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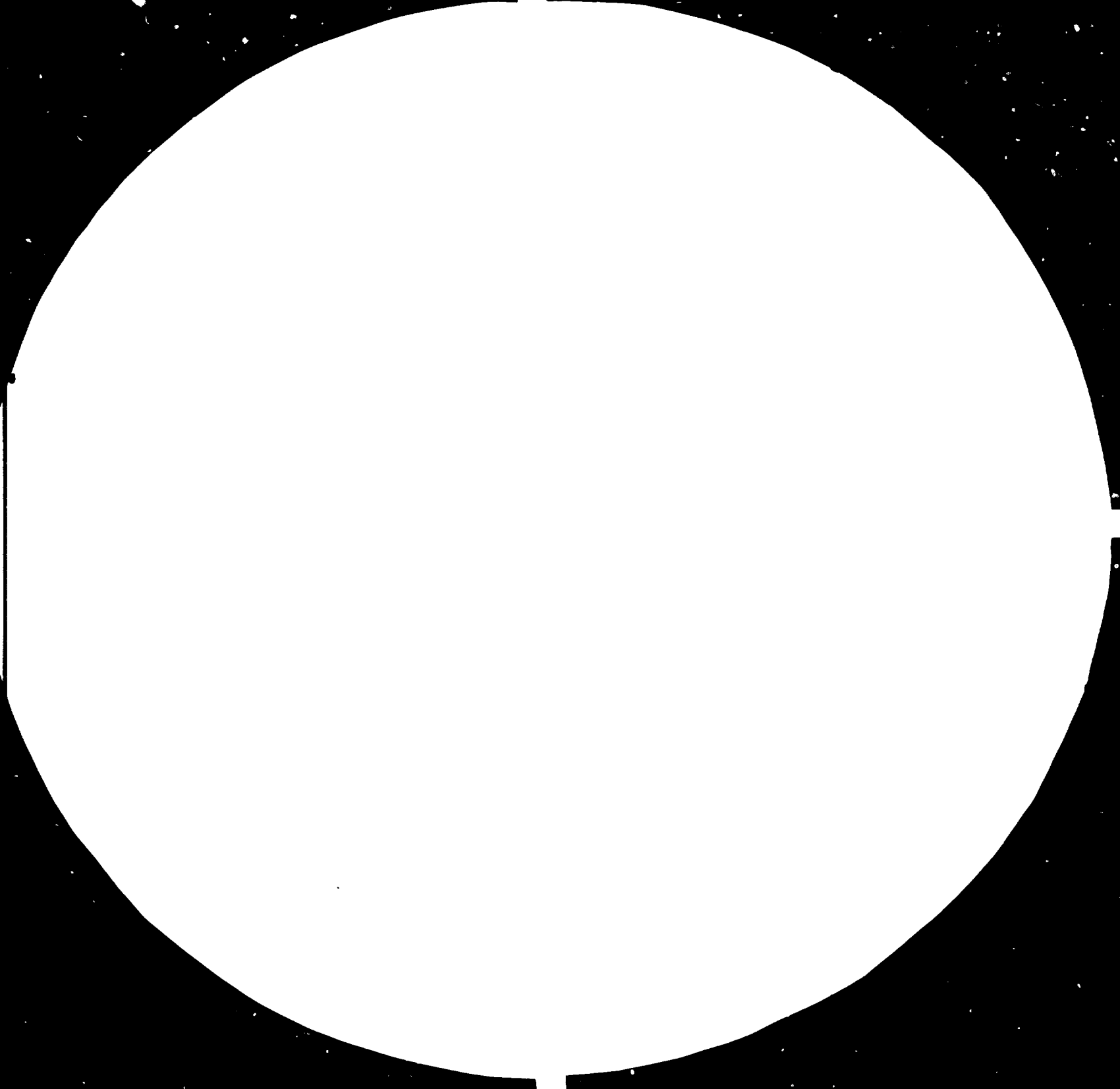
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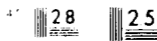
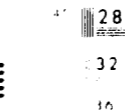
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# TIES 14592 NEWSLETTER

## TECHNOLOGICAL INFORMATION EXCHANGE SYSTEM

Issue No. 26

July 1984

Dear Reader,

By the time the Newsletter is issued, the Fourth General Conference of UNIDO will be in session. This world conference, which is the fourth in a series, and is convened every four years, is basically concerned with the following:

(a) To review major problems and policy issues affecting the world industrial situation and the steps being proposed to resolve them by Governments, UNIDO and other United Nations organizations;

(b) To recommend policies and procedures to member Governments to facilitate co-operation among nations in matters relating to industrial development for the benefit of the developing countries;

(c) To examine ways and means of increasing the share of the developing countries in world industrial output;

(d) To serve as a co-ordinating mechanism to provide overall integrated and continuing attention for the successful co-ordination and follow-up of policies concerning industrial production, industrial co-operation among developing countries and other related matters by all the agencies of the United Nations family.

The Second General Conference of UNIDO held at Lima, Peru, in 1975 reiterated the strategic role of industry in the process of economic and social development in general and set the target that by the year 2000 developing countries should account for a minimum of a quarter of total world industrial production, while every endeavour should be made to ensure that the industrial growth so achieved would be distributed among the developing countries as evenly as possible.

However, from 1975 to 1982 and under the background of the world recession, the share of developing countries in world manufacturing value added increased by only one percentage point, from 10 to 11 per cent. Most striking is the fact that the share of world manufacturing value added of the least developed countries has stagnated over that period at the very small figure of 0.2 per cent.

The achievements and hopes of the sixties and early seventies are now in jeopardy. The world economic crisis of recent years has put a halt to the steady progress of previous years and has brought in its wake serious problems in many developing countries.

Perilous financial positions, food and energy shortages and a fall for three successive years in real per capita incomes are widespread. While both the industrialized and developing countries have been adversely affected by the crisis, the developing countries, and in particular the poorest among them, are suffering most.

It is against this background that the Fourth General Conference of UNIDO will be held. The agenda for the Conference includes the central issues of industrialization. It is expected that, in reviewing the critical point now reached by the developing countries in their industrialization and identifying ways and means of renewing progress, the Conference will also make a detailed examination of the relevant important questions in regard to human resources, technology, finance, energy, restructuring and redeployment, raw materials processing, rural development, the least developed countries and South-South co-operation. The fulfilment of the goals of the Industrial Development Decade for Africa will be considered.

The Fourth General Conference of UNIDO is seen as the beginning of a more intense and concerted dialogue and an important step in the process of an international search for solutions leading to appropriate industrialization strategies and policies and a rekindling of the process of industrial growth in the developing countries.

G. S. Gouri  
Director  
Division for Industrial Studies

### *Recent legislation*

#### Country profile - India

#### Legislation

##### A. Foreign investment

##### 1. Laws and regulations in force

Guidelines: Policy and procedure for foreign collaboration

##### 2. Registration

The investment proposals received from the Indian entrepreneurs are considered by the Foreign Investment Board. The Ministry of

Compiled by the Technology Group of UNIDO

P.O. Box 300 A-1400 Vienna, Austria

Industry SIA issues letters on the proposals considered by the Foreign Investment Board.

### 3. Scope

Government policy towards permitting foreign investment is selective. Such investment is to be justified, having regard to factors such as the priority of the industry, the nature of the technology involved, whether it will enable or promote exports which may not otherwise take place and the alternative terms available for securing the same or similar technological transfer. The ceiling for foreign investment is 40 per cent, although exceptions can be made on merit.

Foreign investment should be by way of cash without being linked to tied imports of machinery and equipment or to payments for know-how, trademarks, brand names, etc.

### B. Industrial property

#### 1. Law and regulations in force

- (i) Patents Act, 1970
- (ii) Patents Rules, 1972
- (iii) Trade & Merchandise Marks Act, 1958
- (iv) Trade & Merchandise Marks Rules, 1959
- (v) Emblems & Names (Prevention of Improper Use) Act, 1950

#### 2. Scope

##### (i) Patents

(a) Universal novelty is required:

(b) The invention must be useful and refer to a process or manner of manufacture, to a machine, apparatus or article or to a substance produced by manufacture.

##### (ii) Trademarks

a. Trademarks for goods;

b. Certification trademarks for goods.

"Marks" include a device, brand, heading, label, ticket, name (including any abbreviation), signature, word, letter, numeral or any combination thereof.

##### (iii) Design

The design must be original and comply with national novelty.

### 2. Technology transfer

#### 1. Laws and regulations in force

- (i) Guidelines: Policy and procedure for foreign collaboration
- (ii) Import and Export Policy 1984-1985.
- (iii) Technology Policy Statement, January 1983.

### 2. Regulation

The Indian entrepreneurs who have been permitted foreign collaboration are to enter into a foreign collaboration agreement with the foreign collaborator in accordance with the terms and conditions approved by the Government. Payments to the foreign collaborator start after such an agreement is taken on record by the Government.

### 3. Scope

A foreign collaboration agreement covers licence rights for the manufacture of items, knowledge for setting up a plant and provision of various forms of technical assistance and supporting services. In addition, these also include financial implications such as payment of technical know-how fee, payment of design engineering consultancy, payment for use of patents/trademarks, payment of royalty, etc.

### 4. Restrictive practices

Provisions which restrict the market of the Indian licensee unfairly are not encouraged. Tied up purchase arrangements which compel the Indian licensee to purchase components and raw materials from the foreign collaborator only are also not allowed. Restriction for continuous use of technology transferred, after termination of the agreement, are also not allowed. In general, any provision which unfairly restricts the Indian licensee is not encouraged.

### 5. Remuneration

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 decided on a case-to-case basis on merits.

#### (i) Lump sum payments:

Lump sum payments are paid in three standard instalments, the first instalment to be paid after the agreement is taken on record, the second instalment on delivery of technical documentations and the third and last instalment to be paid on the commencement of commercial production or four years after the agreement is taken on record, whichever is earlier. If the Indian party so desires, the lump sum amount sanctioned could be the net of Indian taxes with taxes being borne by the Indian party.

#### (ii) Royalty payments:

No minimum guaranteed royalty is allowed. The royalty payable is normally not more than 5 per cent (taxable) and will be comprised within the period of agreement which may extend to 10 years. The period of going into commercial production is included within this period of 10 years. The total lump sum and royalty payments should not be more than 8 per cent of total expected sales (calculated on an ex-factory value basis) over a period not exceeding 10 years. The above should be treated as upper ceilings and the rate of royalty, the amount of lump sum and the period

of agreement in respect of individual cases should be decided by the Administrative Ministries on a case-to-case basis, taking into account all relevant factors. It is desirable that normally the period of agreement should be for eight years and royalty for five years allowing three years for commencement of commercial production.

#### 6. Taxation

All payments are subject to Indian taxes. If it is desired that the payments be made net of taxes, the same can be considered provided the Indian party is willing to bear Indian taxes.

#### Institutional arrangements

##### A. Competent approval authority

- i. Foreign Investment Board  
Approval letters are issued by Ministry of Industry, S.I.A.
- ii. Administrative Ministry concerned with the item of manufacture  
Approval letters are issued by Administrative Ministry itself.
- iii. Project Approval Board  
Approval letters issued by Ministry of Industry, Secretariat for Industrial Approvals.

##### B. Office staffing

a. Joint Secretary, Secretariat for Industrial Approvals, Department of Industrial Development, who is also the Member-Secretary of Foreign Investment Board.

b. Under Secretary, in charge of the following sections:

- i. Foreign Collaboration I Section
- ii. Foreign Collaboration II Section
- iii. Pattern of work in the Sections:
  - i. Foreign Collaboration I Section

Scrutinizing of Foreign Collaboration applications, getting them evaluated and preparation of summaries for consideration of Foreign Investment Board.

##### iii. Foreign Collaboration II Section

Putting up the above summaries to Foreign Investment Board and issue of communications to the Indian entrepreneurs as per the decision of Foreign Investment Board.

##### C. Competence

- (i) Foreign Investment Board - can consider and decide all types of Foreign Collaboration proposals.
- ii) Administrative Ministry - can consider and decide only those cases which come under the delegated powers.

(iii) Project Approval Board - can consider those composite cases where a Foreign Collaboration and an Industrial Licence is required.

##### D. Co-ordination

Ministry of Industry (Secretariat for Industrial Approvals) co-ordinates all cases relating to foreign collaboration.

##### E. Evaluation

Each proposal for foreign collaboration is evaluated taking into account the appropriateness of the technologies to be imported vis-à-vis the technologies available indigenously, national priorities as well as the feasibility of the payment in relation to the technology. Recurring royalty can be paid along with a fixed lump sum fee. The duration of the foreign collaboration agreement is normally for a period of five years. Requests for extension can also be considered if the Indian entrepreneur has not been able to assimilate the technology in question. No minimum guaranteed royalty is allowed.

\* \* \* \* \*

Mexico - Transfer of Technology Department  
Functions as published in the Official  
Newspaper of 11 December 1983

Article 32. The following are the functions of the Transfer of Technology Department:

1. To apply the policies in respect of the regulation and registration of technology transfers in the country in accordance with such standards as may be established;
2. To operate the National Technology Transfer Registry and to decide on the registration in it of instruments, agreements or contracts, and their modifications, in accordance with the provisions of the relevant laws and regulations;
3. To enforce compliance with the laws, regulations and other legal provisions in the transfer of technology area, and to impose the sanctions provided for failure to comply with them;
4. To formulate, in accordance with the procedure established in the relevant legal provisions, resolutions regarding the nullity, expiration, revocation, cancellation of registration or any other administrative act having the effect of legally invalidating such authorizations, registrations, agreements, contracts or any other act as may involve a violation of the provisions in force regarding the transfer of technology or as may have been performed without the necessary authorization, and also to impose the appropriate sanctions;
5. To request of the competent authorities the cancellation of the benefits, incentives, assistance or facilities of any kind provided

under the laws or regulations on the transfer of technology in the case of those persons who, although under the obligation to apply for the registration of the various instruments covered in the laws in question, failed to make such application, or in the other cases contemplated in the afore-mentioned legal provisions;

6. To advise enterprises in matters relating to the negotiation of transfer-of-technology contracts and in the selection, development and adaptation of technology;

7. To process such administrative appeals as may be brought against its own resolutions, regarding the application of the Law on Transfer-of-Technology Control and Registration and the Use of Patents and Trademarks, and Its Regulations, with the exception of such appeals as may be brought against sanctions;

8. In general, to carry out such functions as may be required to perform the functions listed in the points above, in accordance with such guidelines as may be established.

## Registry news

### Registry changes

There have been a number of personnel changes in a few registries, notably in Malaysia, Argentina and Mexico. Whilst we note that our familiar collaborators have moved to bigger and better or just new postings, we heartily welcome our new collaborators on board and look forward to a fruitful information exchange. We would also like to take the opportunity to thank our old colleagues who have done so much to make the programme viable and dynamic.

These are a few of the changes:

Malaysia - Mr. Tham Sing Khoo has been posted to Moscow, USSR as Commercial Attaché and Mr. Saharudin Mohd Toha is the new head of the Transfer of Technology Registry in Kuala Lumpur.

Argentina - The Transfer of Technology Registry at Buenos Aires is now jointly headed by Dr. Amado Cabo and Ing. Luis Rauizzini.

Spain - The Transfer of Technology Registry of Spain is now headed by Mr. Antonio Cano Martin.

Mexico - The Transfer of Technology Registry has been shifted from the jurisdiction of the Directorate General for Investments, Trademarks and Technological Development to the newly created Sub-Secretariat for Investment and Technology of the Ministry of Trade and Industrial Development. The

Registry is headed by Mr. Guillermo Funes Rodriguez. The administrative functions are set out elsewhere in this issue of the Newsletter.

To all our friends, old and new, we wish every success in their ventures and pleasure in their work.

\* \* \* \* \*

A unified approach to the National Technology Transfer Registry Information Systems  
by Z. Bogdanowicz, General Director, Foreign Trade Data Centre, Warsaw, Poland

The experience gathered by several developing countries in the process of establishing technology transfer registries, and the present stage of international co-operation within TIES, indicates the need for improving the system of collecting, storing, processing and disseminating information on registered technology agreements.

The discussions during the Eighth Meeting of Heads of Technology Transfer Registries at Caracas, Venezuela confirmed once again that the implementation of registry information systems at the national level is of utmost importance for the effective functioning of the registry, not only in general, but for the international co-operation and exchange of information within TIES.

In view of the work already being done by the UNIDO secretariat and by the missions of UNIDO experts to several developing countries, it might be argued that a sound basis exists for elaborating and establishing a unified technology transfer registry information system at the country level.

A unified system is understood as being a system of collecting, storing, processing and rendering information both in manual as well as computerized forms. This kind of approach allows for a very simple transition from a manual to a computerized system, with little extra cost.

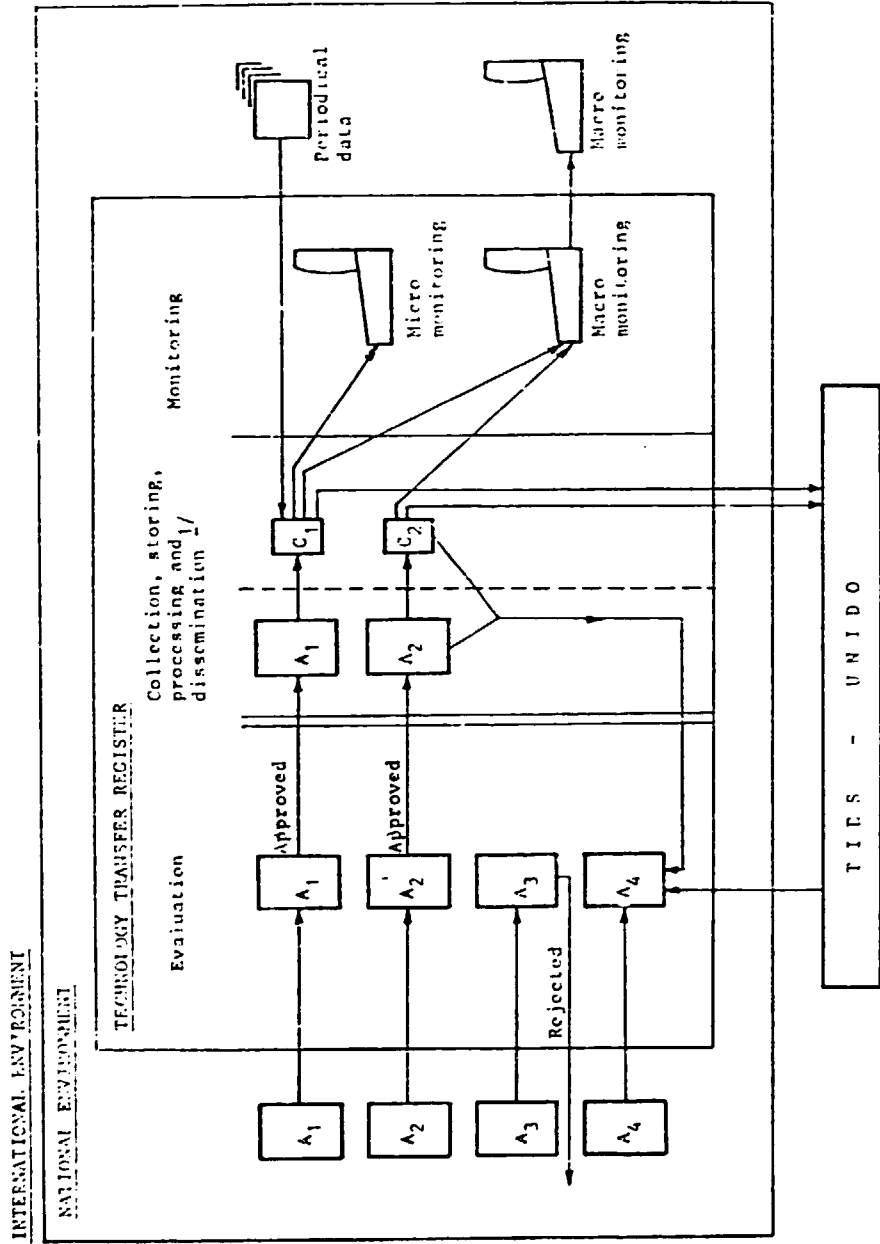
The basic element permitting the implementation of the unified system of a technology transfer registry system is the design and dissemination of the substance of the Information Chart on Registered Contracts (ICRC). The unified ICRC for the data bank on effected contracts would be the basic document, being a single piece of information for the contract registry. In a computerized system it would constitute a source document to render the data to computer memory and simultaneously be a basis for a corresponding single record in a computerized data bank of registered contracts.

\* \* \* \* \*

The requirement and feasibility of compatibility of information systems at the national level

In the functioning process of a technology transfer registry system in any of the

Figure. Simplified flow chart on technology flow.



1/ Information system



TIES member countries, three phases were evident (see Figure ). These are as follows:

(a) Evaluation and approval of the contract;

(b) Collecting, storing, processing and rendering information on concluded contracts;

(c) Monitoring at the micro- and macro-levels.

Evaluation and approval of contracts, which is the main function of a registry, may be organized according to diverse national legal rules and regulations.

The common factor of all technology transfer registry information systems is the need for a well-organized system of collecting, storing, processing and rendering information. The present TIES membership, and eventually links with other regional and sub-regional information systems, makes it imperative that the national information systems are at least compatible with the TIES system at a level which would enable an exchange of information.

Compatibility of manual information systems may be ensured by defining and unifying the substance of information exchanged within the TIES framework at each information level, i.e. TIES I, TIES II A and TIES II B, or on any other agreed information level in regional and subregional systems. In the case of exchange of information by telex, it would be advisable to obtain a simplified version of the information required based on an elaborated format agreed to by all interested parties.

Compatibility of a computerized system may be achieved by a unified record structure covering co-operation of information systems, both off-line (industrial information on magnetic tapes or floppy discs) and on-line, i.e. direct information transmission from computer to computer.

A well-organized system for collecting, storing, processing and rendering of information permits monitoring at the micro- and macro-levels, i.e. to watch the evolution of single contract terms and draw up statistics, carry out promotion activities, issue publications, become involved in scientific research and so forth, mainly oriented towards technological development. Due to certain characteristic features of monitoring at the macro-level, i.e. complexity, time-span and so on, it may not be possible to organize this function based only on manual systems.

Regarding the compatibility of the Technology Transfer Registries as being an indispensable precondition for co-operation of information systems, and facilitating the implementation of newly organized computerized systems at the national levels or improvement of existing ones, it is necessary to design a unified format which could be called the Unified Information Chart on Registered Contracts. This chart, which could be designed according to the requirements of the TIES information system and other regional and

subregional systems, will ensure a full compatibility between information systems.

#### Information Chart on Registered Contract (ICRC)

ICRC in a technology transfer registry information system can be treated as an abstract of the contract. This abstract should serve the following purposes:

- Fast search for basic contract services;
- Exchange of information as the meeting of obligations within the TIES system and/or regional or subregional information systems;
- Ease in the preparation of statistics, monographs for scientific purposes and formulation of technology development strategies;
- In the case of computerized information systems the abstract should serve as a basic data source for building up corresponding records;
- Implementing the monitoring function at the macro- and micro-levels in computerized systems.

Despite the above-mentioned main purposes, the ICRC can constitute the basis for performing other functions, such as monitoring payments or any other purposes arising from the requirements of legal regulations pertaining to a particular country.

Such a formulation of purposes to be carried out by the ICRC will also precisely define its information content. It must be stressed however that the ICRC should not replace the contract as an information source and should only serve as its abstract. So in the ICRC two groups of data may be identified:

- Data that is indispensable for use at the national level, and
- Data that is indispensable from the point of view of international information systems such as TIES, SAIT and so on.

By adopting the system of a unified ICRC based on the above-mentioned principles, the input to the TIES information system can be eased by, for instance, a one-run operation for the coded part of the TIES Coding Form irrespective of the language in which the chart is filled in. Only the commentary need additionally be filed in English.

Having defined the information content of the ICRC it is easy to design a standard format, but, it should be based on examples of data gathered from a few countries and a prepared pattern chart to be used by interested TIES member countries in designing information content and graphical layout.

The pattern chart of the ICRC can facilitate work of national technology transfer registries and UNIDO consultants in their missions to developing countries, especially in establishing new technology transfer regi-

tries. Experience has shown that some countries, when designing their information systems, do not take into account the appropriate information content required for exchange within the TIES system.

The work of organizing technology transfer registries at the national level can be further facilitated by a manual to serve as a guideline for designing information systems. It should include the pattern chart of the ICRC, instructions how to fill it in and instructions on how to adjust it to the needs of a given country whether for manually or computerized systems. This manual can also include a section covering contract evaluation and monitoring.

\* \* \* \* \*

#### Model contracts

In Issue No. 21 we reprinted the drafts of model forms of licence agreements of the trial and use of computer software products drawn up by the Institute of Purchasing and Supply, which is the central reference point in the United Kingdom for purchasing and supply. These model forms have now become available in final form and may be obtained from the IPS, Easton House, Easton on the Hill, Stamford, Lincolnshire, PE9 3NZ, England.

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#### Philippine Technology Transfer Board's 1983 Report of Accomplishments

For the period January to December 1983, the Technology Transfer Board (TTB) acted on 99 agreements, 86 of which were conditionally approved, 8 endorsed to the Central Bank and 5 denied. For the same period, the Board rendered action on 48 requests for reconsideration, of which 32 were approved and 16 denied. Eight amendments to previously registered technology transfer agreements were approved. A total of 105 contracts were officially accepted from January to December 1983, while 101 agreements were duly registered after full compliance with conditions imposed by the Board.

The number of applications processed by the Board in 1983 represents an 18 per cent decrease over the number of agreements acted upon in 1982. A 7 per cent decrease is likewise noted in the number of contracts registered with the TTB after full compliance with its conditions. These slight decreases, however, are not indications that domestic firms have become less conscious of the need to acquire foreign technology. It is forecasted that local industry will continue to import and avail itself of the necessary know-how, in keeping with the industrialization programme being pursued by the government.

The majority of technical collaboration agreements were concluded in the consumer goods industries, which comprised 52 per cent of the total number of registered agreements

during the period. The distribution of technology transfer contracts registered for the said period among the following sectors was noted: 21 per cent for the intermediate goods sector; 14 per cent for the capital goods sector; 9 per cent for the services sector; and 4 per cent for franchise arrangements. The inflow of new technology into the intermediate and capital goods sectors which has been gradually increasing over the years, is believed to be beneficial not only to the individual domestic enterprises that import the technology but to the economy as a whole.

In terms of tangible benefits accruing specifically to local companies and the country in general, total estimated foreign exchange earnings from projected export activity over five years is US\$567,668,562. This high level of export earnings is largely attributable to the following agreements which involved major export-oriented projects registered with the TTB for the year 1983:

1. Phinco Industries, Inc. with Feudor S.A. for the manufacture of disposable butane gas lighters which is expected to generate US\$39,995,000 in terms of export revenues over the contract duration;
2. Yazaki-Torres Manufacturing Corporation with Yazaki Corporation involving technology in the manufacture of automotive electrical wiring harness and ignition cable with projected export earnings of US\$22,415,378 over five years;
3. Reynolds Philippines Corporation with Reynolds Aluminium International Services to provide technical services for the manufacture of foil sheets and the extrusion of aluminium ware fabricated products with export revenues estimated at US\$14,922,421 over five years;
4. Philippine Refining Co. with Unilever PLC for the use of patents and trademarks and the supply of advisory services in the manufacture of soaps, detergents, scourers, toilet preparations, edible fats and oils and processed foods with projected export earnings of US\$24,640,000 over the duration of the contract;
5. Gold-Zack Philippines, Inc. with Gold-Zack Werke for the manufacture of broad elastic knitted goods which is expected to generate export earnings of US\$45,222,222 over five years;
6. Mar Fishing Co., Inc. with British Columbia Packers Ltd. related to tuna canning activities with projected export earnings of US\$7,898,000 over five years;
7. Procter & Gamble Phil. Manufacturing Corporation with Procter & Gamble Co. for the license to use patents, trademarks, know-how and services in the manufacture of soaps, detergents, toiletries, foods and chemical products with projected export revenues of US\$73,200,000 over five years;
8. Porcelana Mariwasa, Inc. with Moritake Co., Ltd. for the manufacture of porcelain and similar tableware which is expected to generate US\$25,198,892 in terms of export revenues

over the contract duration;

9. Integrated Microelectronics Inc. with National Micronetics Inc. involving the manufacture of head gimbal assembly and parts with export revenues estimated at US\$27,765,690 over five years;

10. NDC-Guthrie Plantations, Inc. and NDC-Guthrie Estates, Inc. with Kumpulan Guthrie Sendirian Berhad for the development of an 8,000 hectare oil palm plantation which is expected to generate export earnings of US\$55,589,727 and US\$38,871,545 respectively for the contract term;

11. Rubberworld (Philippines), Inc. with Adidas Sportschufabrieken ADI DASSLER KG for the manufacture of sports and casual shoes, equipment and articles under the "Adidas" trademark with projected export earnings of US\$32,318,000 over five years.

Likewise, total foreign exchange savings from the required reduction in royalty rates is estimated at US\$14,585,346 over five years while estimated tax revenues accruing to the government from withholding taxes on royalties is Pesetas 229,852,613. An estimated average annual level of employment of 24,280 is expected to be generated from the registered contracts.

The full operation of an information system which has recently been established and partially implemented to date, is necessary in order to cope with the new as well as renewals of technology transfer agreements being processed and registered with the TTb. Such a system will facilitate the evaluation of technical collaboration arrangements being regularly submitted to the Board for review and action. Efforts have been made towards this end, although the establishment of an information system that will truly meet the needs of and remain consistent with the objectives of the TTb has yet to be realized. The acquisition of a micro-computer will definitely assist in the effective sorting and handling of the heavy volume of data, statistics and information acquired over the years.

With the eventual termination of registered contracts and their subsequent renewal with the TTb, an effective monitoring of these projects is being worked out. Annual Progress Report Forms submitted by all the registered firms serve as inputs for the evaluation and appraisal of the country's present level of technological development. The TTb will undertake effective monitoring of these registered projects to supervise compliance with the conditions and terms of registration, to oversee the effectiveness of the technology transferred, and in the long run, to assess the adaptation and absorption of technology by local industry.

More intensive efforts in the development and establishment of an internal information service network on locally available technologies, alternative sources of technologies within and outside the country, terms and conditions of purchase, etc. shall be undertaken. Information from the said network will be made available to industry to ensure that in the future, technology inflow will occur

under the most favourable terms and best serve the interests of the national economy.

Information advisory services shall continue to be extended to domestic enterprises and the government sector to provide assistance in the acquisition and selection of technology, evaluation and negotiation of technology transfer agreements. Information and studies collected on an industry-to-industry basis from relevant sources may best serve such purpose.

#### Private banks in Portugal

Decree Law No. 51 of 11 February 1984 lays down conditions of access of private enterprises within the scope of the banking activity. The opening was decided on account of the need to create sound competition between the public and private sectors and is expected to play an important role in increasing foreign investments in Portugal.

The document underlines the fact that no difference is made between enterprises created by Portuguese or foreign bodies and envisages the opening in Portugal of branches of banks who have their headquarters abroad.

The same rules apply to banks belonging to the public and private sectors in credit allocation, deposits and other fund raising operations, as well as other services. Their share capital shall not be lower than 1.5 billion Escudos (US\$12 million) and they shall be established as limited liability companies. At least 80 per cent of the share capital shall be represented by personal shares or registered bearer shares and no shareholder shall have more than 20 per cent of the overall capital. In special cases this limit can be increased to 1/3 after authorization by the Minister of Finance.

Application for permission to establish new banking institutions shall be submitted to the Minister of Finance, together with economic, financial and legal data aimed at characterizing the project investment. According to available information, about 20 institutions have contacted the official services to report their interest in establishing themselves in Portugal.

Those wishing to become acquainted with the legislation that rules this field of activity can do so, in French and English, by applying to the Public Relations Department of the Foreign Investment Institute, Avenida da Liberdade 258, 1200 Lisbon, Portugal.

## *Meetings*

9-13 July - Expert Group Meeting on UNIDO Model Form of Licensing and engineering services agreement for the construction of a fertilizer plant including guidelines and technical annexures, VIC, Vienna, Austria.

2-18 August - Fourth General Conference of UNIDO (UN Meeting), Hofburg, Vienna, Austria.

6-10 August - Regional Expert Consultation on Pesticide Trade and Tariff Considerations, Colombo, Sri Lanka.

20-24 August - Symposium on Regional Development Processes/Policies and the Changing International Division of Labour, Conference Room I, VIC, Vienna, Austria.

10-12 September - Expert Group Meeting on the Energy-related Technology and Equipment, VIC, Vienna, Austria.

17-21 September - Global Preparatory Meeting for the First Consultation on the Building Materials Industry, VIC, Vienna, Austria.

1-4 October - Latin American Regional Meeting of Heads of Technology Transfer Registries, Madrid, Spain.

8-13 October - Ninth Meeting of Heads of Technology Transfer Registries, Beijing, China.

15-19 October - Second Consultation on the Food-Processing Industry with special emphasis on Vegetable Oils and Fats, Copenhagen, Denmark.

22-25 October - Investment Promotion Meeting for the Caribbean, Bridgetown, Barbados.

26-30 November - Investment Promotion Meeting for the South Pacific Region, Suva, Fiji.

5-7 December - Sixth Industrial Forum for West Africa, Dakar, Senegal.

## Publications

In recent years, there has been a proliferation of many different forms of interface between transnational corporations (TNCs) and developing countries. The traditional TNC direct investment package is rapidly giving way to complex joint-venture agreements, production-sharing agreements, management and technology contracts, service agreements and numerous other forms of non-equity participation.

In most of the above cases readily discernible market prices do not exist for the transactions involved. The monitoring and negotiating capacities of host Governments in relation to TNCs assume great importance in determining the ultimate prices paid by host countries. In the past, largely due to lack of information and monitoring facilities, host governments of developing countries have found themselves in relatively weak negotiating positions vis-à-vis TNCs with respect to the determination of prices paid for technology imported through TNCs.

Many ESCAP member countries are keenly interested in the transfer of technology from TNCs, as indicated by the statements of several representatives of these countries at recent sessions of the Economic and Social

Commission for Asia and the Pacific (ESCAP). Developing Asia-Pacific countries are particularly concerned about the high cost of technology, restrictive business practices and transfer pricing problems associated with TNC operations. In response to these concerns, the ESCAP/UNCTC Joint Unit on TNCs has initiated and conducted a research project on Negotiating Issues with Transnational Corporations: Transfer of Technology and Transfer Pricing Practices. The project was funded by the Government of the Netherlands. The objective of the project was to examine and assess the explicit and implicit costs of technology transferred from TNCs to countries in the Asia-Pacific region under existing legal and administrative arrangements, to make recommendations for establishing or upgrading the legal and administrative framework within which technology is transferred from TNCs, and to strengthen the monitoring and negotiating capacities of Asia-Pacific governments in their dealings with transnational corporations.

The result of this project is contained in a book published last April by the ESCAP/UNCTC Joint Unit on Transnational Corporations in the publication series 5. Number 3 (symbol ST/ESCAP/283), entitled "Costs and Conditions of Technology Transfer through Transnational Corporations".

The book contains the results of research on technology transfer through TNCs conducted by the ESCAP/UNCTC Joint Unit in six countries of the ESCAP region - the Republic of Korea, Malaysia, Pakistan, Philippines, Sri Lanka and Thailand. Part One contains an overview paper based on the research findings of four country studies (for Malaysia, the Republic of Korea, Sri Lanka and Thailand), along with some relevant information obtained from the project for the Philippines and Pakistan, and highlights issues related to technology transfer in the region. Part Two contains four country case-studies. The coverage and emphasis of each of the case-studies varies to some extent, partly depending on the country situation and the data which the researchers were able to obtain. However, all of the case-studies devote one or more sections to the financial costs of technology obtained through contractual agreements with TNCs as well as the indirect costs through restrictive conditions included in technology import agreements. The papers included here do not enquire into question of transfer pricing, on which two separate studies were conducted.

Copies may be obtained on request directly from ESCAP, Bangkok, Thailand.

We reprint hereunder the introduction, conclusions and recommendations from this book as we feel it will be of considerable interest to our readers.

### Introduction

Technology is now recognized as an increasingly indispensable factor in development. The experiences of Japan and, more recently, the newly-industrializing countries of Asia and the Pacific in exploiting science and technology to rehabilitate and develop their countries has helped to promote the acceleration of the use of science and tech-

nology in other Asian and Pacific countries. However, it is generally recognized that the time and costs for developing and generating new technology are considerable. The costs of technology generation, including construction of the pilot plant, are prohibitive for most developing countries. 1/ In order to attain some benefits from global technological progress, many developing countries have opted for imports of technology as a less expensive and speedy means of forming a basis for industrialization and for the generation of local technology.

A general definition of technology is employed in this paper. "Technology" is defined as knowledge used in the production, commercialization and distribution of goods and services. Technology can be embodied in various forms, such as machinery, human capital and written documents. Technology transfer activities can be divided into two broad categories: the transfer of commercial assets and of non-commercial assets. The former involves the transfer of assets which are not commonly available in the public domain. Commercial technologies are either legally owned by a commercial enterprise or are system-specific, i.e., they are technologies which are developed as a result of a combination of resources within an enterprise. Although technologies under both categories have public-good characteristics, the transfer of the right to commercial technology to a second party may generate certain opportunity costs to the first party or decrease the value of expected return to the technological assets and to other assets used in conjunction with the technical assets of the first party. Therefore, commercial transfers require compensation for these costs. Non-commercial transfer generally involves technologies which are commonly available. A special feature of the technologies associated with the second type of transfer is that the fruits arising from their use cannot be fully appropriated through pecuniary means and the technologies are largely science-based and commercially untested. The most important mechanisms for non-commercial transfers are through education and general publication of scientific and technological knowledge.

This paper seeks to address itself mainly to the first type of transfer. Thus, it focuses inevitably on the activities of transnational corporations (TNCs) which are the major sources of commercial technologies. Its aim is to highlight issues related to technology transfer and the experiences of some selected ESCAP member countries with particular emphasis on financial costs and restrictive business practices affecting recipient firms in host developing countries.

1/ For example, it has been estimated that it costs \$US 28 million to develop the technology for transistors, and \$US 13.3 million for float glass. The interval between invention and commercialization is also lengthy amounting to, for example, 13 years for photocopying process, 22 years for television and 11 years for nylon. See Federation of Indian Chambers of Commerce, "Technology Policy" (New Delhi 1982, mimeo).

#### Conclusion and recommendations

Technology is generally accepted as an important requirement for accelerating economic development. The last decade has seen an increasing demand for, and a commensurate increase in the supply of technology for international transfer to countries in the Asian-Pacific region. Issues of primary concern to developing countries in the region are whether technologies have been acquired at a "fair" price, whether imported technologies involve indirect costs to the host economies and whether imported technologies are effectively absorbed and whether they fulfil social as well as private objectives.

The concern over the issue of financial costs is not only over the size of payments which is growing rapidly, but as to whether the payments are worthwhile. High costs refer to payments of royalties exceeding 10 per cent of the net sales values and to payments at an acceptable rate but over an unduly long time period. Costs are also considered high on the basis of the qualitative nature of the imported technologies; as in many instances technology payments are tied to trademarks and brand names or, even more commonly to access to the international market. For example, in Thailand, a large proportion of imported technologies are associated with simple operations involving know-how rather than know-how. The country case-studies focusing on selected ESCAP member countries indicate that possible indirect costs are indeed a prevalent feature of contractual arrangements. The impact of financial costs thus are higher, especially in countries where there are no regulatory agencies.

In order to address the problem of high costs, the sources of market imperfections must be identified. In more advanced countries, market imperfections in technology transactions may be due largely to the concentration of market power in the hands of a few sellers. In developing countries, the source of market imperfection is due mainly to the lack of knowledge and relevant information. When imperfect knowledge is the main source of market imperfection, regulatory devices are unlikely to be effective and host country negotiating capacity will be better enhanced by improvement of the information systems. However, regulatory agencies still have an important role in selecting appropriate channels and areas for technology transfer.

Within the region, where market imperfections arise mainly from lack of information, there is a great scope for increasing market efficiency through intraregional co-operation. By sharing information and experiences on technology transfer, the bargaining position of developing countries could be considerably enhanced. Preliminary steps towards harmonizing information systems for an effective information exchange might be called for. Such proposals and related deliberations should be translated into reality without delay in order to close a gap that may be widening due to the pace of technological progress in developed countries. In this connection, the concerned countries may need the assistance of the

various international agencies currently undertaking related work, such as UNCTC and UNIDO, not only in information exchange but also in undertaking further research.

Three policy issues have been emphasized earlier in this discussion: free-flow versus control of imported technologies, the appropriate channel of technology transfer and the adequacy of technology transfer for the fulfilment of national objectives. Experiences of countries in the region show that there can be no standard policy prescription that will resolve all these issues. It is noted, however, that at an early stage of industrialization, a selective approach to technology transfer by a government authority responsible for technical and development issues and backed up by appropriate financial and legal arrangements might be required. Subsequently, this must be given support by monitoring activities and evaluation of the performance of both the public regulatory agency and the private sector. The more successful cases of technology transfer are likely to be in those countries exhibiting monitoring ability and adaptability. As the national economy matures, regulatory devices may no longer be necessary. Intervention in the imports of technology which aim chiefly at financial and legal regulation without adequate technical infrastructure in the public and private sectors would defeat technology transfer objectives in the long run. Finally, it is important to note that technology transfer policy cannot be effective without a sound economic policy. (ST/ESCAP/283, United Nations, April 1984.)

Another recent publication available from UNIDO, is No. 14 in the Development and Transfer of Technology Series, entitled "Case studies in the Acquisition of Technology (II)".

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 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 turn-key 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.

Copies of this publication may be obtained from Documents Distribution, UNIDO, Vienna International Centre, P.O. Box 300, Vienna A-1400, Austria.

#### Major printed publications

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National Workshop on Technology Transfer  
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Kuala Lumpur, Malaysia, 12-14 December 1983

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Expert Group Meeting on Shipbuilding and  
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of the International Centre for Genetic  
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Vienna, Austria, 3-4 April 1984

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