of technology with respect to raw materials, modernization of equipment and implements in the specification of the end product; and

(7) report on the compliance of the specific terms and conditions, if any.

The reporting requirement has therefore allowed the TTB to monitor the progress of the projects undertaken under approved and registered agreements. Projects which have been deferred by the parties to some time in the future are brought to the attention of the Board. It has likewise been able to segregate projects whose operations have temporarily ceased from those which have been ongoing. Information collected from these periodic reports and checked against pre-registration terms and conditions provides valuable inputs

for an in-depth analysis on the implementation of registered technology transfer agreements. The performance of the agreement can therefore be appraised through a comparison with the pre-agreement situation, including the compliance with expectations from the transfer of technology. Information available on the implementation of the previous agreements also provides support in the evaluation of renewed contracts and may play a possible decisive role for the approval of the renewal.

While the submission of annual progress reports is a requirement for all agreements registered with the TTB, a system for analyzing the effects of technology transfer on all the registered projects as well as on the various sectors of the economy is still being developed as a long-term objective to complement the ongoing computerization of the information system. Hence, the TTB has identified agreements to be closely monitored which include those with specific conditions imposed by the Board especially those concerning technology absorption, utilization of local inputs and those whose applications are submitted to the TTB for renewal. Furthermore, contracts which include the projected amount of royalty payment, linkages with major industrial projects, and sectoral relevance are closely monitored.

In the monitoring of the implementation of registered projects, information collected from the recipient enterprise may not be adequate to fulfil TTB's requirements for the evaluation of contracts. Field visits to the recipient's plant are often necessary to complete the information required for proper monitoring. This would entail conducting interviews with the technical personnel on the general assessment of the technological effects of the contract especially with regard to the degree of the absorption of technology and its contribution to the upgrading of the technological level of the recipient firm. Effects of imported technology on ancillary industries and/or services are also taken into account since these spillover effects are usually related to the improvement of the overall technological level of manufacturing. The plant visit by the TTB technical staff provides valuable information which may not be available from the reports submitted by the firm and supplements the analysis required for proper monitoring.

Another important measure to ensure the effective monitoring of technology transfer agreements is the design of an efficient information system. Recognizing the need to assure the availability and quality of information, a system has been developed to store, process and disseminate information for the smooth operation of the TTB. Since monitoring is viewed as an extension of the registration and approval procedures, processing of information between these interrelated functions have to complement each other. As such, accurate monitoring reports may be generated from updated and accurate data sources of the registry information system.

In view of the large volume of work involved in the handling of data for monitoring on a per project and industry basis, computerization of the current information system is being undertaken. The computer based information system, which shall be capable of providing information and trends on an industry basis, is envisaged to analyze technology transfer trends in the country. In addition to facilitating an otherwise complicated and labour-intensive process, computerization allows link-ups with other government agencies involved in the supervision of technology transfer as well as possible information exchange from other registries or other data banks for international comparison.

Results of monitoring

As of 1983, out of a total of 409 TTB registered firms, 374, or 91 per cent, actually implemented the respective projects stipulated in the technology transfer agreements. Non-implementation of the agreements were attributed to deferments in the project start-up schedule or the permanent or temporary cessation of the project.

Generally, the monitoring activity undertaken by the TTB was confined to those agreements for which specific conditions have been set by the Board. The review conducted by the staff monitoring the results reveals that most of the conditions set by the Board pertaining to the extent of technology absorption after five (5) years, utilized local inputs and the amount of technology payments had been complied with by the firms.

In the case of an international fastfood chain, the obligations presented by the parties prior to registration were subject to a review of the continued availability of the previously approved rate. A comparison with the pre-agreement situation indicates that the parties fulfilled most of the obligations they were committed to upon registration with the TTB. Support to local potato growers and a fish processor were rendered by the technology supplier in the form of providing superior quality seeds and experts to transfer more effective techniques to increase production. With most of the sub-sectors in the agriculture industry and local equipment suppliers in the "take-off stage" after receiving a wide range of technical assistance to update local techniques in food production and equipment design, continued availability of the previously approved rate has been recommended.

Moreover, claims with regard to innovation in the technology have to be validated, as in the case of a semi-conductor manufacturing company. Other factors such as the actual generation of substantial foreign exchange earnings from the export of licensed products are also taken into consideration in the review of the agreement.

Concrete efforts pursued by the parties to fulfil obligations are also recognized by the Board, as in the case of a cable wire company. Thus, in instances where difficulties in securing imported raw materials are experienced but commencement of the project operation have been ensured, flexibility is exercised by the Board.

The Board likewise solicits the co-operation of other government agencies in special cases such as those where transfer pricing may have taken place. By doing so, a more effective supervision of the registered firm is ensured and a more appropriate decision may be rendered.

Conclusion

The integration of the monitoring function by the Technology Transfer Board in its technology policies may be considered as the most effective approach to attain the goals associated with the technology transfer regulations. It is only in the supervision of the implementation of approved technology transfer agreements and the subsequent evaluation of the long- and short-term effects of technology transfer that the regulations of the technology transfer process can be truly meaningful.

Presently, the monitoring function is still at its early stages and the possibility of weaknesses in the system exists. Hence, the TTB is continuously reviewing the system with the view of transforming it into a more viable and responsive vehicle for technological change.

Registry news

COUNTRY PROFILE - MALAYSIA

Legislation

A. Foreign investments

(1) Laws and regulations in force

Industrial Co-ordination Act, 1975 (as amended)

Investment Incentives Act, 1968 (as amended)

(2) Registration

All investment in the manufacturing sector, both foreign and local, have to apply for a manufacturing licence if they fall within the scope of the Industrial Co-ordination Act, 1975.

(3) Scope

Projects with shareholders' funds less than 250,000 Ringgit and less than twenty-five full-time employees are exempted from the provisions of the Industrial Co-ordination Act, 1975 (as amended) under Section 11 of the said Act.

Information on the legislative framework related to technology transfer without reproducing the full text of this legislation. With this information it should be possible to interpret the data on technology transfer trends.

B. Industrial property

(1) Laws and regulations in force

(a) Peninsular Malaysia

(i) Registration of United Kingdom Patents Act, 1951 (revised 1978)

(ii) Patents (Rights of Government) Act, 1967

(iii) Trade Marks Act, 1976

(b) Sabah

(i) Registration of United Kingdom Patents Ordinance of Sabah, 1937 (amended in 1956)

(ii) Trade Marks Act, 1976

(c) Sarawak

(i) Registration of United Kingdom Patents Ordinance of Sarawak, 1927

(ii) Trade Marks Act, 1976

(d) Trade Marks Act, 1976

This Act came into force on 1 September 1983 and replaces the Trade Marks Ordinance, 1950; Trade Marks Ordinance of Sabah and Trade Marks Ordinance of Sarawak and serves to centralize the registration of Trade Marks in Kuala Lumpur.

(e) Patents Act, 1983

This act was given Royal Assent on 28 November 1983 and expected to be enforced by the end of 1984. This Act will serve to make better provisions in the law relating to patents and for other matters connected therewith. It is envisaged that this new Patents Act will replace the Registration of United Kingdom Patents Act, 1951, the Patents Ordinance of Sarawak, the Registration of United Kingdom Patents Ordinance of Sabah and the Patents (Rights of Government) Act, 1967 which will be repealed.

(2) Scope

The previous separate Trade Marks Ordinances provide for the registration of Trade Marks and control of its use thereof in the respective areas of jurisdiction. However, with the coming into force of the Trade Marks Act, 1976, all the separate Ordinances will be repealed and there will only be a single legislation pertaining to the registration of trade marks for the whole of Malaysia. Presently the Registration of United Kingdom Patents Act and its Counterparts in Sabah and Sarawak only provides for the registration of letters patent granted in the United Kingdom. However, all these will be repealed and replaced by the new Patents Act, 1983

which is expected to be enforced by the end of the year.

(3) Regulation

All manufacturing projects licenced by the Ministry of Trade and Industry should obtain prior written approval of the Ministry before entering into any agreement involving foreign partners.

(4) Scope 1/

Technology transfer agreements cover licence rights over specific processes, formulae, or manufacturing technology (patented or unpatented); other knowledge for setting up a plant; and provision of various forms of technical assistance and supporting services.

(5) Restrictive practices 2/

Provisions which restrict the markets of the Malaysian licensee unfairly are not encouraged. So are tie-in purchase arrangements which compel the Malaysian licensee to only purchase components and raw materials from the licensor at prices fixed unilaterally by the licensor. Restrictions on continued use of the technology transferred after termination of the agreement are also not allowed. In general, any provisions which unfairly restrict the local licensee are not encouraged.

(6) Remuneration 3/

Payment for technology can be in the form of a "fixed lump sum fee" or a "running royalty" or a combination of lump sum fee and running royalty for a specified period of time. Rate of royalty is normally imported in relation to the level of technology and the principal elements of transfer. A rate of between 1-5 per cent of net sales can be considered.

(7) Taxation 4/

A 15 per cent withholding tax is levied on payments of royalties, technical and management fees, etc. made to foreign suppliers of technology. Where there is a double taxation agreement exemption can be obtained.

1/ Reflects the scope of the Registration with regard to type of agreement and sectors (ISIC).

2/ Clauses which are not allowed to appear in contracts by law or regulation.

3/ Technology payments restrictions by law or regulation.

4/ Taxation policies on technology transfer payments.

Institutional arrangements

A. Competent Approval Authority

Technology Transfer Unit,
Industries Division,
Ministry of Trade and Industry,
Block 10, 7th Floor,
Jalan Duta,
Kuala Lumpur

(Mr. Saharudin Mohd Toha)

B. Office staffing

Head of Unit: Principal Assistant Director

Officers (Evaluation): 2 Assistant Directors

C. Competence

All agreements after evaluation and recommendations are presented for approval to the Licensing Officer (Secretary General of the Ministry of Trade and Industry).

D. Co-ordination

The Ministry co-ordinates closely its work with the Malaysian Industrial Development Authority (MIDA) which is a statutory body under the Ministry.

E. Evaluation 5/

Appraisal will take into account the position of the licensee vis-à-vis the licensor, the national interest, the level of payments vis-à-vis the level of technology. Royalty can be paid in running royalties, fixed lump sum fee, or a combination of these two, not exceeding a 5 per cent on net sales. Net sales is defined as gross sales minus sales discounts, returns, transport costs (including freight), insurance, duties and taxes. Duration of agreement is normally approved for five years.

FOREIGN INVESTMENT AND INNOVATION IN PORTUGAL

The following is extracted from a paper prepared by Mr. Victor Corado Simões, Deputy Director of the Studies Department of the Portuguese Foreign Investment Institute, and presented at the Workshop on Innovation Based on Technology held at Póvoa do Varzim from 17 to 19 October 1984. Copies of the complete text of the paper may be obtained by writing directly to Mr. Simoes at the Foreign Investment Institute, Lisbon, Portugal.

5/ Major evaluation criteria should include internal guidelines for royalty rates (+ definition), forms of payment preferred, restrictive practices other than covered by law/regulations, etc.

1. Introduction

The aim of this paper is to sketch a broad picture of the influence of direct foreign investment (DFI) over innovation and technological development of the Portuguese manufacturing industry and to point out some key issues on this matter.

While overall measures for strengthening innovation and upgrading the technological level of domestic companies may induce foreign affiliates to establish more sophisticated and skill intensive manufacturing units, the "behavioural" questions raised by foreign firms in the context of innovation policies are to a large extent different from those placed by domestic companies. The critical issues associated with foreign affiliates are neither the generation, availability, development nor acquisition of technologies (since most of them are found somewhere inside the corporation network), nor the managerial attitudes towards innovation. From a semi-industrialized country's viewpoint such as Portugal, they tend rather to be on the upgrading of local manufacturing activities and technological diffusion.

It is therefore argued that one should not expect a foreign investment-led industrialization to induce a coherent technological development. But it is considered that DFI could play a very positive role in fostering technological efficiency and development, if it is to act as a complement of local production factors and as a prompter of domestic entrepreneurship.

2. Technological features of foreign direct investment in Portugal

2.1. Foreign penetration and technological intensity

Given both the characteristics of the [illegible] and those of international investment, it is not surprising that the penetration of foreign firms in Portugal is clearly higher in technology intensive industries. Utilizing data for 1978 a strong correlation was found (+0.718) between technological intensity (measured by the ratio R&D expenditures/sales for the United States) and foreign penetration in Portuguese manufacturing industries (measured by the ratio sales of foreign affiliates in each industry/total sales in each industry). (1) A similar conclusion was obtained when utilizing a classification of high, medium and low research intensive industries: foreign penetration in the first reached 45.2 per cent against an average of 19.6 per cent for all manufacturing. (2)

This pattern still holds when the analysis is restricted to large firms. In fact, a study carried out for the top-200 manufacturing firms in Portugal shows the existence of a relationship between foreign holdings and technological intensity, with a high level of statistical significance. (3)

However, these analyses are a little bit misleading since foreign affiliates' activities in some high technology sectors consist, to some extent, of assembling, requiring low skilled work. It should be pointed out as well that in some foreign firms oriented towards the domestic market, one can still find outdated technologies and products. These are economically profitable due to the weak purchasing power, the low performance requirements of domestic customers, the small market and the low wages.

2.2. Local R&D activities

Research activities undertaken in Portugal by foreign affiliates are of small importance: in 1980 they amounted to about 227 million escudos; metal products, machinery and transport equipment industries accounting for 70 per cent of total expenditures. (4)

In contrast, technology payments abroad are significant, reaching 4,306 million escudos in 1983 (86 per cent of these were directed to affiliates). In 1978 about 35 per cent of the foreign affiliates' production was made under licence (46 per cent for foreign majority-owned firms), while the corresponding index for domestic companies was only 3.5 per cent. However, since most of the flows are intra-firm, the corresponding amounts do not translate the real value of the know-how involved; instead these payments are chiefly determined by tax reasons. (5)

Data presented in table 1 enables a comparison of the ratio R&D expenditures/technology payments for domestic and foreign-owned firms. It is interesting to remark that the index for foreign firms is only one-fifth of that for domestic ones. In all manufacturing sectors (except paper) the latter have higher ratios than the former. This pattern is mainly influenced by the strong licensing payments propensity of foreign affiliates and not by a better behaviour of domestic companies on what concerns the numerator.

In fact, table 2 shows that the research efforts (defined as R&D expenditures/output) of foreign-owned firms is higher, reaching 1.3 per cent against 0.9 per cent for domestic firms. It should be pointed out that this feature is not common to all sectors: in the chemical, non-metallic minerals and metallurgical sectors, domestic firms behave better than their foreign-owned competitors. In our opinion, however, the low level of both indices is more relevant than the difference itself. Research effort in both types of firms is extremely weak, mainly for domestic firms which have no other "internal" sources of technology, unlike foreign affiliates.

2.3. Introduction of new technologies and technological diffusion

Unlike other countries there are no studies on the spill-over effects and vertical linkages of foreign-owned firms in Portugal. (6) Therefore the comments presented below stem mainly from experience and personal contacts than from a systematic empirical research.

It seems undeniable that foreign investment was responsible for introducing a

Table 1: R&D Activities (1980)

	R&D expenditures 1/ technology payments 2/		
	Domestic firms	Foreign affiliates	Total
Food industry	0.32	0.04	0.09
Textiles, apparel & footwear	0.43	0.05	0.25
Wood and cork	1.24	-	1.03
Paper and printing	0.01	0.08	0.05
Chemicals	0.44	0.05	0.23
Non-metallic minerals	0.49	-	0.38
Metallurgy	0.30	0.03	0.17
Metal products, machinery and transport equipment	0.96	0.21	0.36
Other manufacturing	-	0.02	0.02
Manufacturing	0.47	0.10	0.24

Source: Own calculations based on data provided by the National Council for Scientific and Technological Research (Junta Nacional de Investigação Científica e Tecnológica), on data published by the Foreign Investment Institute and on Estatísticas Industriais (1980).

Notes: 1/ It was assumed that the shares of domestic and foreign firms in manufacturing outputs in 1980 were identical to those estimated for sales in 1978.

2/ Technology payments are referred to 1981, since a one-year gap between sales and the payment of royalties was assumed. Technology payments stem from long-term agreements (licensing, routine technical assistance and franchising contracts).

Table 2: R&D Activities (1980)

	R&D expenditures output 1/		
	Domestic firms	Foreign affiliates	Total
Food industry	0.17	0.40	0.20
Textiles, apparel & footwear	0.17	1.15	1.17
Wood and cork	0.06	-	0.05
Paper and printing	0.02	0.56	0.16
Chemicals	1.88	1.04	1.71
Non-metallic minerals	0.64	0.01	0.57
Metallurgy	1.05	0.39	0.90
Metal products, machinery and transport equipment	1.81	2.64	2.13
Other manufacturing	-	1.67	0.33
Manufacturing	0.85	1.29	0.94

Source: Own calculations based on data provided by the National Council for Scientific and Technological Research (Junta Nacional de Investigaçao Científica e Tecnológica), on data published by the Foreign Investment Institute and on Estatísticas Industriais (1980).

Notes: 1/ It was assumed that the shares of domestic and foreign firms in manufacturing outputs in 1980 were identical to those estimated for sales in 1978.

large number of new products to the Portuguese scene, which match a growing internal demand and also stimulate it. Similarly, new processes and manufacturing and management methods were introduced to rationalize production and to cut down costs. The case of the introduction of a new variety of pastries with a longer shelf life in the Portuguese market by a small foreign firm, as presented in a recent publication on industrial innovation, (7) is just one among numerous possible examples.

A large part of "dependent innovation" in the Portuguese economy is in fact due to foreign investment. In many instances this had a positive effect, not only from the consumer's viewpoint, but also in fostering the innovation in Portuguese firms to cope with the new market conditions due to the foreign-led innovation.

On the other hand it should be recalled that the "truncated" manufacturing process characterizes foreign investment in several sectors. To profit from low wages and special tax and tariff provisions, manufacturing activities located in Portugal are labour intensive, requiring low skills, and are highly dependent on inputs supplied by other affiliates. The output itself does not constitute a final product, but is usually a part of a component to be assembled somewhere. This clearly reduces the linkages with local environment as well as the possible spin-offs due to the departure of engineers and skilled workers.

This raises the question of the diffusion of innovations (and technology in general) between the foreign affiliate and their domestic couterparts. Knowledge being one of the critical elements in multinational strategies, it is obvious that its circulation is highly "internalized" and strongly controlled, in order to avoid its flow outside the firm. Therefore most of the diffusion takes place indirectly, due to the departure of skilled personnel, to vertical linkages (namely subcontraction) or to competitive pressure over domestic firms.

These are some good examples of outflow of former multinational firms' employees to join Portuguese firms in key positions or to create their own companies; a number of cases, from pharmaceuticals to electronics may be recalled. It is common to hear these people praising the positive influence that management techniques used in foreign groups had on their own success as managers of domestic firms, or stressing the importance of production know-how acquired there.

Concerning vertical linkages they exist of course, but they leave much to be desired. In fact the average imports/purchases ratio for foreign manufacturing affiliates looks too high, slightly exceeding 50 per cent in 1981; this figure is, however, probably inflated by the high import propensity of some firms with simultaneous manufacturing and commercial activities. Furthermore, according to a research conducted for 167 firms, it seems that vertical linkages did not strengthen in recent years (between 1978 and 1981). (8)

Notes

(1) See Victor Corado Simões, Isabel Afonso and Manuela C. Pires, "O investimento estrangeiro em Portugal - Resultados de um Inquérito", Investimento e Tecnologia, 1/1982.

(2) Victor Corado Simões, "Portugal" in John H. Dunning (Ed.) "Multinational Enterprises, Economic Structure and International Competitiveness", IRM (forthcoming).

(3) Victor Corado Simões e António Cristóvão, "Características e comportamento das maiores empresas industriais com capital estrangeiro: uma análise comparativa", Investimento e Tecnologia, 2/1982.

(4) Fernando Gonçalves, J. A. Rodrigues de Carvalho and J.M.G. Caraça, "O esforço inovador na indústria transformadora nacional", Paper presented to the Conference on Recent Evolution and Perspectives of Change in Portuguese Economy, Lisbon, April 1983.

(5) Victor Corado Simões, Importação de Tecnologia e Política Tecnológica - Algumas reflexões, Investimento e Tecnologia, 1/1984.

(6) See, for instance, Magnus Blomstrom and H. Persson, "Foreign Investment and Spillover Efficiency in an Underdeveloped Economy: Evidence from the Mexican Manufacturing Industry", World Development, vol. 11, No. 6, 1983; Linda Y.C. Lim and Pang Eng Fong, "Vertical Linkages and Multinational Enterprises in Developing Countries", World Development, vol. 10, No. 7, 1982; D. MacAleese and D. McDonald, "Employment Manufacturing Enterprises", Oxford Bulletin of Economics and Statistics, Nov. 1978.

(7) Caixa Geral dos Depósitos e Instituto de Apoio às Pequenas e Médias Empresas Industriais, "Oportunidades para PME - Inovaçao Industrial", Lisboa, 1983.

(8) See Victor Corado Simões "Portugal" in John H. Dunning (ed.) op.cit.

Case study

With an aim at sharing experience on transfer of technology issues, we publish in this issue a case study corresponding to an agreement evaluated by a registry. For reasons of confidentiality, the situation is described without disclosure of data that might identify the parties involved.

The readers are invited to comment on this case and to provide contributions on their own experiences for the benefit of all TIES members.

The present case is as follows:

"The agreement between a foreign company and its affiliate in the country existed since 1971 and stipulated a duration of 10 years, subjected to renewals for further equal periods.

According to its wording, the object of the agreement was the license to use secret know-how, patents and trade marks, as well as the transmission of improvements, providing technical assistance, personnel training, etc.

The compensation was established as a royalty of 5 per cent on the volume of sales, representing about half a million dollars of remittances per year.

Due to a recent legislation on transfer of technology introduced in the country, the agreement was submitted to the registry in 1978 for evaluation, as a result of which it was found that the activities of the domestic affiliate were mainly of a commercial nature, and a reduction of the royalties to a level not higher than 2 per cent on the net sales was proposed to the parties.

The company showed a totally negative reaction and argued that:

- The position of the registry was arbitrary and prepotent and could result in the cancellation of the company's operations in the country;
- The contractual products had a new and unusual character and are contributing to increasing productivity, safety and industrial development of the country;
- The value of the services rendered by the mother company exceed by far the 5 per cent royalties;
- The renewal of the agreement is indispensable within the same conditions and with the corresponding benefits for the domestic company and for the country.

In view of the above argumentation the registry requested the following detailed information:

- Description of the company's activity in the country;
- Evolution of sales and imports;
- List of the most important contractual products;
- Impact of the company's activity in other sectors;
- Description of all training actions and technical assistance provided by the mother company.

The answers received and further investigation permitted the conclusion that, in fact the company's activity is related to medium/high technology products, but the affiliate has only commercial activities, acting as a trade agency which imports the products as a package ready to be distributed to the market.

Therefore, the agreement is inconsistent when describing its subject as a licence to use know-how, patents and trade marks.

Furthermore, it was found that all the company's products had several substitutes on the market and no similar agreement existed, and neither had any such request been submitted to the registry by the competitors.

It was also found that a royalty of 5 per cent on the domestic sales represent 14 per cent of the FOB price of the products and the obvious conclusion was that the company had been enjoying a privileged fiscal situation and an unfair competitive advantage.

Ultimately the company tried to demonstrate that it was receiving constant visits and assistance from foreign experts for the benefit of the domestic customers.

The monitoring of such actions led to the conclusion that:

- A part of the visits had no relation with technical assistance, neither did such visits justify any payments;
- Accepting that some visits were useful to the affiliate's activities, the corresponding payment, according to normal rates, should not be higher than 1 per cent on the net sales.

The evolution of the situation in relation to the payments was as follows:

- In a very flexible attitude, the agreement was registered in 1978 with the prevailing 5 per cent royalty until 1981 in order to complete the established duration of 10 years, but with a clear indication that such a level of payments would not be permitted in the future. In the request for renewal the company presented an entirely new form of agreement, in an attempt to keep the payments as in the past;
- While negotiations were proceeding and for a period of some months, a royalty of 2.5 per cent was accepted;
- Then, as a result of a thorough analysis of the monitoring data a final decision was taken establishing the payments at a maximum of 1 per cent of the net sales.

Later on, the tax authorities refused to accept the deductibility of such payments, which are now accounted as a profit for fiscal purposes."

Technology acquisition

CASE-STUDIES IN THE ACQUISITION OF TECHNOLOGY, VOL.II - DTTB No. 14

This volume focuses on the difficulties encountered by a developing country while acquiring technology for a product or process in which it has no prior experience, and especially while searching for a suitable technology and collaborator and negotiating an agreement. It contains three detailed case-studies of transfer and absorption of

technology in India, and may be considered a companion to volume I in that it contains a chapter analysing not only these three case-studies but also the case-studies of two other Indian enterprises described in the earlier volume.

One of the three companies studied is Hindustan Machine Tools Ltd. (HMT), which is in the public sector. The initial collaboration agreement was arranged by the Government of India even before the plant existed. The experiences of HMT have been somewhat varied, since a complex technology is involved, but the company has successfully met its import-substitution objective and has diversified with considerable success into areas outside its principal industrial activity, which is the making of machine tools.

The other two companies are Jyoti Limited and Eicher Tractors India Limited, both of which are in the private sector. They differ from HMT in many ways. Both illustrate the importance of entrepreneurship in importing technology and assimilating it in spite of the hardships faced by enterprises in a developing country. Jyoti Limited is a good example of a company in a developing country that has entered into collaboration agreements with foreign companies on a highly selective basis and has completely assimilated the imported technology during the period of collaboration through indigenous research and development (R and D). The case-study on Eicher Tractors India Limited shows how a trading concern can transform itself into a manufacturing concern and, while doing so, find a good balance between traditional and modern manufacturing technology in the face of a shortage of capital and introduce a product obsolete in the country of origin but appropriate for the technology-starved rural environment of India.

The analysis of the five case-studies provides a comparison of their experiences in the acquisition of technology, the assimilation and adoption of foreign technology and the role of R and D. The conclusion is reached that the transfer of complex technology to a new environment creates problems that often defy theoretical solutions. Hence, the company acquiring the technology must either find a solution through trial and error, costly in terms of time and money, or obtain help from the experienced foreign collaborator, which means continued technical dependence on the collaborator. The acceptance tests in agreements should be so specified that they are carried out not at the collaborator's plant but in the new environment and possibly with local raw materials.

The major indices of technology assimilation by an industry in a developing country will be its success in import substitution, export performance and degree of horizontal and reverse transfer of technology. Constraints arise not only from technological problems, but also from the small volume of production usually encountered in developing countries. The ability to manufacture a complex product in an industry in a developing country, based on the design and manufacturing know-how supplied on a turnkey basis by a foreign collaborator, may help to achieve the objective of import substitution, but need not always signify that technology absorption has taken place and that the country is self-reliant in the technology concerned. The assimilation of technology is a multi-layered process; unless emphasis is placed on basic and applied R and D, the industry in the developing country will find itself peeling off the layers and discovering more areas in which dependence on the collaborator is necessary.

BRAZILIAN TECHNOLOGY IMPORTS: SOME COMMENTS ON THE FOOD PRODUCTS SECTOR

Payments for technology imports in the food products sector represent a very small part (0.7 per cent) of the total technological payments made by Brazil during the period 1965 to 1980. By industrial sector and remittances, this activity holds the eighth position after iron and steel, metallurgy, transport equipment (basically automobiles), chemical, mechanical, electrical and electronic, non-metallic minerals and rubber.

Data and methodology

Data were obtained at INPI based on the effective remittances between 1965 and 1980. It should be noted, however, that before January 1972, the Central Bank had the responsibility for screening and approving foreign technology agreements and from this date onwards INPI started to scrutinize these agreements.

The currency of the agreements is usually the same as that of the technology supplier, using the market exchange rates (yearly rates) published by the IMF for conversion into US dollars.

Due to the influence of inflation during the period 1980, constant prices were taken as a basis for comparison. The information is presented according to the year of the Brazilian Government's approval of the agreement.

Annual payments

The annual payments for technological imports by the food products sector do not follow a regular pattern. The five years from 1968 to 1971 were responsible for more than 46 per cent of remittance over the whole period from 1965 to 1980, while the following five years had the lowest remittances with a little more than 13 per cent of the total (see table I).

The figures point to the possible effect of INPI intervention which drastically decreased remittances in earlier years. However, the last three years also suggest the possibility of further increases in remittances (see table II).

The concentration

The food products sector, although representing a small part of the industrial spectrum, shows similar characteristics to the other sectors.

First, there is a heavy concentration of payments on a small number of agreements; second, there is a predominance of a few importers of technology; and third, the onus of the burden of Brazilian remittances rests on the subsidiaries of foreign technology suppliers.

These characteristics are common to the most important industrial activities, especially where some large foreign investments exist.

In addition to the above, it is important to note the dominance of know-how agreements.

Concentration per agreement

Only 20 agreements are responsible for almost 80 per cent of the total remittance in food products, while there are at least two hundred agreements approved by the Brazilian Government during the period 1965 to 1980. There is also a strong concentration within the group of the 20 most important agreements, as can be perceived from table II.

The 20 largest agreements can be analyzed by the equity relationships between the companies involved: 11 are parent-subsidiary; four are Brazilian-controlled with the minority partner (less than 50 per cent of the shares); four are between non-related companies and the last is an unidentified relationship (see table II).

Taking the number of agreements as a reference, the major country licensing to Brazil is the United States with nine agreements, followed by Switzerland with five agreements, France with four agreements and the Federal Republic of Germany with only two (see table II).

Concentration per licensee company

The phenomenon of economic concentration can also be seen from the remittances of the licensee's companies to their various suppliers of technology. The companies are identified according to the nationality of their share controlling foreign partner or by the country of origin of the parent company (see table III).

The ten largest licensees hold almost 62 per cent of the total remittances for the food products sector. The major licensee, a Swiss subsidiary, alone paid more than half of the technological payments for foreign technology (see table III).

Amongst the major companies, there are three American and French subsidiaries, two Swiss subsidiaries, one German-American joint venture and only one Brazilian-controlled firm (see table III).

These concentrations are impressive and raise the hypothesis that in Brazil, there is hardly any incentive at innovation by foreign subsidiaries operating in the food products sector.

TABLE I BRAZILIAN IMPORTS OF TECHNOLOGY
FOOD PRODUCTS: 1965-1980

US$10^3

Year	Implicit price deflator EEUU-GNP	Import payments (A) Current	Import payments (A) 1980 prices	"A" as % Brazil yearly payments	% Activity 1/
1965	41.93	725	1,729	2.09	3.87
66	43.28	735	1,698	1.60	3.80
67	44.58	984	2,207	1.55	4.94
68	46.54	4,414	9,484	5.98	21.22
69	48.93	2,432	4,970	3.09	11.12
1970	51.56	1,694	3,285	1.68	7.35
71	54.13	2,295	4,240	1.79	9.48
72	56.38	1,713	3,038	1.11	6.80
73	59.59	481	807	0.27	1.81
74	64.79	921	1,422	0.42	3.18
1975	70.74	732	1,035	0.26	2.32
76	74.79	652	872	0.20	1.95
77	78.84	1,446	1,834	0.39	4.11
78	84.60	2,862	3,383	0.73	7.57
79	91.77	1,406	1,532	0.27	3.44
1980	100.00	3,134	3,134	0.52	7.01
TOTAL	-	26,626	44,670	0.74	100.00

1/ At constant prices.

Source: INPI.

TABLE II

BRAZILIAN IMPORTS OF TECHNOLOGY

FOOD PRODUCTS: TWENTY GREATEST AGREEMENTS PER VALUE
1965-1980

US$10^3

Pos. 1/	Year of Govt. approval	Licensor's country	Licensor's share relations with licensee 2/	Current value	1980 constant value 3/		
					Value	% 20 Agr. 4/	% Activity 5/
1	1967	Switzerland	Parent	7,135	16,005	45.76	35.83
2	1965	USA	Parent	2,819	6,723	19.21	15.05
3	1965	USA	Parent	613	1,462	4.18	3.27
4	1973	USA	Parent	841	1,411	4.03	3.16
5	1967	Switzerland	Parent	477	1,070	3.06	2.40
6	1971	France	Minority partner	520	961	2.75	2.15
7	1966	France	Parent	354	818	2.34	1.83
8	1966	USA	None	337	779	2.23	1.74
9	1967	Switzerland	Parent	329	738	2.10	1.65
10	1974	USA	Minority partner	453	699	2.00	1.56
11	1967	Switzerland	Parent	302	677	1.94	1.52
12	1966	Switzerland	Parent	277	640	1.83	1.43
13	1979	France	Parent	532	580	1.66	1.30
14	1967	Germany (R.F.)	Minority partner	241	541	1.55	1.21
15	1967	USA	None	232	520	1.49	1.16
16	1971	USA	Unidentified	180	333	0.96	0.75
17	1977	USA	Parent	225	285	0.81	0.64
18	1974	Germany (R.F.)	Minority partner	174	269	0.77	0.60
19	1978	USA	None	224	265	0.76	0.59
20	1978	France	None	168	199	0.57	0.46
TOTAL		9 USA 5 Switzerland 4 France 2 Germany (R.F.)	11 Parent 4 Minority partner 4 None 1 unidentified	16,433	34,975	100.00	78.30

Source: INPI.

Notes: 1/ Per constant price value.

2/ Parent means control over 50 per cent of the licensee's shares.

3/ USA - GNP Implicit Price Deflator.

4/ Represents 78.30 per cent of the total food products payments.

5/ Total food products payments is US$44,670,000 at 1980 constant value.

Concluding remarks

The above conclusions on the food products sector should not be considered unique; in fact very similar results were found in other activities of the industrial sector.

First, it is usual to have such annual payment concentrations before or during the early years of INPI operations.

Second, a small number of agreements are responsible for up to 80 per cent of total payments of the respective industrial activity.

Third, there are a few companies who concentrate their technological remittances, generally foreign subsidiaries.

Finally, the financial series of annual payments and the twenty major agreements for the period clearly demonstrate the good results of the Brasilian policy and the role played by INPI. All the more so since INPI started screening technological agreements at the beginning of 1972, 13 of the 20 major agreements were approved and 46 per cent of the total annual payments were concentrated within the five years before its establishment.

TABLE III

BRAZILIAN IMPORTS OF TECHNOLOGY

FOOD PRODUCTS: 1965-1980

TEN GREATEST COMPANY IMPORTERS PER VALUE 1/

US$10^3

Pos.	Licensee's share control	Amount paid by licensee	% total activity	Accum. %
1	Switzerland	8,531	32.04	32.04
2	USA	3,548	13.33	45.37
3	USA	1,142	4.29	49.66
4	Germany/EEUU	607	2.28	51.94
5	France 1/	587	2.20	54.14
6	France	532	2.00	56.14
7	Brazil	456	1.71	57.85
8	USA	453	1.70	59.55
9	France	354	1.33	60.88
10	Switzerland	254	0.95	61.83
TOTAL	-	16,464	61.83	-

Source: INPI.

1/ Selected the ten greatest importers of the periods 1965-1970, 1971-1975 and 1976-1980, and the selected the ten greatest on the whole period of 1965-1980.

THE CHANGING REMITTANCE BEHAVIOUR OF US MANUFACTURING FIRMS IN LATIN AMERICA: A COMMENT AND AN UPDATE

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In an article authored by Daniel Chudnovsky (1982) it is claimed that for the period 1975-79 US manufacturing firms in Latin America had reduced their remittances of payments for technology, dividends and interest as a proportion of their overall earnings, compared to the period 1966-70. Moreover, it is argued that profit remittances - channelled either as royalties or as dividends and interest payments - as a percentage of the actual expenditure on fixed assets had shown a decline between these two periods. Certain explanations are also offered by the author for these two newly observed phenomena (pp. 519, 520).

In this comment we would like to argue that Chudnovsky's analysis is tenuous and the data used are marred by significant imperfections. We also present data of a more recent vintage which cast doubt on the validity of the author's conclusions, although the use of older data not examined by the author bears out his thesis that recently a higher proportion of earnings has been reinvested locally.

1. The data

(a) First of all, whereas data on royalties and fees etc. (Chudnovsky's table 1) refer to affiliates "in which a single US direct investor owns at least 10 per cent of the voting securities, or the equivalent" (Whichard, 1982, p. 11), data on actual expenditures on plant and equipment (prior to the 1977 benchmark survey) refer to affiliates "in which a single US parent had an ownership interest of at least 50 per cent" (Lowe, 1981, p. 67). Therefore, Chudnovsky's remark "while, in 1965-70, royalties, dividend and interest payments by US manufacturing subsidiaries in Latin America represented on

* Thanks go to John S. Henley for his insightful comments.

average 49 per cent of the investments in fixed assets made by these firms, in 1975-79 they accounted for 40 per cent of such investments" (p. 516) requires two extremely heroic, and mutually exclusive, assumptions, either that the proportion of majority- and minority-owned firms has remained unchanged or that there is no difference in the pattern of profit remittances between these two groups of firms. Moreover, changes in legislation (e.g. the 1978 Mexican law restricting new foreign firms, except in certain cases, to a 49 per cent stake) adds further spuriousness to the comparative analysis.

Secondly, "capital expenditures are not adjusted for price changes in host countries or for changes in the value of foreign currencies because the data needed for those adjustments are unavailable" (Kozlow, 1982, p. 42). The same applies to the figures on royalties and fees etc. in the data that Chudnovsky used (Whichard, 1981, p. 49, fn. 13). This means that whereas pay-out ratios (Chudnovsky's table 1) do retain their validity, to talk about "upward trends" or reductions in "absolute terms" (p. 514) is misleading.

(b) Two further objections on the methodology could also be raised. Firstly, the author claims that "Royalty payments were usually calculated on the whole output of the subsidiary, independently of the specific technology received from the parent company" (p. 514). However, this runs contrary to the conclusion reached by Kopits (1976, p. 795) according to which "royalty payments are associated with technological intensity". Moreover, output or sales by country are lacking, with the consequence that comparing the value of royalty payments between different countries, as the author attempts in p. 514, is a futile exercise. The same point can be equally made for interest payments and amount of debt.

Secondly, the industrial structure of each country within the 14-year period under examination must have changed. Yet, no data are provided. Is it correct then to assume, as the author seems to do, that either the sectoral breakdown of subsidiaries has no effect on the amount of royalty payments or that the structure has remained unchanged?

2. The evidence (old and new)

After Chudnovsky wrote his article, a different set of data became available from the US Department of Commerce. This set is based on the new benchmark survey of 1977 and some relevant data are reproduced in table 1.

Ignoring for a moment all our previous objections and following Chudnovsky's approach, the main conclusions are as follows:

(a) For the period 1977-79, the years for which a comparison with Chudnovsky's data is possible, the increase in royalties and fees is substantially higher.

(b) No discernible trend exists in the payments of dividends and interest charges whereas Chudnovsky's data show an upward trend.

(c) The overall earnings trend in both sets of data is upward.

(d) The Chudnovsky data exhibit a 45 per cent pay-out ratio for 1977-79 whereas the corresponding figure for the new data is considerably higher (61 per cent). However, a full examination of the pre-1977 data to check whether the pay-out ratios have gone down in the later period, as Chudnovsky maintains, is not possible due to the unavailability of comparable data.

(e) Had Chudnovsky chosen to argue his case on the basis of data (our table 2) available to him but not used by him his position concerning the percentage of reinvested earnings would have been more credible. Indeed, the reinvestment rates for 1966-70 average out at 57 per cent whereas the corresponding percentage for 1975-79 is 64 per cent. 1/

Chudnovsky attributes (p. 519) the shift from a remittance-oriented behaviour to a more investment-oriented approach in the US affiliates to the emergence of a more attractive investment environment and to an increasingly restrictive framework for remittances. However, he fails to mention, let alone examine, other factors, pointed out by previous researchers (e.g. Stobaugh, Robbins, Robock and others), which determine the preferred sources of finance, e.g. cost and availability of funds from external sources, exchange risk and financial structure (ratio of debt to equity) considerations. It is only then we could better explain why the affiliates have reinvested the amounts they did.

Furthermore, a possible explanation for the low pay-out ratios for the years 1973-75 could be the petroleum-price increases of that period and their effect on sources and uses of funds of affiliates, especially those that purchased petroleum feedstocks and sold petroleum-based products. As Mantel (1979, pp. 10-11) cogently argues, ceteris paribus, a sharp rise in petroleum prices, in such a short period of time, would result in a sizeable increase in undistributed profits, as well as, of course, in the other components of sources of funds. Moreover, "these components would subsequently level off or decline as price increases slow; however, they would be larger than before the price rise, because of the higher price level" (Mantel, 1979, p. 10). This is indeed the picture conveyed by Chudnovsky's table 1; however, he fails to consider this effect.

Moving now to table 3 based on the 1977 benchmark survey, we can estimate that whereas in Chudnovsky's article the sum of royalties and fees, and dividends and interest payments as a percentage of investments in fixed assets for 1977-79 is 42 per cent, the corresponding figure from the new data is 55 per cent. 2/

We also observe from table 3 that for Argentina and Brazil the new series offers higher values than those of Chudnovsky's while in the case of the Latin American total, Mexico and Venezuela, the opposite occurs for the period 1977-79. Furthermore, comparing the two sets of data and also looking beyond

Table 1. Remittances and earnings from US manufacturing firms in Latin America (million dollars)* a/

	1977	1978	1979	1980	1981
(1) Royalties and fees Total	119	141	200	265	288
(2) Dividends and interest b/ Total	460	917	815	652	880
(3) Overall earnings c/ Total	1,050	1,628	1,701	2,401	2,015
(4) Pay-out ratios $\frac{(1)+(2)}{(3)} \times 100$ Total	55	65	60	38	58

Source: Whichard (1982).

*/ Full data were not available at country level.

a/ The figures are corrected for currency fluctuations (Whichard, 1981, p. 49).

b/ Including earnings of unincorporated affiliates.

c/ Includes reinvested earnings, royalties and fees, dividends and interest.

CHANGING REMITTANCE BEHAVIOUR

Table 2. Earnings, reinvested earnings and reinvestment rates of US incorporated affiliates (millions of dollars or ratio)

	Latin America, manufacturing													
	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Earnings (1)	278	215	366	419	454	452	599	759	907	1,091	949	1,035	1,583	1,680
Reinvested earnings (2)	174	83	209	263	259	246	364	476	568	801	515	678	1,119	918
Reinvestment ratio, % (2)/(1)	63	39	57	63	57	54	61	63	63	73	54	66	71	55

Source: Survey of Current Business, various issues.

Table 3. Actual expenditures on plant and equipment by US foreign manufacturing subsidiaries (million dollars)

	1977	1978	1979	1980	1981
Latin America, of which	1,355	1,491	1,957	2,760	3,114
Argentina	94	117	217	426	414
Brazil	857	886	964	1,286	1,325
Mexico	164	167	332	624	913
Venezuela	105	164	276	189	197

Source: Kozlow (1982) and Lowe (1981).

1979 we observe that developments in Brazil and Mexico conform to the picture depicted by Chudnovsky (p. 519); however, those for Venezuela and Argentina contradict it. 3/ More specifically, we see that, in contrast to Chudnovsky's evidence, expenditures in Venezuela after having reached a peak in 1979 have declined and remained static in 1980 and 1981. This runs against the concerted efforts of the Venezuelan Government towards a friendlier attitude vis-à-vis foreign investment (Mann, 1981). Finally, as far as Argentina is concerned, despite the political situation and Chudnovsky's remarks, the level of expenditures in plant and equipment has been quite impressive in the last few years.

In concluding we might remark that the main message of Chudnovsky's paper, namely that US affiliates have changed from a remittance-oriented approach towards a more investment-oriented approach, is considerably weakened being fraught with so many caveats and qualifications. We offer instead a more agnostic view on the matter for the methodological problems involved in interpreting the available data are such as to cast serious doubts on the validity of the exercise. At any rate, as Baran (1957, p. 184) characteristically pointed out: "... it is very hard to say what has been the greater evil as far as the economic development of underdeveloped countries is concerned: the removal of their economic surplus by foreign capital or its reinvestment by foreign enterprise".

Notes

1/ No comparison with the "1977 benchmark survey" data is possible because the data on earnings for 1977 and 1978 are not available. For the period 1979-81 the reinvestment ratio is 58 per cent (Whichard, 1982).

2/ For the whole 1977-81 period the ratio is 44 per cent.

3/ With reference to all transnational corporations operating in Brazil, instead of just the US firms, it is interesting to note that the work of Possas (1979), especially his short survey on economic policy (pp. 119-131), brings out certain aspects of royalties, technical assistance and remittance payments which seem to have been in the main disregarded by Chudnovsky's analysis.

References

Baran, P., The Political Economy of Growth (New York: Monthly Review Press, 1957).

Chudnovsky, D., "The changing remittance behaviour of United States manufacturing firms in Latin America", World Development, Vol. 10, No. 6 (1982).

Kopits, G.F., "Intra-firm royalties crossing frontiers and transfer-pricing behaviour", The Economic Journal, Vol. 86 (December 1976),

Kozlow, R., "Capital expenditures by majority-owned foreign affiliates of US companies, 1982 and 1983", Survey of Current Business, Vol. 62 (September 1982).

Love, F.H., "Capital expenditures by majority-owned foreign affiliates of US companies, 1981 and 1982", Survey of Current Business, Vol. 61 (October 1981).

Mann, F., "Venezuela - new efforts to lure back disenchanted investors" Financial Times (8 June 1981)

Mantel, Ida May, "Sources and Uses of Funds of Majority-owned Foreign Affiliates of US Companies 1973-1976", Bureau of Economic Analysis Staff Paper No. 33, US Department of Commerce, Washington DC (May 1979).

Possas, Mario Luiz, "Employment Effects of Multinational Enterprises in Brazil", Multinational Enterprises Programme, Working Paper No. 7, ILO, Geneva (1979).

Whichard, O.G., "Trends in the US direct investment position abroad, 1950-79", Survey of Current Business, Vol. 61 (February 1981).

Whichard, O. G., "US direct investment abroad in 1981", Survey of Current Business, Vol. 62 (August 1982).

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BASIC TECHNOLOGICAL DISAGGREGATION MODELS: THE PETROCHEMICAL INDUSTRY, DTTB No. 18

The disaggregation of a technology package is necessary for the development and utilization of local manufacturing and human capabilities. The capacity for disaggregation promotes and is in turn promoted by the growth of technological capability. It could therefore be a key element in the technological self-reliance of developing countries.

This disaggregation model of the petrochemical industry was prepared by the Board of the Cartagena Agreement and reflects to a certain extent the level of industrialization in the Andean region. A practical method, it was the result of (a) a general analysis of the development of industrial projects in the petrochemical sector; (b) a detailed analysis of all the activities and elements that go into successful petrochemical projects; and (c) the systematization of isolated technological disaggregation efforts undertaken in the Andean region.

The disaggregation proposed in this model is designed to be applied continuously from the time of the first idea for a plant to the time of its start-up. The model can be extended by analogy from the petrochemical industry to the chemical industry in general.

The structure of the model and of each of its parts is based on qualitative, quantitative, descriptive and ordering criteria. The first three make a detailed disaggregation possible, while the last serves as a guideline for the overall structure of the disaggregation.

The qualitative criteria cover only what is to be done and who is to do it.

The quantitative criteria place a value on the disaggregated parts that is based on the amounts of national, subregional and foreign costs and labour involved in each activity.

By means of the descriptive criteria, all the parts making up the project are disaggregated and characterized according to how they participate in it.

The ordering criteria are the basis for the establishment of a coding system used with special sets of forms that are used for recording all the data that make up the model.

The second part of the work is a manual for the use of the model. It consists mainly of sample filled-out forms, glossaries, explanations of the coding system and instructions for the user. A complete set of blank forms is provided.

The following article is reprinted from ADCRA, Informatics in a changing world, dated 1983/2:

The Maintenance Contract by Alberto Marchili

High technology products must generally be serviced after purchase to keep them in proper operating condition. For this reason, users prefer the product for which the best maintenance service can be found, price and performance being equal. But for the same reason, users can become heavily dependent on maintenance service contractors. Contract negotiations, therefore, ought to be seen as an opportunity to eliminate uncertainties and avoid unpleasant surprises. They offer the best opportunity for the user to specify exactly what he requires.

Well-informed public and private sector users worldwide use standard contracts, such as those of the US Government's General Services Administration, the world's largest user, as models during negotiations to appraise the terms offered by suppliers and contractors. This is recommended by the specialized literature.

Historical background

Informatics contracts used to be hybrid: different services were offered through the same contract. The IBM sales contract, for example, used to state that the company offered "its customers, without supplementary charges and at their discretion, its educational services, technical support and programs". The scope of these extra services depended on the user's negotiating skills and IBM's marketing policies. They could include transport and installation of hardware, seminars for managers, programmer training, technical publications, software, programme support and conversion, maintenance, etc.

In 1969, IBM began separately invoicing each of the services mentioned in its lease and sales contracts. A number of different reasons have been advanced to explain this "unbundling":

- It had previously been very difficult to make price comparisons between IBM products and services and similar products and services on the market;
- IBM wanted closer cost analyses of the products and services which had previously been extras in order to comply with anti-trust laws;
- Users were unhappy because they did not know whether they were being charged the same as other IBM customers for similar services;
- IBM wanted to diminish its liability by using separate contracts for each sub-system and service;
- It was a pretext for increasing prices. In any case, unbundling soon became normal practice and the maintenance contract became common.

Similar instruments

The maintenance contract is a bilateral agreement under which one party, the contractor, undertakes to independently ensure the sound working order of the hardware or software indicated by the other party, the user, in exchange for a fee. It creates obligations on both parties. Because the exact amount of maintenance to be provided is uncertain, the maintenance contract is aleatory. It is executed on a continuing or scheduled basis because the services are provided over a period of time.

The fact that the parties use certain customary formulae and other generally accepted practices for the performance of the contract shows that the maintenance contract relationship is not a wholly new type. Therefore, even if specific regulations exist for maintenance contracts, one should not neglect appropriate statutory, common or case law principles for similar contracts. The following all have features in common with the maintenance contract:

Labour and public service contracts. The user can take responsibility for the maintenance service at his own risk by contracting employees to undertake it according to the provisions of labour law (a labour contract) or administrative law (in the case of a public entity).

Hire of common services. Common services are those which fall outside the ambit of labour law and are governed by civil or common law. Common services are involved if the personnel hired to perform the work are subordinate to the direction of the party hiring the service. The obligation on the personnel consists of work per se. If it is agreed that the service will be performed independently by the contractor, such that the contractor takes on a technical risk, the agreement is a maintenance contract.

Technical assistance contracts. If specialized personnel alone are provided, working under the supervision of the user to perform the maintenance service for a fee, the contract may be a temporary employment contract. If the contractor undertakes to supervise the personnel and guarantees to keep the hardware or software in sound working order, the contract is a maintenance contract.

Rental contracts. The natural effect of a rental contract is the lessor's obligation to keep the object leased in sound operating condition. Informatics rental contracts are no different, save where the parties expressly agree otherwise. If the lessor is the manufacturer of the hardware or software, maintenance is usually included among the specifications of his obligations. If the lessor is not the manufacturer, this obligation may be expressly excluded. If not, the lessee may be able to require the lessor to perform it under common law. To ensure that maintenance is included, users are advised to reserve the right to have it listed separately in the rental contract.

Hidden defects warranties. Hidden defects in a product are defects which exist at the time of acquisition, and which make the product unfit or reduce its capability to achieve the purpose for which it was intended, such that if the user knew of them in advance, he would not have acquired the product or would have paid less for it.

If hardware or software is assigned in consideration of payment, an implicit hidden defects warranty exists when the parties make no other provision. If there is an important hidden defect, the user may opt to terminate the contract or reduce the payment. It should be recalled, however, that high technology periodically requires adjustment and may break down. For this reason, an implicit warranty is not always enough to guarantee sound functioning.

Hardware vendors usually issue general explicit warranties for the sound functioning of their equipment. But they have been known to take advantage of users, while trying to create the impression of doing them a favour, by actually reducing or even disclaiming liability for hidden defects, increasing the price or obliging the purchaser to take out a separate maintenance contract with the vendor or a firm linked to the vendor. The explicit hidden defects warranty is thus often not included in contracts imposed by vendors. Moreover, if it is included, there is usually a short warranty period.

Classifications

Maintenance contracts can be usefully classified for legal purposes in terms of the instrument used, the features of the service and the object of the service.

Instrument. A maintenance contract can form part of the supply contract or it can be the subject of a separate agreement. The contract is really independent if it is written into a separate instrument, and if the contractor is not also the supplier or subordinate to the supplier. Independence is purely formal if the maintenance contract is contained in a separate instrument but the contractor is also the supplier or in some way subordinate to the supplier. If there is real independence, the user cannot use the supply contract to avail himself of his rights in respect of the contractor of the maintenance service. If the independence is purely formal, neither the contractor nor the user can use the contract as a pretext for claiming that the contractor and the supplier are mutually independent.

Features of the service. Contracts can be classified in terms of time and place according to the features of the service contracted.

Preventive maintenance is performed on a scheduled basis before an emergency arises. Emergency maintenance is performed whenever an emergency arises. Although preventive maintenance involves a degree of uncertainty as to whether or not parts require replacement, it is best seen in terms of the prevention of breakdowns.

Resident maintenance service is carried out by personnel provided with the equipment. On-call maintenance service is supplied if and when the user requests it. While resident maintenance service is usually contracted on a temporary basis when equipment is first installed, or on a semi-permanent basis in the case of larger, more costly equipment, the most common type is on-call maintenance. Preventive and emergency services are usually contracted together on an on-call basis. Some users prefer an emergency on-call contract and take advantage of the service to have preventive maintenance performed.

Object. Although an informatics system comprises various sub-systems, as a rule only two of them, the hardware and the software, jointly or severally form the object of maintenance contracts. Although hardware maintenance contracts are the most common, as far as possible a maintenance service should be contracted jointly for hardware and software, since it is not always easy to decide whether failures have occurred in only one sub-system, and if so, which one.

Moreover, unbundling should not lead us to forget that there is always a possibility that the system, the sub-systems, or system components will not interact effectively. In other words, they may turn out to be incompatible. It is very important to remember that, even if a contract does not concern a total system, the services will not be performed properly unless the total system

is taken into account. Solutions are meaningful only if they are undertaken from the standpoint of the total system. Therefore, consideration should be given, particularly in a multi-vendor facility and even if a state monopoly provides the data transmission network, to hiring a third party maintenance service. This puts an independent group between the user and all the suppliers, each of whom may blame competitors when the system goes down. With third party maintenance, the user has to look only at one individual or group to be responsible for all maintenance.

The contractor's obligations

The contractor's main obligation is to keep the equipment indicated by the user in sound working order. The legal nature of this obligation may take one of two forms, depending on whether the contractor promises a given result or merely the means to obtain that result. Not only does this distinction differentiate the maintenance contract from the hire of common services contract, but it is of vital importance when determining liability.

When there is an undertaking to provide the means, it is the user who has to prove negligence or malice on the part of the contractor. But when there is an undertaking to provide the result, the mere fact of not having achieved that result can make the contractor liable.

This is not a hypothetical issue. Certain suppliers, IBM for example, include a provision in their contracts which states that they will perform their obligations "with all possible and reasonable diligence". This could lead to doubts as to whether the obligation is to provide a means or a result.

Preventive maintenance. Preventive maintenance usually includes checking, cleaning, lubrication, adjustment and replacement of parts. It would seem reasonable for the preventive maintenance requirements to be stipulated by the manufacturer, when the maintenance service is also carried out by him. There are two reasons for this: first, because the manufacturer has laid down the technical specifications for the product, and second, since the obligation is to guarantee a result, a certain degree of independence must exist in the selection of the most appropriate means to be used to attain that result. However, it should be possible to interpret preventive maintenance clauses according to technical specifications which have been made public in an appropriate form. Preventive maintenance should never be left totally to the arbitrary judgement of the manufacturer, since, in such a case, the obligation would be discretional.

Parts replaced become the property of the contractor under the terms of a clause usually included in maintenance contracts. Replacement parts do not normally have to be new, so long as they perform as well as new parts. It is common to require the emergency service contractor to keep a supply of spares on, or nearby, the user's premises to avoid down-time due to service delays. Finally, a good response time is two hours between the telephone call and arrival of the maintenance engineers.

Preventive software maintenance consists of trouble shooting under certain circumstances and/or the issuing of circulars from time to time, based on user experience with the packages. For emergency maintance, provisional solutions are normally adopted until final solutions can be found, which are then incorporated into new versions of the software. Normally, the user details his difficulties which are then submitted to a special working party, which centralizes the maintenance tasks. In the case of specially written programmes, the maintenance service nearly always forms part of the software development contract and is undertaken by the programme supplier. In order to avoid becoming wholly dependent on the supplier, users must demand complete documentation and source codes, so that they can resort to another maintenance service, or carry out the maintenance themselves if the need arises.

Excluded obligations. A list of excluded obligations may be established in a maintenance contract. This list might exempt the contractor from carrying out maintenance if any unauthorized maintenance or repairs have been carried out by or for the user; if failure or damage has resulted from the negligence or malice of the user, his agents or employees; in the case of a natural disaster; if failures occur as the result of causes external to the equipment, such as power or air-conditioning breakdowns, etc.

The user's obligations

The user has two basic obligations towards the contractor. His main obligation is to pay the fee stipulated in the contract. The fee may be established in advance and, therefore, remain invariable. This prevents the user from being subsequently charged higher fees. A number of users have found their budgets thrown off substantially by increases in the cost of maintenance. The fee may be a lump sum or it may be per call, the user paying for the service each time it is rendered. Most contracts combine these two forms of payment.

In addition to paying the fee, the user must undertake to co-operate with the contractor so that he can keep the equipment in sound working order. For example, the user must ally provide the contractor, free of charge, with adequate space to store spare parts and to work at the right temperature, with the right amount of ventilation and electric power and within a reasonable distance of the facility. The user must give the contractor full and free access to the equipment, subject naturally to security requirements. The user must refrain from carrying out maintenance work, or causing it to be carried out by others, unless expressly authorized to do so by the contractor.

Liability and the option to terminate

Nearly all maintenance contracts contain clauses which limit the contractor's liability. In cases of negligence, delay or poor performance of its obligations, the

independent maintenance firm is usually required only to carry out the maintenance again or to pay a certain sum, which in no case can exceed the cost of similar maintenance charged by the manufacturer. If the manufacturer is also the contractor of the maintenance service, the liability expires after one year, except as far as payment is concerned. Whether or not the manufacturer maintains the equipment, liability is never recognized for indirect damage, nor, in some cases, even for direct damage.

As far as termination is concerned, in addition to the grounds commonly available for voiding any type of contract, laws usually provide for certain specific grounds for voiding labour contracts. Since the maintenance contract is a kind of labour contract, these grounds usually apply.

In the case of rental contracts, it is a widely held principle that the lessee may cancel the contract at his discretion and without adducing any grounds. However, in this case, he may be liable to pay a penalty to the lessor. Maintenance contracts are similar except that they do not usually provide for these penalty payments. To avoid controversies because of this difference, the two parties should expressly stipulate terms and conditions for cancellation.

As an executory contract either for the permanent or periodic performance of a service, the maintenance contract may normally be cancelled by the user as long as he notifies the contractor, usually from one to three months in advance. Often, the contractor may also cancel the contract under these same terms, although sometimes the period of notice is longer.

In view of the aleatory nature of the maintenance contract, there is another form of protection possible against the poor functioning of equipment: an insurance policy. This solution may be less costly to the user and may even provide better coverage, particularly in relation to third party liability. Therefore, maintenance insurance could eventually replace the maintenance contract altogether.

Alberto Marcilla, a lawyer and consultant in legal informatics and informatics law, is a former adviser to the Ministry of Justice in Argentina.

Publications

List of documents prepared for the Ninth Meeting of Heads of Technology Transfer Registries, Beijing, China, 8-12 October 1984

ID/WG.429/1	Establishment of the compatible registry information systems
ID/WG.429/1/ Corr.1	Establishment of the compatible registry information systems
ID/WG.429/2	Manual on the establishment of registry information systems - some considerations
ID/WG.429/3	UNIDO's training programme in acquisition of technology - a review
ID/WG.429/4	Monitoring of technology transfer agreements by regulatory agencies - some contributions for action
ID/WG.429/5	Evaluation of technology payments
ID/WG.429/6	Trends and issues in contractual arrangements in the food-processing industry
ID/WG.429/7	Progress report
ID/WG.427/11	Trend and issues in contractual arrangements in the food processing industry
CRP I	The commercialization of software: Main issues and contractual terms and conditions - a preliminary version
CRP II	Draft country profiles of selected TIES member countries - 1983-1984
CRP III	Model computerized registry information system - a note

Major printed publications

ID/315	Manual on documentation and information systems for furniture and joinery plants in developing countries
ID/323 (UNIDO/LIB/ SER.B/56)	Industrial Development Abstracts UNIDO Industrial Information System (INDIS) 13601-13900
ID/WG.393/2/ Rev.1	Directory of sources of supply of pharmaceutical chemicals, their intermediates and some raw materials included in the UNIDO list
ID/WG.393/3/ Rev.1	Eléments pouvant faire partie des dispositions en vue du transfert de téchnologie pour la production de preparations pharmceutiques
ID/WG.425/7	Report of the Global Preparatory Meeting for the First Consultation on the Building Materials Industry, Vienna, Austria, 24-28 September 1984
ID/WG.433/3	Technical Advisory Group membership and meetings (Agenda item 8)
ID/WG.433/4	Decentralization of RN-SHP activities (Agenda item 5(c))
ID/WG.433/5	Review and evaluation of activities during 1982/83/84 (Agenda item 4)

ID/WG.433/6	Proposal for 1984/85/86 (Agenda item 5(a))
ID/WG.433/7	Designation of national sub-focal points for small hydro-power (Agenda item 7)
ID/WG.433/8	Priority subject areas and projects (Agenda item 5(b))
ID/WG.433/9	Final resources (Agenda item 8)
PI/84	UNIDO industrial training offer programme 1985
UNIDO/IS.330/ Rev..	Guidelines for the establishment of solar salt facilities from sea-water, underground brines and salted lakes
UNIDO/IS.487	The role of small- and medium-scale industries in the OIC member States
UNIDO/IS.489	State - of - the - art series on microelectronics, No. 1: Venezuela
UNIDO/IS.490	State - of - the - art series on microelectronics, No. 3: Republic of Korea
UNIDO/IS.491	Measuring the relative degree of industrialization
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UNIDO/IS.493	State - of - the - art series on microelectronics, No. 4: Pakistan
UNIDO/IS.494	Re-industrialization in the advanced countries and its effects on the developing countries, in particular in Latin America
UNIDO/IS.496	The first Arab Gulf conference on biotechnology and applied microbiology, Riyadh, Saudi Arabia, 12-15 November 1984. The potential of biotechnology for the Gulf region and the role of the International Centre for Genetic Engineering and Biotechnology
UNIDO/IS.497	State - of - the - art series on microelectronics, No. 5: Bangladesh
UNIDO/IS.498	South-South co-operation in mineral resource-based industries
UNIDO/IO.600	Second Ministerial Conference on Industrial Co-operation among Islamic Countries, 13 - 16 November 1984. Industrial manpower requirements of the member States of the Organization of the Islamic Conference (OIC) and ways and means of establishing and/or strengthening training centres to serve all member countries of the OIC
UNIDO/IO.601	Aluminium production and use in developing countries with special emphasis on the manufacture of aluminium semis and finished products

Meetings

11-15 February	High - level Intergovernmental Meeting on Agro-Industry Development. Brasilia, Brazil
February	Sub-regional Investment Promotion Meeting. Khartoum, Sudan
18-21 March	Expert Group Meeting on the Restructuring of the Non-Ferrous Metals Industry. Vienna, VIC
26-30 March	First Consultation on the Building Materials Industry. Athens, Greece
March	Investment Promotion Meeting for Argentina. Buenos Aires, Argentina
March	Demonstration Workshop on Laboratory and Pilot Scale Bauxite Processing. Kingston, Jamaica
March April (4-5 days	Meeting on European Regional Co-operation on Energy Conservation in Industry (RER/83/003). Vienna, VIC
10-27 April	Workshop on Production Management of Public Sector - Mechanical Wood Processing Industries. Ljubljana, Yugoslavia
22-25 April	Expert Group Meeting on Guidelines and Master Agreements for the Import, Assembly and Manufacture of Agricultural Machinery and Training. Vienna, VIC
April	Investment Promotion Meeting for Central Africa. Libreville, Gabon
May/June	Investment Promotion Meeting. Istanbul, Turkey
3-21 June	United Nations Commission on International Trade Law, eighteenth session (General Assembly resolution 2205 (XXI)) (UN Meeting). Vienna, VIC
10-14 June	Second Consultation on the Capital Goods Industry and Energy-related Technology and Equipment. Stockholm, Sweden
23-26 Sept.	Expert Group Meeting on Industrial Co-operation in the Field of Agricultural Machinery Design and Manufacture with Special Emphasis on the Role of the Medium- and Small-scale Enterprises. Caracas Venezuela

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