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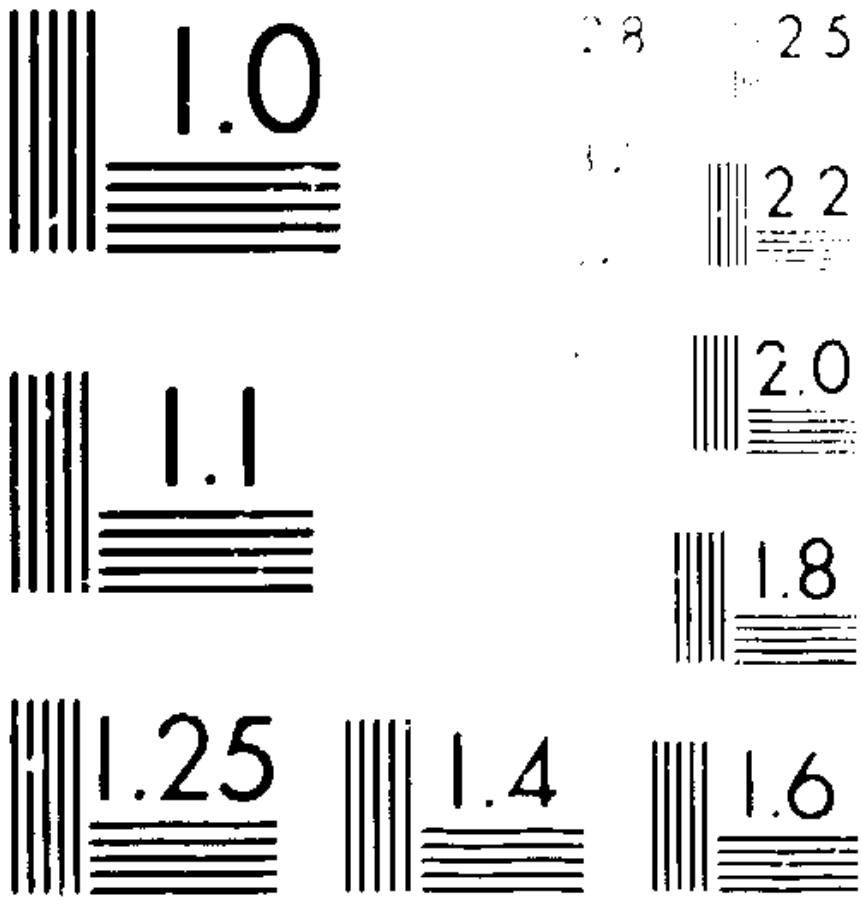
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# TIES NEWSLETTER

## TECHNOLOGICAL INFORMATION EXCHANGE SYSTEM

Issue Number 13 January 1982


12041

Dear Reader,

I am pleased to inform you that in response to a recommendation of a group of experts, who met in Vienna in June 1981 to review the implications of technological advances in micro electronics for developing countries, UNIDO is bringing out a micro electronics monitor. You may recall from previous issues of the TIES Newsletter UNIDO's active involvement in monitoring technological advances in which activities related to micro electronics form a significant part.

At present, this newsletter purports to be no more than a bulletin of current awareness aimed at a target audience of industry, government and the scientific and technological community in developing countries. As such, information of potential interest to developing countries is presented without evaluation or recommendation.

I also wish to inform you that in due course a similar monitor will be launched on genetic engineering and biotechnology.

G.S. Gouri

## *Registry activities*

### Manila Meeting TIES Members

The Sixth Meeting of Heads of Technology Transfer Registries was held in Manila from 25 to 28 November 1981 and was attended by some 27 active participants in the TIES system, as well as observers, UNIDO staff members and members of the Technology Transfer Board (Philippines) technical staff. The purpose of the meeting was to review the progress of co-operation among members of the TIES system and to develop and investigate further areas of co-operation. There was a general consensus for encouraging the bilateral exchange of information and explore ways for providing information more accurately and efficiently. It was also felt that it would be useful if each country participating in the TIES system compile a list of indigenous technologies available for export which could be distributed through the Industrial and Technological Information Bank (INTIB) of UNIDO. At the option of the member country, information could be provided on external technology suppliers and this information could also be made available to non-TIES members through INTIB. The meeting further discussed the TIES Service Agreement Information Exchange and it was agreed that all TIES participating members would commence with the submission of accurate and uniform data in order that trends and experience may be compiled, analyzed and made available to the TIES members. There would be no limitation on the duration of the service agreements and that a recipient's and supplier's name would only be given on a voluntary basis. It was recommended that studies on different country's experiences on the transfer of technology through service agreements be undertaken since this facilitated a comparison of experience. There was a certain amount of concern expressed for the non-availability of funds from UNDP for certain projects but it was hoped that the activities involving direct assistance to technology registries, the organization of visits to registries, study tours etc., preliminary assistance for new members, assistance in training programmes, etc. would not be effected through the economic constraints.

The members attending the meeting also discussed a number of country studies covering the experiences of Malaysia, Philippines and Poland. The paper on the latter will be given more attention as a separate item in this edition of the Newsletter since it provides a very full and valuable insight into the regulation of imported technology by a socialist country with State-owned enterprises. A case study of the pharmaceutical industry in Egypt was also discussed and it was felt that subject to the availability of time and resources, further sectoral studies should be carried out covering other industrial areas. UNIDO was asked to provide outlines for such studies, and the TIES members would themselves provide the data and carry out these studies. It was finally hoped that the next meeting would be held in South Asia.

### Workshop on Technology Transfer Negotiations Held in the Philippines

UNIDO in co-operation with the Technology Transfer Board (TTB) of the Ministry of Trade and Industry organized a workshop on technology transfer evaluation and negotiation in Manila, Philippines, from 1 - 4 December 1981. This workshop was attended by some 35 representatives of the business community and covered

topics like inter alia legal issues in licensing agreements, effect of Anti trust legislation and payment considerations in technology agreements. The workshop ended with a simulated negotiation which was prepared by the secretariat of UNIDO with the assistance of the Centre for applied studies in International Negotiation (Geneva, Switzerland) and the Institute pour l'Etude des Methods de Direction del'Enterprise - IMEDE (Lausanne, Switzerland). The workshop proved to be very successful and may be repeated in the near future as one of the many promotional activities of the Technology Transfer Board of the Philippines.

# *Technology acquisition*

## Commercialization of Genetic Engineering Technologies

Projections made by the Office of Technology Assessment of the Congress of the United States, envisage a world market value of some 3.5 billion US dollars in five years, another 17.5 billion in ten years, and 3 billion more in fifteen years. These projections of markets for genetically engineered products are perhaps under-estimates since the figures included in the projections for the important areas of aliphatics and aromatics are for the United States only and for all products existing rather than for future markets. Besides food processing industry is not covered in this market forecasting. In terms of industrial sectors, many pharmaceutical products are likely to be commercialized in the next five years, except vitamins and antibiotics which might take ten years. Commercialization of products in aliphatics and aromatics is expected to start substantially within five years but the full impact could only be seen within a ten year period. Inorganics (ammonia, hydrogen) are expected to be commercialized within a fifteen year time frame. However in this dynamic field it would be difficult to forecast with full confidence the time horizons involved.

A Delphi Study conducted through a diverse panel of twenty-two experts revealed a rather high degree of agreement on the expected timing of the events for industrial break throughs as distinct from break throughs in other fields. Over 75 per cent of the panelists felt that technologies for waste water treatment and development of petrochemical substitutes (e.g. pesticides and oil/lubricant substitutes) would be fully marketable by the years 1990-92 at the 50 per cent probability level. Taking the 90 per cent probability level moved the dates only slightly. The panelists mentioned two major obstacles to implementing the industrial proposals: the risks of contaminating workers with hazardous rDNA materials and the increasing dangers of release of organisms as the scale up production increases.

Irrespective of different projections the perceptions of entrepreneurs and investors in industrialized countries have been such as to result in a state of hectic corporate activities.

## Agents of Commercialization

In the commercialization of genetic engineering a closer relationship between industry on the one hand and the university on the other is evident than in most other industries. The distinction between basic and applied research wears thin in this field. Several current trends in this field may be listed as follows:

a) Several universities have been directly involved. For example, Stanford and California universities license basic genetic engineering techniques. Recently Stanford University announced the price of licence for the basic genetic engineering patent (US Patent No. 4,237,224) (which covers techniques essential to all genetic engineering) its shares with the University of California.

All licensees will pay $10,000 each year in fees. Their royalties will be determined by the type of genetic engineering business the company wants to pursue. There are four basic categories:

1. End products. On products sold ready for use, the royalties will vary from 1/2 to 1 per cent of yearly sales. Companies selling less than $5 million each year will pay the whole 1 per cent; those selling more will pay less.

2. Intermediate products. Companies selling genetically engineered products that another firm might use for its genetic engineering work will pay 10 per cent of yearly sales in royalties.

3. Bulk products. Companies selling genetically engineered products that must be upgraded for sale will pay from 1 to 3 per cent of sales in royalties.

4. Process improvement. Companies using genetic engineering to make cost savings in a production process must pay as royalties 10 per cent of the savings they realize.

b) A large number of small ventures, estimated over 80 some time ago, have been formed with a large number of wellqualified scientists technicians as the core staff.

c) The interest of pharmaceutical, petroleum and chemical trans-nationals has been considerable. They have not only acquired shares in the genetic engineering companies but some of them have made substantial research grants to universities. The trans-nationals have the marketing and financial muscle which many of the new venture companies lack. As at present, the relation between the two types of companies appears to be one of mutual dependence.

d) Industrial enterprises are trying to join together. In the case of Japan a biotechnology research association has been formed with fourteen participating companies. The association will develop know-how on recombinant DNA applications bioreactors and the mass culture of cells. Several firms noted for fermentation technology are involved. In the United States an industrial biotechnology association of genetic engineering companies has been formed, not for research, but for

government relations and protecting the common interest of the members.

e) A new type of venture with government participation is emerging. In the United Kingdom Celltech has been formed this way with participation by the National Enterprise Board. In the province of Ontario, Canada, a venture has been formed with the participation of the Provincial Government of Ontario.

f) Several companies manufacturing equipment for this new industry have been initiated, including automatic gene synthesizers (e.g. Biologicals of Toronto, Biochemicals of Arizona, USA).

## Technology Transfer Trends in Genetic Engineering

While it is too early to generalize on the trends in technology transfer in genetic engineering, a few developments may be noted in passing. A genetic engineering company has formed subsidiaries both within and outside its country of origin. Genetic engineering companies have entered into licensing arrangements with pharmaceutical companies for manufacture of products such as insulin and human growth hormone. A measure of inter-country licensing has also been noted. Stanford and California universities have also obtained the rights to license certain basic genetic engineering techniques and conditions for such licensing have been announced.

Participation in the equity of genetic engineering companies by large transnationals in the pharmaceutical, chemical or energy fields will provide another vehicle for technology transfer from the former to the latter, though it is reported in some cases that the licences would be on a non-exclusive basis. The movement of scientists from one company to another would be another vehicle of technology transfer though the extent of such movement has not been much reported as in the case of micro electronics.

There is some evidence to suggest that when it comes to commercial production it may be the transnationals that may be the final agents of production. In that sense technology transfer to developing countries for several pharmaceutical products may be through the traditional route of pharmaceutical transnationals giving rise to well known issues in transfer of technology. When it comes to production, the same trend is likely to repeat itself in the chemical industry as well. Here the decision of whether or not to commercialize and later license genetically engineered chemical technologies will rest with the chemical transnational which will look to its global market, its current investments in established processes and other considerations, rather than the developing country situation. The position with regard to petrochemicals could be expected to be particularly difficult since technology and production routes could be through petroleum, coal based methanolar biomass.

Another consequence of commercialization through transnationals will be that the scale of commercialization will be large and the investments correspondingly high.

## Options for Developing Countries

Developing countries have an option to acquire existing commercial technologies and establish production. The establishment of production will itself stimulate a measure of capability in the application of the new technologies, particularly if R and D personnel are associated in the import and application of the technology. In the process, adaptations might be made to suit the country's conditions but may be of more general application as well.

However, the basic technological capability will be developed in the host country enterprise only if it can genetically engineer micro-organisms by itself. Otherwise, it is at best only the fermentation technology that the enterprise will absorb.

It should be noted that irrespective of the nature and extent of technology transfer, the building up of technological capabilities to negotiate and absorb the transfer is imperative. As the White Paper on biotechnology of the Government of the United Kingdom says "at this stage, the need is to participate fully enough in fundamental and applied scientific research to expand all the possibilities and to create a climate in which selective development can be undertaken by those, best able to perceive needs and assess the possibilities and risks." The education and training of qualified personnel would require particular attention in this respect.

## Poland

The following is an abstract from a paper presented at the Sixth Meeting of Technology Transfer Registries held at Manila in the Philippines from 25 to 28 November 1981 entitled "Polish Experience in Regulating Imports of Technology, 1971 to 1980" and prepared by J. Cieślik, a UNIDO consultant. The symbol number of this paper is ID/WG.355/7, and if any of the readers would like to receive the entire document we shall be glad to supply it upon request.

The purpose of the paper is to provide as accurately as possible a picture of the Polish imports of technology and attempt a critical diagnosis of massive imports of technology which unfortunately did not have the desired effect of maintaining a steady rate of economic growth and improve the balance of payments deficit. The paper reviews the inflow of technology through the use of the basic means of licensing agreements, supply of technical documentation, industrial co-operation agreements and the provision of turn-key plants. The decade began with a very ambitious programme of modernization of the Polish economy and industry whose aim was to bridge the technological gap and rapidly boost export potential. There were 422 licensing agreements amounting to a total value of $US 635 million with the market economy countries only, in comparison with 189 licensing agreements (amounting to $US 120 million) for the previous

11 years (1949 - 1970). The main areas favoured for imported technology are the machinery and equipment sectors (capital goods industry), the automotive industry and the chemical industries, with the main donor country being the Federal Republic of Germany (113 contracts), followed by France (64), United States (44), United Kingdom (41), etc. However in terms of supplier distribution, the largest share was by France (24.6 per cent of total value), followed by the USA, Italy and the Federal Republic of Germany. The total value of payments relating to acquired licenses amounted to $US 5,090 million representing approximately 8 per cent of the total commodity imports from the market economy countries. This is an unusually high ratio when compared with that of 2 to 3 per cent for most developing countries and 0.5 to 1 per cent for the industrialized countries.

Contracts on the sale or free transmittal of technical documentation not connected with licensing agreements are a common form of technology transfer among CMEA countries, but do not play too great a role with the market economy countries. From 1976 to 1980 Poland concluded 18 agreements amounting to $US 5.8 million, mostly from the Federal Republic of Germany and covering the manufacturing machinery, electronics, precision instruments and chemical sectors.

International industrial co-operation was welcomed by the Polish Government authorities as being a most effective means of acquiring foreign technology in order to stimulate exports and the agreements often included joint R+D and designing, the supply of components and assembly of the final product. From 1976 to 1980 there were some 90 such agreements showing a turnover of approximately $US 1 billion. Here again, the main collaborator was the Federal Republic of Germany, followed by Sweden, USA and the UK.

The purchase of technology and equipment for turn-key plants are rare. The normal practice is the acquisition of the whole complex of equipment, technology and related services while construction works are performed by a local firm. During the decade under review these purchases amounted to some $US 4.4 billion.

The paper sets out in detail the legal and administrative framework on the importation of foreign technology and their regulation within the system of national economic planning. Guidelines for the formulation of programmes are also enumerated as well as the step by step procedure within the various Government offices covering the different types of contracts and agreements.

It appears that the prime motive of the Polish technology policy during the 1970s was to obtain a better balance of payments through a rapid increase of exports especially to those markets with transferable currency. From available data it is to be seen that the dependency of local industry on imports connected to purchased technologies doubled in the decade under review. A reason for this may be the weakness of the central planning mechanism whereby Polish licensees are not "economically" responsible for the cost of the implementation of the technology and that sufficient supplies of high grade raw materials were not available on the domestic market. Also shown in the study is that the outflows are twice as high as the inflows giving a total negative effect on the balance of payments, estimated to be about $US 2 billion (8 to 9 per cent of the total accumulated foreign debt) at the end of 1980. The figure should decrease when the installed production capacities work at full production. Out of the 422 acquired licences, only 342 had become operational by the end of 1980. The delays in implementation are largely attributed to the lack of resources and imposed restrictions on the import of spare parts, raw materials, etc.

The objective of a massive export drive seems largely to have failed due to a number of factors and in spite of the unprecedented investment effort and the highly skilled labour force. The rapid increase in oil prices naturally also affected Polish exports. The heavy central planning systems coupled with national investment programmes led to incorrect planning of technology imports and resulted in project implementation delays. The worsening economic situation in Poland led to arbitrarily imposed import restrictions which in turn affected the completed projects of major export potential and also to the suspension of many incompleted ones. In view of the present political situation prevailing it is difficult to predict how developments will evolve towards an economic recovery so eagerly worked for by the Polish people.

## *Registry news*

### Cape Verde Creates Technology Institute

In Cape Verde was created under the patronage of the Prime Minister a National Technological Research Institute (INIT) which will focus its activities on studying ongoing and and adapting new resources and new technologies taking into consideration the realities of the country. Priorities will be given to the following areas: national resources like building materials and raw materials, marine resources, geology and oceanography, energy transfer and or adaption of technology and technological and scientific information.

INIT will have a Co-ordination Board with representatives from the following ministries: economy, education and culture, rural development, public works and finance. The managing director of INIT is also a member.

### Colombia Reports on Service Agreements

In its effort to strengthen the local business communities capacity to negociate technology, the Royalty Committee, Superintendencia of Industry and Commerce and COLCIENCIAS are publishing half yearly a bulletin called TECNE.

It is aimed to disseminate the government policies related to Foreign Investment, Technology Transfer and related aspects. The following information on service agreements over the period January - June 1981 has been abstracted from this bulletin.

## CONTRATOS DE SERVICIOS TECNICOS

### APROBADOS POR LA OFICINA DE CAMBIOS
### C O L O M B I A
Primer Semestre de 1.981

| SECTOR INDUSTRIAL | PAIS DE ORIGEN | OBJETO DEL CONTRATO | TECNICO | VALOR UNITARIO | VALOR TOTAL |
|---|---|---|---|---|---|
| Agropecuario | Finlandia | Asesoría para la ejecución de un plan de desarrollo integrado de plantaciones y de industrias forestales | | | US$160.000 (1) |
| Industria de Alimentos | EE.UU. | Pre-ingeniería y evaluación | | | US$21.400 (1) |
| Industria Textil | Alemania | Montaje | | | DM 5.760 (1) |
| | Francia | Asesoría para estudio sectorial | | | F.F. 459.200 (1) |
| | Francia | Montaje, Asesoría y capacitación | | | US$83.600 (1) |
| Industria del Papel | EE.UU. | Revisión | | US$ 284.48 D/T | US$3.307 (1)(5) |
| | EE.UU. | Revisión | | US$573.28 D/T | (1)(5) |
| | EE.UU. | Mantenimiento | | US$337.13 D/T | (1)(5) |
| | EE.UU. | Evaluación | | US$7.575.75/mes | US$45.454.70 (1)(5) |
| | EE.UU. | Ajustes Finales | | US$52.26/H/T | (1) (5) |
| | EE.UU. | Mantenimiento | | US$1.136.40 D/T | (1)(5) |
| | EE.UU. | Mantenimiento | | US$349.26 D/T | (1) (5) |
| | EE.UU. | Mantenimiento | | US$600.40 d/T | US$12.608. (1)(5) |
| | EE.UU. | Supervisión de instalación | | US$606.08 D/T | US$17.765.72 /(1) (5) |
| | EE.UU. | Implementación de equipo | | US$800 D/T | US$16.000 (1) (5) |
| | EE.UU. | Mantenimiento | | US$1.136.40 D/T | US$22.728.52 /(1) (5) |
| | EE.UU | Capacitación | Prof. Especializado | US$1.137 D/T | US$9.096 (1) (5) |
| | EE.UU. | Supervisión montaje | | | US$36.364.80 (1) |
| | EE.UU. | Cambio y adaptación de equipo | | US$947 D/T | (1)(5) |
| Industria Química | EE.UU. | Ingeniería básica | | | US$1.400.000 (1) |
| | Venezuela | Control de calidad | | | US$17.100 (1) |
| | Holanda | Diseños | | | US$102.500 (1) |
| | Suiza | Mantenimiento | | L.1537.878.79 | LI 12272.727.40 (1) |
| | Suiza | Evaluación y puesta en marcha | | F.S 1.563 | FS 46.890 (1) |
| | Canadá | Estudio de Factibilidad Técnica, económica y financiera. | | | US$159.090.91 (1) |
| | EE.UU. | Asistencia técnica para montaje | | | US$10.000 (1) |
| Industria del Caucho | EE.UU. | Ajuste de líneas para mayor productividad | | | US$4.200 (1) |
| | EE.UU. | Capacitación | | US$ 225 D/T | |
| | EE.UU. | Ingeniería | | | US$420.000 (1) |
| Industria del Cemento | Canadá | Servicios para ensanche | | | US$251.120 (5) + US$19.000, de gastos reembolsables |
| Industria del Carbón | Canadá | Asesoría para establecimiento de un centro de entrenamiento | | | US$111.840 |
| Industria de hierro y acero | Italia | Asesoría para toma de decisión sobre proyecto | | | US$50.000 |
| | Francia | Asesoría, instalación y puesta en marcha | | | FF. 85.025 (1) |

| SECTOR INDUSTRIAL | PAIS DE ORIGEN | OBJETO DEL CONTRATO | TECNICO | VALOR UNITARIO | VALOR TOTAL |
|---|---|---|---|---|---|
| Eléctrico | Japón | Alquiler de herramienta | | | YS 340.000 (I) |
| | Alemania | Supervisión de reparación | | DM2.100 D/T | DM 50.000 (I)(5) |
| | España | Construcción y complementación proyecto | | | US$23.193.779.56 /(I) |
| | España | Obras civiles | | | US$14'141.032.30 /(I) |
| | EE.UU. | Asesoría para evaluación de diseño | | | US$56.000 (I) + US$3.000 por gas tos reembolsables |
| | Japón | Supervisión | | US133.901.52 D/H | Ys14.451.659.05 /(I)(5) |
| | EE.UU. | Estudios de factibilidad | | | US$800.000 (I) |
| | Inglaterra | Asesoría para inspección | 1 Ingeniero | 444 D/T | (I) |
| | Inglaterra | Montaje | | | US$1.404.121 |
| | EE.UU. | Supervisión de reparación | | US$606.08 D/T | US$10.000 (I) |
| | Alemania | Reparación y puesta en marcha | | | DM 4.595.351 (I) |
| | Alemania | Mantenimiento | | | DM3.155.870.75 /(I)(5) |
| | EE.UU. | Consultoría e Interventoría | | | US$821.000 (I) |
| Comunicaciones | Francia | Instalación, puesta en marcha y capacitación | | | FF. 122.500 (I) |
| | Japón | Ensanche | | | Ys40.166.800 (I) |
| | Japón | Diseño, fabricación y entrega en funcionamiento | | | US$19.162.96 |
| | Japón | Suministro, transporte e instalación | | | US$215.655.72(I) |
| | Japón | Suministro y reparación de equipos | | | US$131.560 (I) |
| | Francia | Diseño, fabricación, suministro e instalación | | Instalación : US$151.732 Entrenamiento : US$14.350 | US$166.082 (I) |
| Industria Automotriz | EE.UU. | Servicio Técnico (1 año) | | | US$28.000 (i) |
| Bancario | Suiza | Montaje, puesta en marcha y entrenamiento | 4 Técnicos | FS 92.800 H/H FS312.51 /D c/u de los técnicos | (I) (5) |
| | Canadá | Administración, sistemas y mercadeo | | US$3.500/mes | (I) |
| Otros | Francia | Estudio para obtener razones que justifiquen la reagrupación del habitat | | | FF 80.000 |

(I) Incluye Impuesto de renta y remesa del 40% y 12% respectivamente.

(5) El valor total del contrato es estimado con base en los valores unitarios y duración del registro.

| | | | | | |
|---|---|---|---|---|---|
| DM | Marco Aleman | LI | Lire Italiana | D/H | Día - Hombre |
| | Libra Esterlina | FS | Franco Suiza | H/H | Hora - hombre |
| FF | Franco Francés | Ys | Yens | D/T | Por día de trabajo. |

# *UNIDO activities*

## UNIDO Publishes Model Form Contract for Construction of Fertilizer Plants

UNIDO has been examining contract procedures for the construction and operation of fertilizer plants. The subject was given a high priority because of the large investments involved and the importance of the negative impact of delays in meeting the performance specifications of the supplied plants and/or the low capacity at which such plants would operate.

After almost four years of negotiations, two Model Contracts were finalized by an International Group of Experts composed of experienced contractors from developed countries and purchasers from developing countries. (UNIDO model form of turn key lumpsum contract for the construction of a fertilizer plant, UNIDO/PC.25. and UNIDO model form cost reimbursable contract for the construction of a fertilizer plant, UNIDO/PC.26.) The Model Contracts include a number of provisions based on the needs and the industrial reality of developing countries and also respect established commercial practice in this field.

Recognizing the growing sophistication of developing countries as purchasers of industrial plants and the shortcomings of many commercial contracts concluded in the past, emphasis has been put in drafting the Model Contracts on (a) the timely completion of an integrated Fertilizer Plant guaranteed as capable of sustaining high operating efficiency and producing specification grade Products, (b) setting the total project cost instead of only the Contract Price, (c) payment terms linked to the fulfilment of the contractor's obligations instead of to agreed time periods, (d) the continuing validity of mechanical warranties, (e) the purchaser's involvement at all stages of procurement and (f) the effective use of performance bonds to secure contractor's performance.

These Model Contracts were the subject of thorough discussions at three consultation meetings, and as a result a balancing of the interests of purchaser and contractor under the conditions prevailing in developing countries has been achieved. It is therefore UNIDO's earnest hope that these Model Contracts in this final agreed form will contribute to a better understanding and co-operation between developed and developing countries by helping to shorten the negotiating period for reaching satisfactory contracts between suppliers and buyers of fertilizer plants.

## Technological Information Exchange Network Among Development Finance Institutions

UNIDO in co-operation with the Caribbean Development Bank is organizing a preparatory meeting of directors of industrial development finance institutions (IDFIs) to discuss and assess the creation of a Technological Information Exchange Network (TIEN) among development banks. The meeting is scheduled to be held in Bridgetown, Barbados in the Caribbean from 26 - 28 January 1982.

The meeting is conceived as a part of a series of activites towards creating and operating a development bank technological information exchange system. The problem of technological choice and information sources for development banks was brought up during the UNIDO/World Bank symposium on "Development Banking in the 1980s" held in Zurich, Switzerland in June 1979.

The participants in that meeting arrived at a consensus that the role of IDFIs is not merely to provide finance but also to influence and promote the development of national technological capacities, and to build a base for indigenous technological development. It becomes necessary, therefore, to further develop the project evaluation methods and procedures to include the assessment of the technology chosen for each project to ensure that it meets the requirements of national development goals, resource endowments and the specific economic, social, technological and cultural conditions prevailing. In other words, development banks have an important responsibility in the appropriate choice of technology and in technology acquisition, absorption, adaptation and innovation.

The Zurich symposium also made recommendations for a systematic approach to the problem of making technical information more accessible to development banks for the assessment and evaluation of industrial project proposals.

The forthcoming preparatory meeting in Barbados will be geared towards identifying the information needs particularly with regards to technology choice for supporting the project evaluation activities of IDFIs as well as recommending actions to be taken by UNIDO and other organizations.

The objectives of the Barbados meeting are:

(1) to review the current experience in evaluating technological content of the industrial projects dealt with by the Industrial Development Banks;

(2) to identify information required for technological evaluation of projects submitted for financing such as choice of technology, terms and conditions of the technology acquisition, prices paid for equipment and services, etc.;

(3) to exchange views on the possibility of creating a Development Bank Technological Information Exchange Network under the overall umbrella of UNIDO's Industrial and Technological Information Bank (INTIB);

(4) to select a few industrial sectors where the network could start activities as a pilot operation and collect experience on the viability of such system; and

(5) to recommend follow-up action to be carried out by UNIDO and the international community of development banks in the developing countries.

## *Recent publictions*

ID/278 (ID/WG.345/5/Rev.1) Report - First consultation on the food-processing industry. The Hague, Netherlands, 9 - 13 November 1981.

ID/149 (75.II.B.3) Guidelines for contracting for industrial projects in developing countries.

ID/268 (UNIDO/LIB/SER.D/39) Information sources on the flour milling and the bakery products industries - UNIDO Guides to Information Sources No. 39.

ID/WG.355/6 Technological Information Exchange System (TIES). Korean experience on transfer of technology by means of technical service. Sixth Meeting of Heads of Technology Transfer Registries. Manila, Philippines, 25 - 28 November 1981.

ID/WG.355/7 Polish experience in regulating imports of technolgy 1971 - 1980.

ID/251 Women and industrialization in developing countries.

ID/WG.355/1 Some considerations regarding co-operation among technology registries. Sixth Meeting of Heads of Technology Registries, Manila, Philippines, 25-28 November 1981.

ID/WG.355/2 Financing of TIES (Technology Information Exchange System).

ID/WG.355/4 Technological Information Exchange System (TIES). Service agreement system. Status report.

ID/WG.355/5 Technological Information Exchange System (TIES). Progress and status report.

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Calandar of Meetings

1. Preparatory Meeting of Directors of Industrial Development Finance Institutions (IDFI) on the Creation of a Technological Information Exchange Network (TIEN), 26 - 28 January 1982, Innsbruck, Austria.

2. Development Information Meeting, 8 to 9 February 1982, Vienna, VIC, Conference Room II.

3. Round Table Ministerial Meeting on Agro-Industry Development, 15 - 19 February 1982.

4. Technical Consultation on the Production of Drugs in the Multipurpose Plant, 1 - 12 March 1982, Budapest, Hungary.

5. International Symposium on Salt and Marine Chemicals, 4 - 6 March, Bhavnagar, India.

6. Expert Group Meeting on Technology Advances Application and Use of Micro Processors (In co-operation with ECLA), April 1982, Mexico City, Mexico.

7. Ad-hoc Panel of Experts on Contractual Arrangements in the Pharmaceutical Sector, June 1982, Vienna, VIC.

8. Third Consultation on the Iron and Steel Industry, 13 - 17 September 1982, Caracas, Venezuela.

9. First Consultation on Industrial Financing, 18 - 22 October 1982, Madrid, Spain.