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INSTITUTIONS FOR THE TRANSFER OF TECHNOLOGY

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1. Introduction

As an introduction three recommendations are quoted in the order of priority assigned to them by a high-level expert group convened in Vienna at the beginning of 1973 (UNIDO/ISID.1).

1. In view of the fact that the transfer of knowledge, followed by its application in industry, is fundamental for industrial development, governments of developing countries should assume responsibility for the establishment and operation of effective local information transfer services. When setting up or reinforcing these services, the authorites should ensure that information activities are organized or co-ordinated centrally in order to make the maximum use of, and to improve, all local information resources, while catering for the needs of every type of industrial consumer in the country.

2. Person-to-person dialogue between extension officers and industrialists is recognized as the most effective means for the transfer and interchange of technological and managerial know-how. When reviewing and improving their systems for the transfer of information to industry, therefore, governments of developing countries should pay particular attention to the creation of effective local industrial information field liaison and extension services.

3. Field liaison and extension services should act as intermediaries between the demands of industry for information and the reservoirs of knowledge available in documentation centres, research centres, etc., since the effective transfer of knowledge depends on an inter-related system of creation, collection, analysis, selection, dissemination and application of information. Feedback should be an integral part of this system.

Indeed, institutions for the successful transfer of technology have to be tailored to the individual needs of each country and its newly-emerging industrial community and cannot be modelled as replicas of existing institutions in advanced industrialized countries. This can only be achieved by determining first the needs before building up any new institutions or changing the existing ones.

II. How, for a start, should these needs be determined?

The most appropriate step towards the rapid identification of these needs seems to be the designation by the national authorities of an office to act as the focal point for any problems and questions arising in the country in connexion with its industrial development. The principal feature of the service at this stage should be to be known and generally recognized all over the country and to be staffed to this effect by at least one valuable and energetic man of sufficient status and missionary inclination to go out and sell the idea of the service to all the relevant branches of the administration as well as to all parts of the scientific and industrial infrastructure in the country. All other attributions of the service are of secondary importance at this stage.

This is in accordance with the two principal functions of such a transfer service:

(1) current diagnosis of local needs in information and know-how; and

(2) review and mobilization of local and external sources of knowledge towards the satisfaction of these needs.

The pragmatic and most effective way of determining needs is to provoke and encourage questions on problems currently encountered in all the various quarters, both administrative and productive, concerned with industrial development in a country and to endeavour to contribute to their solution in securing the co-operation of all relevant sources of knowledge accessible to the service locally or internationally. This exercise should result in an ever-growing register of problems to be confronted with a directory of accessible

sources of knowledge [illegible] an overall picture, the service should be able to determine which areas need strengthening, whether institutes should be created to deal with problem areas not already covered and the general requirements to promote the more effective application of technology in industry.

Complementary to the primary function of identifying needs and mobilizing resources to meet those needs, a technological transfer service to become really successful should progressively change its initial passive role concerned mainly with the solution of apparent problems into the more active and even aggressive role of a promoter of new technology by applying itself to create an ever-growing demand for it.

III. Scope of the transfer service

The service might be attached to an existing agency, institution or organization. The choice will be determined by the particular local situation and may fall upon a national body of economic policy (national committees on development, national planning offices, etc.), an industrial ministry, a development bank, a development association, chamber of commerce and industry or a scientific institution. As a rule, its activities are most efficiently carried out as part of a national industrial development policy-making body, which plays a central role in the administration and economic structure of the country.

To assure its user orientation the service might have an advisory board on which representatives of industry or of industry associations have a majority. This advisory board should be approved by, and report to, the national government.

The size and scope of activities of the service are governed by the circumstances prevailing in the country it is expected to serve. The service should be both general and specialized. The general information transfer service covers every branch of industry, including the underlying sciences, while the specialized information service concentrates on a single field in a particular branch of

industry. The optimal efficiency is attained in circumstances which permit a combination of these two systems.

When establishing such services, national policy-makers should also bear in mind that the national function to marshal the information available in the country, complementing it with intake from other countries and transmitting it to the local user might ultimately be extended to provide information on the local industrial situation. This is important, first, in order to permit the sharing of experience between developing countries, for instance in the framework of regional co-operative agreements, and, secondly, to inform and thus stimulate potential investors and suppliers of other resources.

The physical size of the service is not governed by the size of the country, since the decisive factor is the amount of information to be transmitted. Depending on the initial scope of the service and also on the assistance that may be expected from existing information sources in the country and abroad, the initial staff requirements might range from 2 to 10 persons.

IV. Sources and vehicles for the transfer of technological knowledge and know-how

To set up new plants and to run the existing ones more efficiently, developing countries need information on all aspects of industry: product design, technology, production equipment, standards, marketing, trade, relevant legal and other regulations, finance, management and many others. Most of this required knowledge exists, some of it locally and the rest in the advanced countries or in other developing countries. Most of it is accessible, the greater part even free.

By freely accessible is meant non-proprietary technology. The term "proprietary" covers both patented and secret technological knowledge. There is no clear line of demarcation between secret and freely accessible technological know-how; a great deal of knowledge is in a grey area to be labelled "difficult of access", especially for a potential recipient in a developing country.

The search and selection process required for the transfer of a given list of know-how to an industrial "consumer" of this technological knowledge in a developing country is difficult and costly; and, finally, the recipient might lack the managerial skill to exploit it economically.

In examining the main means by which transfer of technology actually takes place, a distinction, however, has to be made between vehicles providing primary technical information in a general way and those supplying on a defined technological subject pertinent information and know-how in response to a specific demand.

Books, trade journals, sales literature, technical fairs, conferences, meetings, study missions and training courses are means of the first category: they are responsible for initiating greater awareness of technological advances in general and are essential instruments toward creating and reinforcing the demand for new technology among economic and industrial decision makers. These means by themselves, however do - as a rule - not lead to an effective transfer of operative technology for the simple reason that the technical and managerial skills required for the successful selection and assimilation of technology from these primary sources of information are extremely rare, particularly in developing countries.

The second category of "transfer-vehicles" comprises individual experts, consultant companies, equipment suppliers, engineering and design offices, institutes for applied research and development, plant manufacturers and production companies. These secondary vehicles combine the supply of information with the technical and organizational skill required for assuring its practical application. While the price of obtaining information from primary sources is nominal, the services of the intermediate suppliers grouped in the second category have to be obtained for a fee and are usually provided within the framework of a formal agreement, be it a purchasing or a servicing contract, or a licensing agreement.

There is a whole wide range of commercial agreements under which technology transfers are carried out. The range of technology put to use is usually in direct proportion to the fee or reciprocal to the control relinquished by the recipient to the supplier over the industrial venture in question. In this order the list might begin with consultancy contracts and turnkey-agreements and go on from there to engineering and construction agreements, purchasing and servicing agreements with equipment suppliers without and with equity participation, management or technical assistance contracts, franchising and, finally, licensing and joint-venture agreements with terms ranging from royalty payments on the basis of sales, to various degrees of participation and control through restrictive provisions with regard to marketing, procurement and management.

Obviously, the choice between these different means of transfer and the assessment of their respective advantages and disadvantages is not an easy, but a highly complex task. The average recipient of technology in a developing country is not up to this task, hence the necessity for authorities in developing countries to help him and to improve his bargaining position by the provision of technical and legal advice through a national technology transfer centre, closely linked on the one hand with the planning authorities and, on the other hand, with industry, universities and any other supporting industrial institutions in the country such as planning authorities, industrial research institutes, standard offices, export and investment promotion centres, patent offices or specialized libraries and documentation centres.

V. Staff and operation of a technological transfer service

The basic tool of the service is an efficient and diversified network of sources of information. First, local resources must be pooled in a national network which then should be linked to any existing regional and international networks as a demander and supplier of information. The rapidity of transfer and the quality of information supplied will depend on these networks. Thus, the selection, conditioning and activation of the organization, institutes or individuals that will constitute them is of fundamental importance.

The impact of the technological transfer service depends on the competence and dynamism of its staff. To make the service an instrument of real use to industry, it is essential that the staff understand the problems and aims of industry. Consequently, the background and experience of the personnel should be of an industrial rather than of a scientific or administrative nature, preferably it should comprise engineers with extensive industrial experience and with a good understanding of business administration. The viewpoint of the staff should be both broad and close to the technological, sociological and management aspects of industrial growth. The qualifications and status of the executive staff should be such as to allow for meaningful discussion with authorities as well as managing and technical directors of industrial enterprises in order to help in the decision making. Otherwise the technological knowledge to be transferred, no matter how good, cannot be assimilated and put to productive effect.

To function as a successful intermediary, the technological transfer officer must be in close touch with the current thinking and problems of industry and able to promote a constructive dialogue between sources of information and users; he should be regarded by his customers as a partner participating in the preoccupations and in the decisions of industrial management.

Personal contacts and personal involvement being generally recognized as the essential prerequisite for any really effective transfer of information to practical use, it is a missionary quality which makes the true technological transfer officer. He should not be satisfied with the delivery of the information he has been asked for, but should make it his responsibility to follow up and to check whether the industrialist has been able to make practical use of it. He should in general maintain a continuous dialogue with his customers in industry to determine their current and future needs like a salesman exploring the market for a commodity which has to be tailored to the changing needs of his customers.

Staff members of the service should take the initiative in calling upon local industry universes to discuss individually or in groups the problems of development, improvements, exchange of experience, co-operation between enterprises, etc., by means of conferences, courses, visits, tours, consultations, etc.

Their field liaison work should be instrumental in providing established groups or individual inquirers with information on local, national, regional and international sources of information which, by more efficient utilization, can help to improve the activities of the individual company.

The service should also endeavour to initiate actively forms of inter-enterprise co-operation by stimulating the creation of groups of industrialists to undertake, under the guidance of information extension services, a systematic programme of mutual consultancy, training and exchange of experience (self-management groups, sub-contracting exchanges).

The specific activities to be undertaken by staff members of the service, on their own initiative, might be defined as follows:

- to become personally acquainted with the individual enterprises in the local region or sector, their activities and their personnel;
- to become intimately acquainted with the institutions important for the development of the region or sector, i.e., centres of specialized knowledge such as research, education and training institutes, information, documentation and library services, at home and abroad;
- to provide an active information service - individually selected and tailored for the sector - on technical, commercial and economic developments;
- to visit the enterprises in the sector and discuss topical and development-oriented problems;

- to assist by formulating the problems and the demands for information of these enterprises;
- to find and make contracts with experts or institutions willing to solve problems;
- to follow up and evaluate the results of such contracts;
- to organize and/or co-operate in organising courses, conferences, etc., aiming at exchange of experience within the sector and the further training of the staff of the enterprises;
- to arrange study tours to firms, research centres and fairs at home and abroad, in order to promote the free exchange and sharing of experience among industrialists, as well as between industrialists and specialists in various fields of relevance to the development of industry.

For all these activities person-to-person dialogue between staff members of the service and industrialists is the most effective means for the transfer and interchange of technological and managerial know-how, as well as for ensuring proper follow-up of the information supplied and feedback to the institutional sources of information.

Finally, the service has to be active in constantly promoting its own use through the initial unsolicited provision of free information to industry.

To sum up, the service should make a contribution towards compensating the shortage of technical and managerial expertise in industry, as well as perform a catalytic liaison and promotion function, oriented on the one hand to increasing industry's receptiveness to and demand for information from all available sources and, in return, feeding back the results of this work to policy makers and local sources of expertise, so that the sources of knowledge on tap can be improved in their effectiveness and user orientation and be complemented by additional information in areas of vital importance not already covered.

VI. What should be the role of the public sector in developing countries?

In this regard the following most pertinent recommendation was adopted at the UNIDO Seminar on Industrial Information in Lima, Peru, 13-24 September 1971:

> "Governments should accept responsibility for the transfer of information to industry in developing areas to the same degree and in the same spirit that they accept responsibility for economic development itself. Accordingly, Governments in developing countries should assume responsibility for the establishment and operation of effective local information transfer services. When setting up or reinforcing these services, the authorities should ensure that information activities are organized or co-ordinated centrally in order to make the maximum use of all local information resources, in so far as these meet the needs of each type of industrial user in the country."

To carry out this responsibility and to protect their nationals against the pitfalls of uncontrolled transfer of technology, authorities of developing countries should, in the first instance, define their national policies for technological development within the framework of their general development objectives. In line with the successful experience of Japan, authorities of developing countries might further envisage to interpose themselves between suppliers and recipients of technology through proper institutional arrangements with the aim of safeguarding the economic and social interests of the country and of assuring that the choice of alternative technologies is based on a thorough and unbiassed cost-benefit analysis going beyond the mere calculation of profits.

In addition, two complementary sets of measures should be developed to become integral parts of a coherent national policy on technology.

One set of measures should be directed toward improving the terms of transfer, the other toward developing the national infrastructure for technology with a view to reducing technological dependence from abroad.

Measures to improve the terms of technology transfer might include:

(1) a national body to assist in the screening of imported technology, particularly in the evaluation of technical factors;

(2) legislation prohibiting technology transfer agreements with restrictive clauses such as limitation of exports, stipulations with regard to the purchase of equipment, fixing the price of the products to be sold and/or restricting the volume of production as well as legislation imposing ceilings for royalty payments and other connected fees, limiting dividend payments on equity received for the provision of technological know-how and compelling foreign patent owners, having no production in the country, to license local producers.

The measures to be applied toward strengthening local skills as well as capacities for the development, adaptation and economic exploitation of technology, might comprise the following:

(a) designation of a national body to act as a focal point in the field of technology transfer by registering, activating and pooling local sources of technical expertise (individual experts, consultant companies, research institutions);

(b) establishment of technological information transfer services with an active approach to local industry through highly qualified field advisory officers;

(c) tax incentives to promote local research and development to encourage import substitution in the field of technology as well as the build-up of local assessment capacity for the selection of technology;

(d) measures to widen and to diversify the range of potential foreign suppliers of technology, in order to reduce unilateral dependencies and to improve bargaining position.

VII. Regional aspects

The development of national and local information transfer facilities is also essential for any effective co-operation of countries at the regional level. Regional centres, for example, could distribute work on an industrial branch basis among especially

qualified national centres. Such an entity for the transfer of technology are a prerequisite for the estimation and implementation of a common policy by a group of countries for the planning and promotion of their industrial development; they can also be of service where one country is planning to undertake research on a new industry, product or technological process and studies in this field have already been carried out in a neighbouring country prepared to share the results with others in the region.

Co-operation in the area of technological transfer and information exchange is a most appropriate instrument to strengthen regional awareness and to promote economic and political ties among neighbouring countries.

VIII. What is being done in the UN system?

Several bodies in the United Nations system of organizations are actively engaged in the field of technology transfer.

At its 51st session (5 - 30 July 1971) the Economic and Social Council (ECOSOC) commended the UN Advisory Committee for the Application of Science and Technology to Development (ACAST) on a review carried out with the assistance of UNIDO, UNCTAD and ILO presented in document E/4967 and entitled "Technology appropriate for industrial development".

The document contains a number of specific action proposals such as:

Increased understanding of the problems related to the selection and utilization of industrial technologies in the developing countries

The Advisory Committee suggested that the Economic and Social Council should consider ways of attracting more public attention to those problems and of promoting a better understanding of them.

Design policy instruments that will accelerate industrial growth by providing adequate incentives for more appropriate industrial designs and production techniques

Under this heading the Advisory Committee called on financing institutions to untie loans and grants for industrial development and

recommended a review of the financial and legal conditions at present being applied to the use of patents by, and the transfer of industrial property rights to, developing countries.

Promote action on an expanded information system designed particularly to improve the flow of more appropriate industrial technologies to the developing countries

The Advisory Committee suggested that in particular the UN should assist in the establishment of technology information activities in both the developing and the industrialized countries and that it further develop and implement as soon as practically possible UNIDO's proposal for the establishment of an international equipment specification service operating in co-operation with the developing and industrialized countries.

The Advisory Service for the supply of industrial equipment to developing countries called for in ECOSOC resolution 1183(XLI) has been put into operation by UNIDO in 1969 as an integral part of its Industrial Inquiry Service; apart from the continuous provision of advice in answer to specific questions, a manual on the purchasing of industrial equipment as well as a guide to industrial directories was compiled to meet the special needs of developing countries. A study group on licensing practices in the transfer of technology from enterprises of developed to those of developing countries, identified practical measures towards improving the bargaining position of industrial licensees in developing countries (document UNIDO/ID/WG.64).

A guide for use in drawing up contracts relating to the international transfer of know-how in the engineering industry has been prepared in 1969 by the ad hoc Working Party on Contract Practices in Engineering and is now published with the UN Series No.: E.70.II.E.15.

In fact most activities of UNIDO are oriented towards technological transfer and ample information on them is provided separately.

In accordance with resolution 74/X the Trade and Development Board of UNCTAD established an Intergovernmental Group on the Transfer of Technology in May 1971. In its first organizational session in June 1971, the Group adopted a comprehensive programme of work

towards initiating national and national action to overcome obstacles to the transfer of technology to developing countries.

The work programme covers six main areas:

(i) channels and mechanisms for the transfer;
(ii) costs of the transfer;
(iii) access to the technology;
(iv) trade and the transfer of technology;
(v) substitution of domestic for imported technology; and
(vi) choice of technology.

The two last areas are the cause of concern to various other UN agencies and organizations, in particular UNIDO, and UNCTAD's contribution, within its competence, would be to supplement their activities in close co-operation with them.

So far a study reviewing the channels and mechanisms for the transfer of technology from developed to developing countries has already been completed (TD/B/AC.11/5), as well as a provisional guideline to individual countries and institutions for gathering and analysing information in this new field and for choosing among alternative proposed.

The question of transfer of technology is one of the principal agenda items of the third session of UNCTAD, to be held in Santiago, Chile in April-May 1972. The discussion will be based on two documents:

1. "Transfer of Technology" and
2. "Policies relating to Technology of the Countries of the Andean Pact: Their Foundations".

According to these documents the direct foreign exchange costs for transfer of technology to developing countries amounted to about $1,500 million in 1963, which corresponds to over ½ percent of the combined gross domestic product of all developing countries.

These heavy foreign exchange costs involved in the imports of external technology by the developing countries underline the urgent need for initiating remedial action.

The following measures are proposed:

(i) establishment of institutional machinery in developing countries specifically dealing with the transfer of technology;

(ii) training of specialized personnel needed for these offices;

(iii) establishment of advisory services for the formulation of technology projects, evaluation of alternatives, and negotiation of specific contracts; and

(iv) direction of a part of the research and development expenditures in the developed countries to projects of particular significance to the developing countries.

With regard to these activities of UNCTAD the General Assembly adopted on 14 January 1972 resolution 2822 (XXVI) on the transfer of technology including know-how and patents, of which operative paragraph 4 reads:

> "4. Urges international financing organizations and programmes, in particular the United Nations Development Programme, the International Bank for Reconstruction and Development and regional development banks, to give high priority to economic assistance, according to the priorities established by developing countries, to meet their needs in the field of technology, particularly in connexion with the development of a basic infrastructure, including the training of personnel and the establishment or strengthening of extension services for the application of technology to production units and taking into consideration the need to reduce the effective cost involved in the transfer of operative technology to developing countries".

The basic problems involved in the "transfer of operative technology at the enterprise level" have been brought to light by the UN Division of Public Finance and Financial Institutions through case studies on a country-by-country basis.

Research undertaken by the United Nations Institute for Training and Research (UNITAR) has also been concerned with the transfer of technology and skills from developed to developing countries in order to provide principles and criteria for setting up new arrangements which would enable foreign technology to be applied more effectively.

Although the World Intellectual Property Organization (WIPO) is not a part of the UN system of organizations, one of its activites might be mentioned in this context, namely, the recently adopted project of establishing a world patent documents information service to be operated by an institute to be established by and under the responsibility of the Austrian Government in Vienna. It intends to cover on a world-wide basis patent documents in a computerized service designed to reply to individual questions. The service will include non-patent literature as required for patent examination.

SELECTED BIBLIOGRAPHY OF BACKGROUND MATERIAL RELATED TO THE PAPER "INSTITUTIONAL AND THE PROBLEMS OF TECHNOLOGY PRESENTED BY [illegible] AT THE [illegible] SEMINAR ON TECHNICAL INFORMATION SELF-HELP SERVICES, 17 - 28 APRIL 1972

ABDEL-KADIR, Ibrahim Nagui "Technology and the developing countries." Paper presented at the Symposium on Technology and World Trade organized by the US Stanford Institute in 1966

ASHWORTH, W. Handbook of Librarianship and Information work. 1967. Obtainable from ASLIB, 3 Belgrave Square, London S.W.1

CRUDSON, Walter A. "The international transfer of commercial technology to developing countries" UNITAR Research Reports No. 13

DOMAR, V. "A patents law for developing countries" Journal of World Trade Law, Vol. 3, No. 6, Nov.-Dec. 1969

ELMHAUS, Hans "Technological transfer through information - scope and limitations" UNIDO Seminar on Industrial Information (for Latin American countries) Lima, Peru, 13-24 September 1971. ID/WG.103/4.

FID STUDY CONSULTATION Symposium on Communication of Scientific and Technical Information for Industry, 21-22 October 1969, Rome. FID 453. FID/TI Umeveij 30, 2400 Copenhagen NV, Denmark

HARRETT, A.C. "The subject approach to information" 1969. Archon Books and Clive Bingley, London, Connecticut, USA

HALTI-CARRERE, Maxime "The process of international transfer of technology: some comments regarding Latin America" Unit of Technological Development, Department of Scientific Affairs, Pan American Union, Washington D.C. 1969.

HUGHES, P.W. "Do you use your ...?" Engineering, Vol. [illegible], No. 5442, 21-28 [illegible] 1970, p. 197

JANETZKY, S.F.J. Netherlands Technical Information Services. Prepared for Industrial Research and Development News, No. VI.

KAYE, Mrs. Myra Selzer "Dissemination of Scientific Information" Industrial Research and Development News, Vol. V, No. 3. 1970

KEREM, C. "Information centre speeds Israel's development" Industrial Research and Development News, Vol. II, No. 2. 1967.

KOPELMANAS Lazare "Current practices in commercial transfer of technology from Enterprises of developed to those of developing countries" UNIDO Expert Group Meeting on Licensing Practices, Vienna, 6-10 July 1970. ID/WG.64/1/Rev.2

*KRASNOV, G. "Services and invisible exports" Mirovaya Ekonomika i Mezhdunarodnye Otnosheniya

*MANUKYAN, A. "Removal of capital and international monopolies"

MEREDOM, M. Danish Technical Information Service. Industrial Research and Development News, vol. V, No. 3. 1970.

McBURNEY, L.G. "The Technical Information Service of the National Research Council of Canada" Industrial Research and Development News, vol. V, No. 2. 1970.

MIKHAILOV, A.I. "Technical information services for industry" Industrialization and Productivity Bulletin No. 13. 1969. [illegible] E.69.II.B.3.

NATIONAL TECHNICAL INFORMATION SERVICES "World Wide Directory" FID No.444 Published by Federation Internationale de Documentation, 7 Hofweg, The Hague, Netherlands

---

*Copies of these articles, together with translations into English of the relevant parts, are available from the Office for Science and Technology, Geneva.

OECD "Inventory of major information systems and services in science and technology" Paris, 1971.
OECD "Does your firm need a technical information service?" Paris, 1962.
OECD "Setting up your company's technical information service" Paris, 1965.
OECD "List of reference books on institutions used by the 'Development Enquiry Service'" Paris, 1970.
OZAWA Terutomo "Transfer of technology from Japan to developing countries" UNITAR Research Reports No. 7
RIPTON, J.S. "The industrial information specialist as a mediator in the information transfer process". Paper prepared for the Symposium on Communication of Scientific and Technical Information to Industry, held in Rome in October 1969. UNID Document A.3 (13) (mimeo).
ROBERTSON, J.S. "Standards testing for information systems: background for a current study". In ASLIB Proceedings, vol. 22, No. 9, September 1970.
SRIVASTAVA, J. "The transfer of technology to developing countries" Industrial Research and Development News, vol. V, No.1. 1970.
UNACAST "Technologies appropriate for industrial development" E/4967, 17 March 1971
UNACAST "Factors affecting the effectiveness of existing industrial research organizations in developing countries" E/4968, 18 March 1971
UNACAST "Proposals for the Second United Nations Development Decade" ST/ECA/133. Sales No. E.70.I.23.
UNCTAD Study prepared for the Second Conference by C.F.G. Oldham, C. Freeman and S. Turkcan, Science Policy Research Unit of the University of Sussex TD/28/Suppl. 1 and Corr.1.
UNCTAD "The channels and mechanisms for the transfer of technology from developed to developing countries" prepared by Charles Cooper and Francisco Sercovitch. UNCTAD TD/B/AC.11/5. Intergovernmental Group on the Transfer of Technology Organizational (first) session, 14 June 1971, Geneva.
UNCTAD "Transfer of technology: policies relating to technology of the countries of the Andean Pact: their formulations" prepared by Juntanel Lequerdo de Cartagena. UNCTAD TD/107, 29 December 1971.
UNCTAD "Transfer of technology including know-how and patents: texts of material relevant to a consideration of this subject" TD/B/C.2/24 and Add.1
UNCTAD "Transfer of technology including know-how and patents: elements of a programme of work for UNCTAD". Study by the secretariat TD/B/310 and Corr.1 reprinted under the title "UNCTAD: The transfer of technology" in Journal of World Trade Law, vol. 4, No. 5
UNCTAD "Transfer of technology" TD/106, 10 November 1971.
UN/ECE "Guide for use in drawing up contracts relating to the international transfer of know-how in the engineering industry" 1970. Sales No. E.70.II.E.15.
UNESCO "Bilateral institutional links in science and technology" Science Policy Studies and Documents No. 13
UNIDO "Guide to industrial directories" 1970. Sales No. E.F.S. 70.II.B.20
UNIDO Final Report - Consultations on Innovative Approaches to the Dissemination of Industrial Information through extension Services. Vienna, 25-29 Jan. 1971. UNIDO/ISID.10
UNIDO Report on Seminar on Industrial Information (for Latin American countries) Lima, Peru, 13-24 September 1971. ID/WG.103/6.
UNIDO Report on Seminar on Industrial Information (for the ESCAFE and ECA regions) Teheran, Iran, 14-25 September 1970. ID/WG.77/9 Rev.1.
UNIDO Monographs on industrial development. Industrialization of developing countries: problems and prospects. No. 13 Industrial Information, New York. 1969. Sales No. E.69.II.B.39, vol. 13
UNIDO Manual on the Establishment of Industrial Joint-Venture Agreements in Developing Countries, 1971. Sales No. E.71.II.B.23

U.S. DEPARTMENT OF COMMERCE "Licensing called middle way in Europe" International Commerce, vol. 74, No. 52, December 1968.

VAITSOS, Constantine, V. "Transfer of industrial technology to developing countries through private enterprises". Mimeograph presented at Conference of Grupo Andino, Bogotá, 1970.

VAITSOS, Constantine, V. "Transfer of resources and preservation of monopoly rents". Mimeo presented to Dubrovnik Conference of Harvard D.A.S.

VAN HOUTEN, R. "Scientific and technical information for industry". Paper prepared for the Symposium on Communication of Scientific and Technical Information to Industry held in Rome, October 1969. FID document C.C. (26) and C.D. (26) (mimeo).

VELASCO, Jose R. "Transfer of technology among the developing countries with emphasis on promotion and the encouragement of such technology" United Nations Economic and Social Council. E/CN.11/ICNR/TMD. Conf.2/L.23, 9 June 1970.

VERMA, J.D. "Industrial information service in India (for small industrialists)" UNIDO Seminar on Industrial Information, Teheran, Iran, 14-25 September 1970

IG. 7. 74