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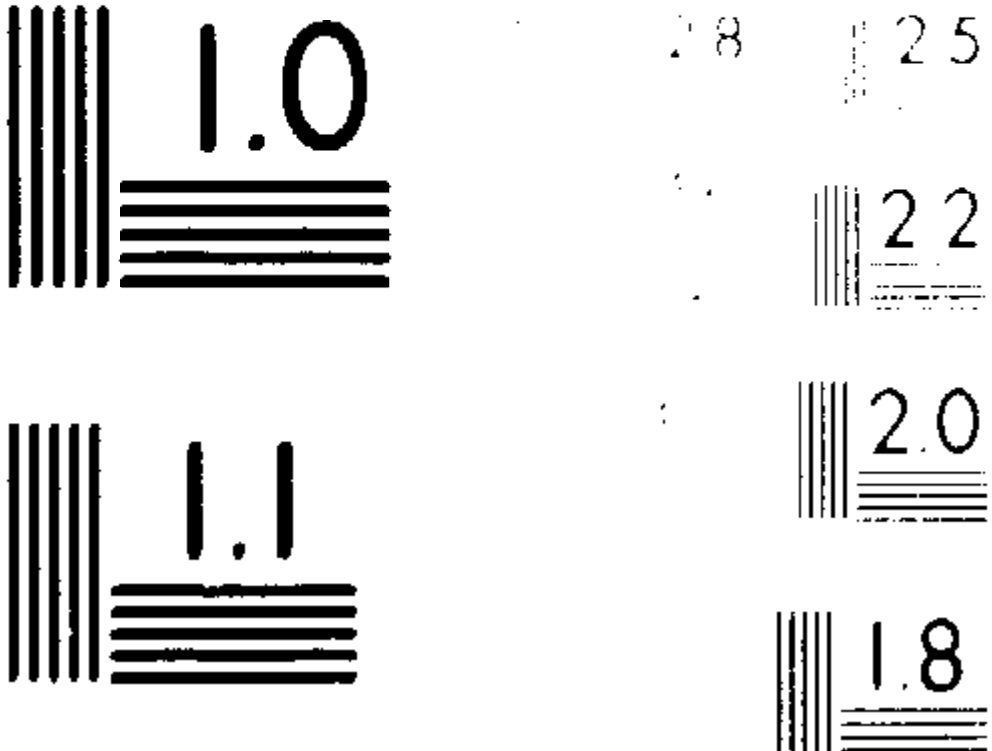
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org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The INTIB Promotion Mission to Latin America*

November/December 1981

Mission Reports by participating experts

G. Kirouac (Canada)
J.R. Pérez Alvarez-Ossorio (Spain)
A. Wysocki (Poland)

Industrial and Technological Information Bank (INTIB)

Industrial Information Section
UNIDO Technology Programme

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INTRODUCTION

In order to promote INTIB services, annual networking missions, (in 1980 in South-East Asia, in 1981 in Latin America, and in 1982 in African countries) have been or are planned to take place.

In 1981, during November and December, 11 countries in Latin America were visited (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Nicaragua, Peru, Uruguay, Venezuela) by an international group of experts with competence in the various aspects of industrial documentation and information. They were accompanyed by Roch T. de Mautort, Chief of the Industrial Information Section.

Reports were received from:

Mr. G. Kirouac
Senior Adviser
Science and Technology for Development
International Relations Bureau
National Research Council
Montreal Road
Ottawa K1A OR6
Canada (pages 1-9)

Mr. José Ramón Pérez Alvarez-Ossorio
C.S.I.C.
Instituto de Informacion y Documentacion
en Ciencia y Tecnologia
Joaquin Costa, 22
Madrid-6
Spain (pages 11-40)

Mr. Adam Mysocki
System Informacji Nankowej i Technicznej
i Organizacyjney (SINTO)
Al. Nipodleglosci 186
00-950 Warsaw
Poland (pages 41-64)

INTIB is a service to industrial development commissioned by developing countries to UNIDO. In order to be of concrete use to developing countries INTIB must have relays to end users of industrial and technological information, essentially in the form of industrial information and advisory services in these countries.

INTIB Mission in Latin America

on

Industrial Information and Extension Services

November-December 1981

by
G. Kirouac, Eng.
National Research Council of Canada

January 1982

INTRODUCTION

On the basis of the Canadian involvement in assisting developing countries to set up industrial extension services, the National Research Council of Canada was invited by the Chief of the UNIDO-INTIB Latin American mission (November/December 1981) to delegate one of its staff to join the INTIB tour.

The NRC, through its Technical Information Service (TIS), has since its inception in the 1940s been available to answer specific technical inquiries from developing countries, provide advice and host visitors from foreign countries. Through an agreement with the International Development Research Centre (IDRC) in 1971, TIS participated in a mission to create an extension service network in South East Asia known today as Technonet Asia. TIS contributed to the identification of suitable Asian institutions, to the design of the network, the training of managers and of operating engineers, in addition to providing technical backup services. The original network which consisted of eight organizations in six countries has successfully grown to a group of 14 organizations spread out through 11 Asian-Pacific countries.

The TIS/IDRC agreement also enabled NRC to assist several Latin American and Caribbean countries to start and/or operate industrial extension services in their respective countries.

The interest of Latin American countries in industrial extension services was the result of an Organization of American States mission to Latin America on the transfer of science and technology, in which TIS actively participated in September/November 1970. The OAS mission itinerary was almost identical to that of the 1981 INTIB mission, thus enabling the author to compare the situation after a decade.

GENERAL OBSERVATIONS

In most of the countries revisited, the development of industrial extension services has been slow in comparison to that of Technonet Asia which became operative almost from the day of its creation and became autonomous after seven or eight years of operation. In most Latin American countries, organizations are still concerned with acquiring and cataloguing information and have limited or no experience in

person-to-person contact with industry. In general, there is an awareness of the need for and value of extension services but these have not been fully developed for cultural, social and/or economic reasons. More specifically, some difficulties encountered in setting up and operating extension services are:

(1) the lack of funds to set up and operate such services;

(2) the lack or shortage of experienced professional staff;

(3) the lack or shortage of local information resources.

On the other hand, some organizations have developed into very efficient and successful services.

COUNTRY BY COUNTRY REMARKS ON THE STATE OF EXTENSION SERVICES

The INTIB mission included two consultants from operating services: Mr. Enrique Medine from INFOTEC, Mexico and Mr. G. Kirouac from the National Research Council of Canada. In each country visited, their role was to describe, during seminars, the operation of the service in their respective country and to share their experience with the participants. These presentations were followed by discussions and/or question-and-answer periods either during the seminar or later, on the occasion of visits to the individual participating organizations.

The author joined the mission in Argentina and visited the following countries:

ARGENTINA

The visit to Argentina was limited to the attendance and participation in the World Federation of Engineering Organization (WFEO) Seminar on Information for Small and Medium Enterprises held in Buenos Aires in November 1981. The Committee on Engineering Information of the Organization had prepared a working paper entitled "The Small and Medium Industrial Enterprises and Technological Information Services - Concept, Insights and Experiences". A number of papers dealt with the operation of industrial services in different parts

of the world, Europe, Latin America, Asia, North America, etc. These papers were followed by a round-table and recommendations to the WFEO on their desirable role in assisting small and medium size industries.

CHILE

The problems that exist in several countries today can also be found in Chile, in particular, high inflation rate and the phenomena of de-industrialization.

The Instituto de Investigaciones Tecnologicas (INTEC) is one of six organizations attached to the Corporacion de Fomento de la Produccion (CORFO). Its role is to provide technical information to industry and other enterprises, to transfer technology, carry experimental development in laboratories or pilot plants. The Institute's technical service has a small staff, some of whom have been trained in extension services in industrialized countries, a small library linked to U.S. Technical Information banks and access to their experimental laboratories.

INTEC began its operation in the early 1970s and developed into a good technical information service. The small group of dedicated staff has concentrated its efforts in retrieving and passing on information to inquirers but has had little experience in establishing direct contact with industry to assist them, define and satisfy their needs for technological assistance. In addition, INTEC tends to serve the larger firms which, to a certain extent, have a better knowledge of their needs than the small and medium industries which have little or no access to technical assistance.

The addition of some professional staff with practical industrial experience would enable INTEC to develop into a valid and much needed extension service such as described in the Buenos Aires WFEO working paper. INTEC has gained some experience in dealing with industrial problems, which already has reasonable access to technological information through its own library and other sources such as computerized information, its own laboratories, etc.

CONUPIA

The Confederacion Gremial Nacional Unida de la Mediana y Pequena Industria (CONUPIA) has been organized to look after the interest of and assist small and medium enterprises to solve their problems. It groups over 90 organiza-

tions, as well as individual representatives of the 35,000 small and medium size industries in Chile.

Between 1970 and 1973, all economic activities were under direct state control. From 1973 the Chilean government has installed a system of free enterprises handing back most of the expropriated enterprises to their previous owners. This changeover caused, according to a study made by CONUPIA, great confusion. Among other recommendations, this study suggested a program for technical assistance and management training. The major problem faced by the Chilean small industries operating in an open economy is its lack of competitiveness with foreign countries. CONUPIA was, at the time of the visit, preparing a report on small industry and proposing a program for industrial assistance to the President of Chile.

The mission contributed suggestions on how to present the report which would emphasize the need for industrial information technology. Training courses and assistance services were discussed at some length. The closeness of CONUPIA to small and medium industry warrants the setting up of technical assistance and training programs in the organization.

COLOMBIA

Colciencias

In spite of the fact that Colciencias has been founded prior to 1970 and that it has a staff of qualified professionals, it has achieved little progress, if any, in the field of in house extension services. Recommendations for such services were made by the CAS mission in 1970 and moreover, Colciencias staff members were trained in TIS, Canada. Still, the organization has not yet directly engaged in these activities due mainly to the lack of financial resources. The mission was informed that the substantial injection of funds to be made available in 1982 would enable Colciencias to develop and to fully play its intended role.

Instituto de Investigaciones Tecnologicas (IIT)

Founded in 1958, this Institute specializes in the transfer of technology to the food industry. It offers a complete range of services and for the small and medium size industry a technical information service to solve production problems, enhance the quality of products and to advise on

the diversification of production. Headed by a dynamic Director, Dr. Jaime Ayala Ramirez, IIT has established the Industrial Technical Information Service some four years ago in cooperation with Colciencias under an OAS project. This activity is integrated into the national information system. The service offers consultancy, information bulletins and publications on appropriate technologies. The Institute, with its 40 professionals specializing in different areas, has progressed remarkably in the last decade and gives signs of interesting future developments in fields other than food technology; i.e., energy, etc.

Other Organizations

Industrial information is well developed in Bogota. The 21 units presented to the mission include organizations such as the Instituto de Fomento Industrial (IFI) which specializes in economic development, industrial legislation, business management, etc. The Camara de Comercio (Chamber of Commerce) concentrates on administrative and economic sciences. Servicio Nacional de Informacion Tecnica (SENA) provides information on training in different disciplines but mainly in the field of metalworking.

Cooperation between the various centres constitute a valid national network, a remarkable progress which was accomplished during the last decade.

ECUADOR

Among the institutions visited in Guayaquil and Quito, the Centro de Desarollo Industrial del Ecuador (CENDES) is the most likely to operate an industrial extension service.

The Centre is staffed with young and enthusiastic but inexperienced staff who have very little direct contact with industry. A sample of answers to industrial requests revealed that the information provided in answering inquiries is at least 20 years old. There is also a notable tendency to rely on computers to provide bibliographic references for which the institute, most of the time, does not have the original document.

The lack of financial resources is, in the case of CENDES, the major problem. It does not allow the Centre to acquire the basic information it needs such as current technical and industrial journals and does not enable the Centre to

maintain the critical mass of staff. The high turnover of inexperienced staff is due to the inadequate remuneration scale of the Centre. Professional staff salaries are approximately half of those paid by industry so that recruiting is limited to new graduates with no industrial experience with the result that these engineers seek other jobs at better salaries after a short stay with the Centre.

To develop into an efficient service, it will be necessary for CENDES to train their own extension engineers and to encourage the present staff to have more direct contact with industry, thus giving them an opportunity to gain experience.

VENEZUELA

For a good many years the Consejo Nacional de Investigaciones Cientificas y Tecnologicas (CONICIT) has had the responsibility to organize scientific and technical information in the country. To do so, they have arranged agreements between the Council and other national institutions as well as Latin American organizations with a view to set up a national scientific and technical information system. These agreements, in most cases, have not gone beyond the paper work.

Some of CONICIT's staff have been trained in TIS, Canada but have not been given the opportunity to apply what they have seen or learned.

CONICIT could become the focal point for S&TI and encourage other Venezuelan organizations to provide the extension services needed. The change of management in their Technical Information Service might be a significant factor in its future development.

COSTA RICA

During the visit to the Instituto Tecnologica de Costa Rica, we found a genuine interest to enhance their services to industry. The Institute combines education, research and information services. Research labs are staffed by full-time researchers and professors working part-time on their projects in various fields such as building research, food and agriculture, energy, etc.

The information service has a good library and is linked to other information resources. There is not yet a full extension service but the Institute has some direct contacts with the ultimate users.

Because of the various resources available in-house and the present motivation, the Institute should have some of its technical information staff trained in extension work.

MEXICO

INFOTEC, an industrial extension service, was founded in Mexico under the name Servicio de Informacion Tecnica in 1972 as part of the CONACYT, the National Research Council. Since then, it has progressed regularly and changed its name in 1977 to INFOTEC which is more appropriate to its activities, especially in the field of technology transfer.

The service has a staff of 160 responsible for their information centre, engineering services, training division, etc.

INFOTEC has prepared a long-term plan in line with the Mexican policies and priorities for the economic development of the country with a view to improve its services to industry.

Since its inception as a free service, this organization has started to partially recover costs and is now recovering more than half its operation costs.

It has established a good reputation with local industries, with other industrial organizations in South America and in other parts of the world. They have trained in-house, a number of extension engineers from Latin American countries and have also been available for consulting to other similar services.

INFOTEC has grown remarkably well, thus demonstrating the possibility of establishing similar services in Latin America.

CONCLUSIONS AND RECOMMENDATIONS

During the last decade, all countries visited have organized industrial information centres to promote economic and industrial development in their respective countries. Latin American extension engineers have been trained in Canada, Denmark and Mexico, and many organizations have benefitted from consultations with a number of international

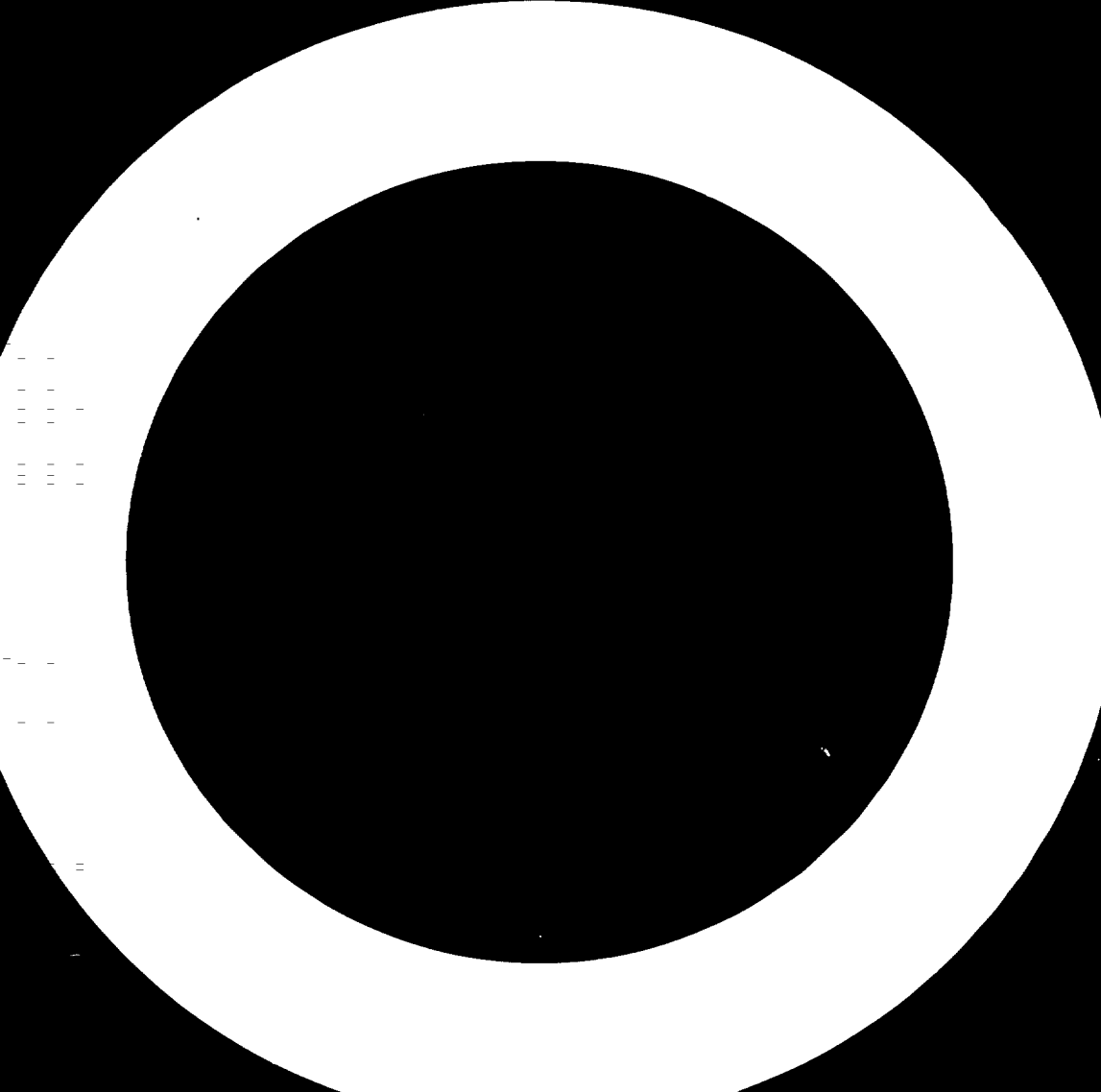
organizations such as UNIDO, UNDP, OAS, IDRC, etc., as well as from assistance from other extension services such as TIS, DTO, INFOTEC, etc. There now exists a sound basis for fully developing efficient services in the countries that have not yet succeeded to do so.

To enhance their services, it is recommended that industrial extension organizations initiate and/or strengthen cooperation with their corresponding organizations in other Latin American countries with a view to exchange their experience and draw upon their skills and other resources. The setting up of this informal network could be achieved under the agea of an international or regional organization such as FID/CLA/II which, in addition to facilitating exchanges at the regional level, would link Latin American organizations to other similar activities around the world.

Funds should be sought from governments and international organizations to acquire the basic necessary tools for the operation of industrial extension services.

Assistance should be requested from international organizations to promote the training of industrial extension engineers in Latin America and outside. To minimize costs and to generate a multiplying effect, programs for training trainers should be developed and offered to organizations which have difficulties in recruiting qualified staff.

Industrial information service staff should be encouraged to establish direct contacts through visits to industry to enhance their knowledge and experience of industrial needs as well as to offer direct services to clients. Initially, clients should be selected on the basis of the engineer's and the centre's specialization or ability to serve definite sectors of activities.



R E P O R T
ON THE INTIB PROMOTION MISSION
TO
LATIN AMERICA

November-December 1981

Dr. J.R. Pefez Alvarez-Ossorio
Director, Institute for Information
and Documentation in Science and
Technology, Madrid, Spain.

I. TERMS OF REFERENCE AND AIMS OF THE MISSION

1. The origin of the Industrial and Technological Information Bank (INTIB) is to be found in the Lima Declaration and Plan of Action (1975) and, later on, in decision V(XI) of the Industrial Development Board (1977) which authorized the operation of INTIB, through a pilot project to be undertaken during 1977-1978. The main task of INTIB would be to provide information on available technologies in various industrial sectors of special interest for developing countries, in order to improve their situation as regards the adequate selection of appropriate technologies.

2. Initially, INTIB concentrated in four sectors of special interest: iron and steel, fertilizers, agroindustries and agricultural machinery. It would extend, afterwards, to about twenty industrial sectors. The results of the pilot experience were evaluated in a meeting of experts, held in 1979. As a part of the launching effort for INTIB, a series of promotion missions were organized, to various developing regions. The mission to Latin America is the second in this series, being preceded, in 1980, by a similar mission to several countries in south-east Asia.

3. We should now point out that INTIB has to be considered within the framework of UNIDO technological information activities. Therefore, though the main objective of the mission was INTIB promotion as such, in practice the description of related activities was also included, as for instance: the Technological Information Exchange System (TIES); the Question and Answer Service; the promotion of cooperation among development organizations (Development banks etc.) and others.

4. The mission was formed by the chief of UNIDO Industrial Information Section, Mr. R. de Mautort; Mr. A. Wysocki, Deputy Director of the Centre for Scientific, Technological and Economic Information of Poland, and former head of UNESCO Division of the General Information Programme; Dr. J.R. Pérez Alvarez-Ossorio, Director of the Institute for Information and Documentation in Science and Technology of Spain and Chairman of the Committee on Information for Industry of the International Federation for

Documentation (FID/II); and Mr. F. Medina Ramos, Engineer from INFOTEC, Mexico. In addition, Mr. G. Kirouac, former Director of Technical Information Service, Canada, and Advisor of the Canadian CSIR for international affairs, joined the mission with Canadian financial support.

5. The programme of the mission included the visit to the following countries: Uruguay, Argentina, Chile, Peru, Ecuador, Colombia, Venezuela, Costa Rica and Mexico. During the mission, a visit to Nicaragua was added; splitting the mission in two groups was, then, necessary. A visit to Rio de Janeiro was also included, to hold a meeting with the Executive Secretary of RITLA (the Latin American Technological Information Network). During their stay in Buenos Aires, the members of the mission took part in a seminar on Technological Information for small and medium-size Industry, organized within the framework of the General Assembly of the World Federationof Engineering Organizations (WFEC).

6. In each country, the visit was organized by a national organization, previously selected as the most representative in the field of technological information. These were the following:

Uruguay - Centro Nacional de Tecnología y Productividad
Argentina - Instituto Nacional de Tecnología Industrial (INTI)
Chile - Instituto Nacional de Tecnología (INTEC)
Peru - ITINTEC
Ecuador - Centro de Desarrollo del Ecuador (CENDES)
Colombia - Instituto de Fomento Industrial (IFI)
Venezuela - Consejo Nacional de Investigacion (CONICYT)
Costa Rica - Instituto Tecnológico de Costa Rica
Nicaragua - Ministerio de Industria
Mexico - INFOTEC

It should also be stressed the extremely valuable help and cooperation of the offices of the United Nations Development Programme in each country.

7. In most cases, the main activity took the form of a seminar, with participation (at least theoretically) of national organizations potentially interested in the subject: technological information services and centres; research organizations; development banks; industrial organizations; industrial firms, both private and public; consulting firms etc. The aim of these seminars was two fold: first, to provide information on INTIB and, more generally, on UNIDO activities in technological and industrial information; and, secondly, to gather information on the national situation in this field, and main problems encountered, in order to adapt UNIDO services to the actual needs of developing countries.

8. The members of the mission conducted these seminars according to a model pattern, which was adapted to the different circumstances of the various countries. This pattern started with a general presentation of the international scientific and technological information systems and services, by Mr. A. Wysocki; then, a second presentation on the specific needs of industry, specially the small and medium-size firms, as information user, the concept, strategy and philosophy of FID/II committee and some concrete experiences in western european cour ·, by Dr. Pérez Alvarez-Ossorio. These two general presentatio followed by case histories, taken from the experience of TIS ada and INFOTEC, Mexico, and presented by Mr. Kirouac and Mr. Medina. And, finally, a detailed description of UNIDO activities and the services offered by INTIB, presented by Mr. de Mautort.

II. GENERAL CONSIDERATIONS ON LATIN AMERICA. THE SITUATION OF TECHNOLOGICAL INFORMATION

9. On speaking about Latin America, it is generally considered as one of the world most homogeneous region, perhaps on the basis of its common historical and cultural origin, and with the same language in most countries. The reality is, nevertheless, very different, strong differences of any type being easily observed.

10. An attempt of classifying the countries visited would lead to the three following groups: (a) the southern countries (Uruguay, Argentina and Chile), characterized by a strong European influence and a comparatively high cultural level. (b) the Andean subregion where, along with the Spanish tradition, there is a great indigenous component. Within this group (Peru, Ecuador, Colombia) Venezuela has a very special place, due to its many resources and to the deep north American influence. (c) Mexico should be considered alone, due to its level of development and its vicinity to the United States.

11. Theoretically, then, cooperation between Latin American countries, and specially between members of the above mentioned subregions, would be quite easy, taking into account their common language, their cultural affinities, and even the similarity of their problems and their levels of development. And that would be specially true in the field of information, where language is actually the working tool. Nevertheless, cooperation is seriously hindered by many mistrusts and reticences between countries, specially between those geographically neighbours which, on the other hand, would be specially suited for cooperation, due to their similarities. As a result of this situation, a good proportion of international cooperation activities, in Latin America, remains in the field of ideas, without any practical development.

12. Another outstanding feature in many Latin American countries (if not in all of them) is the almost total absence of middle classes in their societies. The social stratification starts with an upper class, limited in number, with a very high economic level; then, a relatively numerous technocracy of governmental officials and civil servants, whose stability is constantly threatened by political changes. The result is a very quick and high mobility, which has extremely harmful effects on the continuity of cooperation efforts. And, finally, a very numerous low class, with extremely low economic level.

13. The parallel of this situation, in the industrial sector, is the lack of medium-size firms, in many countries. There are some big firms (particularly in countries with high economic level, like Mexico and Venezuela) with a strong multinational component: and, at the other end, many small firms. But the middle sector is almost completely empty, with very few exceptions. This situation will be extremely important, on determining the possibilities of INTIB operation in Latin America.

14. Finally and as economic background, the key feature in many countries is a galloping inflation, with even chaotic aspects in certain cases. The instability of national currency seriously hinders any possibility of industrial development. All those factors lead frequently to a real desindustrialization, which could be easily perceived in some countries visited by the mission.

15. Going now to the particular field of technological information or, more generally, scientific and technological information, the present situation results from the action of a series of factors which, chronologically, are the following:

16. First of all, we should point out the predominance of the library sector, specially marked in the countries of Southern Cone, but clearly perceptible, generally speaking, in all countries visited. If we consider scientific and technical information activities as a result of the joint efforts of librarians and information scientists, the influence of librarians in Latin America began earlier and continues to be much greater. In most european countries, scientific and technical information systems nowadays are managed by people with basic scientific background (chemists, physicists, engineers) who have been then trained in information and documentation techniques. In Latin America, however, most managers are still classic librarians, trained in schools of librarianship of the traditional type, and coming, in general, from the field of humanities.

17. A second influencing factor has been the guidelines issued by UNESCO and other international organizations, as regards the need of establishing national scientific and technical information policies and systems. Most countries have tried to establish such policies. But also in most cases, the national policies, as well as the systems and subsystems for their development, remain on the paper, in the form of more or less beautiful organigrams, without any practical reality. Perhaps the big mistake has been to start coordination from above, that is to try to create coordination bodies without the previous existence of an adequate infrastructure of organizations and services to be coordinated.

18. If that is the situation in scientific and technological information in general, in the more specific field of information for industry, the shortages are even more significant. We should mention here, on the one hand, the influence of the various projects of the organization of American states, and on the other hand, the assistance of organizations like TIS, Canada, and DTO, Denmark, or, within the region, INFOTEC, Mexico. It could be said, nevertheless, that the results obtained have been ephimeral, and, with the obvious exception of Mexico, information for industry as such is limited to a few embryonic efforts. To sum up, everything is to be made in this field, and a good demonstration is the lack of participation of Latin American countries in the activities of FID/II, including its regional subcommittee FID/II/LA, which was formally established some years ago, but has remained practically inactive.

19. Finally, a quite general feature, which cannot be ignored, derives from the great expectations and eagerness aroused by the modern on-line information systems. Even recognizing that those systems are not adequate at all to the needs of industrial users, specially to small and medium-size firms, we should admit that in all projects from which the mission had notice, one of the basic elements, and one of the main goals was always the on-line access to foreign and international data bases, and even the creation of national data bases. Probably, there is here a strong element of prestige, but, in any case, it is a reality which cannot be ignored and, rather than fighting against it, it would be convenient to channel

it by stressing the need of "adapting" or "repackaging" those systems through the action of specialized information or industrial extension officers.

III. ACTIVITIES OF THE MISSION

III.1. URUGUAY

20. The mission arrived in Montevideo on Sunday 8th November. On Monday morning a working meeting was held at the Centre Nacional de Tecnología y Productividad, and another one with members of the National Commission for UNIDO, which operates within the Patent Office. The afternoon and the whole Tuesday were devoted to a seminar in the Centro Nacional de Tecnología y Productividad. The majority of the audience was formed, as it was the case generally in all countries, by governmental officials, with almost total absence of representatives from private industries.

21. From the discussions in the seminar, the following general conclusions can be drawn: (a) There is, in Uruguay, an almost total lack of information for industry activities. Only the LATU (Technological Laboratories of Uruguay) declared to have one person dedicated to technological information activities. On the other hand, the National Commission for UNIDO provides information based on UNIDO Publications and makes use of the Question and Answer Service, but only on request. (b) The National Council for Scientific and Technological Research (CONICYT) has a project to establish a National Information System, and will ask for support to international organizations. (c) Perhaps the Centro Nacional de Tecnología y Productividad is the best placed organization to provide information services for industry, considering its actual relations with firms. (d) As at the present moment there are no activities, but only projects, an initial effort of coordination seems to be necessary, in order to avoid the emergence of different analogous iniciatives, which could lead to a duplication of efforts.

III.2. ARGENTINA

22. In Buenos Aires, the mission took part in the following activities: (a) A seminar organized by the Instituto Nacional de Tecnología Industrial (INTI) followed by a visit to its facilities. (b) Another seminar on Technological Information for small and medium-size industry, organized within the framework of the General Assembly of the World Federation of Engineering Organizations, through its Committee on Engineering Information (WFEO/CEI).

23. The first seminar, besides the presentations of members of the mission, according to the model pattern already described, included a description of INTI and its functions, which was then completed with a visit to the Parque Tecnológico de Miguelete. INTI was created in 1957, belongs to the Ministry of Industry and Mining and is managed by a Board, with a majority of members from industry. There are 26 technological research centres within INTI, which provide technical assistance on request, and also carry out some general developments by their own iniciative. Total staff is 1500, with 26% university graduates.

24. From the mission's point of view, there are two specially interesting centres: the Centre for Documentation Research and the CIME (Information Centre for Small and Medium-size Industry). The first one, which we visited in detail, is a conventional information and documentation centre, providing such services as document delivery, translations; question and answer; retrospective bibliographic searches etc. Recently, it started to offer an on-line search service, in cooperation with the Centro Argentino de Informacion Científica y Tecnológica (CAICYT). The centre also distributes INTI Publications and organizes training courses in documentation.

25. The CIME, as we were told, has 34 technological extension offices all over the country. Theoretically, it would seem, then a typical centre of information for industry. Nevertheless, from the information gathered, we couldn't see clearly whether its activity is information properly speaking. It seems rather that CIME makes use of the conventional documentation services, as offered by the Centre for Documentation Research.

26. Attendants to the seminar seem to be, in general, little receptive, as regards the philosophy of information for industry. There were many librarians and we could clearly perceived the influence of traditional STI concepts. Argentina has a very strong library tradition, which still dominates scientific information scene. Nevertheless, it would seem that INTI structure would offer good possibilities to establish information services for industry. This is, on the other hand, a common feature for many countries, where technological research centres are probably the best placed organizations for this type of activity. However, the influence of the library sector, and the strong attraction of on-line services are two elements to be taken in consideration from the very begining. CAICYT has just installed a terminal and is operating a project, where seven people, coming from interested organizations, like INTI, are working: most of them are scientists and engineers. This is probably the first occasion, where the outstanding role of scientists and engineers in scientific and technical information activities is recognized, and should not to be missed.

27. The seminar on information for small and medium-size industry, organized by WFEO/CEI, was supported by UNIDO, through the participation of the members of the mission. The working document for the seminar was prepared by Mr. Kjeld Klintoe, and presented, as a basis for discussion, by Mrs. A. David, Vice Chairman of CEI. Among the different lectures of the seminar, I presented that entitled "information sources for small and medium-size firms": In addition, on the second day of the seminar, I presented some Spanish experiences in information for industry.

28. Though the seminar was held as a part of WFEO General Assembly and thus, it was open to engineers coming from all over the world, most attendants were Argentinian engineers, permitting a further discussion of problems encountered in this country, now from the point of view of the user-engineers and, often, of those working in industry. We confirmed again the lack of information services for industry, as such, and also the possibilities that INTIB would offer for that type of activity: as well as the strong attraction of on-line services.

29. Finally, it shold be stressed the very significant contribution of the members of the mission to the preparation of conclusions for the seminar (1).

III.3. CHILE

30. As I stayed in Buenos Aires to attend the Iberoamerican Conference on Scientific and Technical Information and Documentation (PRUNIBEP-II), my arrival in Chile was delayed, and I only took part in the mission activities on the last day: a meeting in CONUPIA and a lunch in CONACYT.

31. The meeting in CONUPIA provided the first and probably the only opportunity to know directly the problems of small industries. Present situation in Chile is characterized by the total absence of governmental actions to help the industrial sector. Industry has an absolute freedom, but has to manage by itself. As, on the other hand, industries have descapitalized during the last few years, they need now to acquire technology, to train their people and some technical assistance to develop themselves, within the new system of total freedom. Despite the fact that CONUPIA has created certain development tools (like a bank), there are no funds to invest and they would need a strong initial support, which they would return with their own profits.

32. In this situation, UNIDO help could be extremely important, both as regards INTIB activities, which seem to be perfectly well suited to actual needs, and as regards technical assistance as such. Main difficulties would be the absence of an adecuate national organization, to act as a counterpart to channel international assistance, and the lack of governmental initiatives to create such a body. Attention of the Chilean government should be drawn on this situation, and on the many advantages to be derived from UNIDO help, duly directed in the above mentioned sense.

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(1) As I couldn't attend the last session of the seminar, I have not the final draft of the conclusions. But I think they should be annexed to the final report of the mission.

33. The meeting in CONACYT was limited to a pure formal lunch with its Chairman and its Secretary General, with neither time nor opportunity to discuss technical problems.

III.4. PERU

34. Two succesive seminars were held in Lima: one, organized by ITINTEC and other by the Industrial Bank of Peru. The audiences were expected to be basically different: the first seminar was supposed to have a more technical character, with the staff of ITINTEC and representatives of the National Research Council; while the second should be a broader one, with participation of various organizations, industrial firms etc. In practice, however, both seminars were quite similar, with the same type of attendants, the industrial sector being, again, absent.

35. ITINTEC is an organization which reminds the Argentinian INTI, though in a reduced scale. About 25 people work in its information centre, which recently was merged with the information centre of INDUPERU. In principle, the managing staff of the centre seems to be convinced of the concept and philosophy of industrial information (a good proportion has been trained at INFOTEC, Mexico). But, at present, they face serious problems, both economic and structural, and as regards the training of personnel. Apparently, there is also a certain degree of misunderstanding from ITINTEC governing bodies, with a clear risk that the situation evolves towards conventional information services, as it is the case in its Argentinian brother centre. UNIDO assistance will be, of course, very important; but, above all, a greater determination and agressiveness from the information centre itself will be needed, in order to preserve and develop the embryo of industrial information service that now exists.

36. The mission visited the International Fair of the Pacific, where we have the opportunity to know a quite original system of information: about one year in advance, they send visiting experts to firms, in order to know their problems. A "book of problems" is then prepared and possible solutions are looked for, which, in turn, are compiled in a "book of solutions". Finally, a joint meeting is organized to exchange information between those who have the problems and those who could have the solutions.

37. On this basis, the fair could be considered as an adequate framework to promote the industrial information activities in Latin America. Perhaps UNIDO and FID/II could organize a joint meeting, as a first step to reactivate FID/II/LA subcommittee. Participants would be drawn from organizations which seem to be adequate to house industrial information services, as it appears from the conclusions of the present mission.

III.5. ECUADOR

38. The mission visited succesively Guayaquil and Quito. In Guayaquil, we had a working session with the Regional Manager of CENDES (Centro de Desarrollo del Ecuador) and the staff of its Technological Information Service. In Quito, besides a general meeting convened by CENDES at its headquarters, we paid a series of visits to different organizations, by splitting the mission in two groups. The information which follows corresponds to organizations I visited personally.

39. The Guayaquil Regional Division of CENDES and the Technological Information Service attached to it, are both in a period of reorganization. Some years ago, the service operated as a real Industrial Information Centre. But since Dr. V. Martinez, its former director, left, serious difficulties appeard and lasted for the last two years. A certain reorganization is now under way; but it is not clear that it would actually lead to an industrial extension service. At present, they provide information only on request. Activities are mainly concentrated in the sector of agro-industries, while some attempts are being made to extend services to metal mechanical and electrical industries, but with serious difficulties to recruit engineers from those branches. The service receives about 280 requests per year, 30 to 40% coming from students who are preparing their thesis.

40. About one year ago, CENDES installed a terminal for on line access to data bases, with assistance from "Red INCA", Spain, and the financial support of UNIDO. The present method of access, however, through normal

telephone communication with USA, is enormously expensive. So, the terminal was only used during the training period, and during the initial free of charge periods granted by data base producers. Then, it remained completely inactive.

41. To sum up: it appears that CENDES is not carrying out, at present, industrial extension services, and its activities can be considered as declining. In reply to the questions they receive, they send to industries "evaluated" answers, which are certainly valuable; but they are very limited in number. On the other hand, the service acts only on request, without any attempt to carry out uninvited visits, in order to gather the real problems and needs of the industrial firms.

42. Organizations visited in Quito were the following: Development Bank of Ecuador: Banco de Fomento: Technological Research Institute of the National Polytechnics: and the National Council for Science and Technology (CONACYT). The Development Bank and the Banco de Fomento are both members of a group of three development institutions: the Banco de Fomento deals with the agricultural secotñ the Corporación Financiera Nacional with private industry, and the Development Bank with the public sector. They have teams of engineers to evaluate the projects they receive, though they are better equipped for economic evaluation than for the technological one. They don't pay great attention to the activities of CENDES, as regards information for industry, but rather suggest, as suitable counterparts, the Chambers of Industry, which are private institutions existing in Quito and in Guayaquil.

43. The Technological Research Institute, at the National Polytechnics, seems to be, nowadays, the best placed centre as regards information for industry. They clearly confess that, years ago, they supported CENDES activities, but the decline of this organization forced them to give services by themselves. Their activities include technical assistance, by visiting the firms, specially in the mechanical, electrical and food sectors. Total staff includes 22 engineers, with 8 of them devoted to

technical assistance function, including information: they use the library of the polytechnics, as well. They showed a very great interest for INTIB and UNIDO services in general, from which they will probably make an extensive use, as the type of services they provide are very much in line with UNIDO philosophy.

44. The National Council for Science and Technology (CONACYT) is a recently created organization (1979) which actually has been operating for one year, and is planning the establishment of a National Scientific and Technological Information System. Two subsystems are envisaged, at the beginning, one for industry and the other for agriculture, while a third subsystem will be created later on, for energy. A certain decentralization is also envisaged, and so the industrial subsystem could be entrusted to CENDES. CONACYT is also responsible for international affairs, and so it is the ecuatorian member of RITLA and SAIT (Andean System of Technological Information). Generally speaking, the whole scheme has the faults derived from the organization "from above", that is, a pure theoretical organization, existing only on paper, without the corresponding infrastructures to be coordinated.

III.6. COLOMBIA

45. The main activity in Bogota had the form of a seminar, organized by the Instituto de Fomento Industrial (IFI). The programme was changed in order to reserve the whole first section for the presentation of national problems and situations, while lectures by the members of the mission were concentrated in the second part, without any clear link between one part and the other. The mission seemed to perform the role of catalizer, to bring together a number of organizations concerned, in order to discuss national problems in the field of information.

46. From the various presentations made by Colombian representatives, it could be understood that, although COLCIENCIAS received the responsibility of establishing the National Information System some ten years ago, such System does not exist yet in practice. There are some efforts in certain sectors, as economics and law, but not in technology. As far as information for industry is concerned, the situation, as presented by a librarian,

was described as chaotic, lacking infrastructure and planning efforts, while there is a strong need for a central coordinating body, as well as a great shortage of trained personnel. On its turn, IFI recognizes that, though it has developed many contacts with industry, the information sector is not well organized and information does not reach the firms. Nevertheless, the solutions proposed by IFI representatives fall under conventional documentation methods, with a very strong library influence. The only industrial sector where some embryonic information services seem to exist is the agroindustries, where the Instituto de Investigaciones Tecnológicas makes some efforts and receives about 250 requests per year.

47. Aside from the seminar, a meeting was held with a representative of COLCIENCIAS, who happened to be the coordinator of the National Information System. He explained the philosophy of the System, which is divided into several subsystems; some of them are already into operation, while the industrial subsystem is still in project. Generally speaking, on establishing a real information service for industry, a certain clash of interests can be perceived: first, COLCIENCIAS is the organization which has the legal responsibility to establish such a System: on the other hand, IFI claims that it would be easier for them to establish the service, as they have already the contacts with industrial firms. And, as a background, the librarians, very influential in Colombia, who seem to be in deep disagreement with COLCIENCIAS, perhaps because they have not been consulted on planning the System. Also the SENA (Servicio Nacional de Aprendizaje) offers itself as a suitable place to locate an industrial information service, inspite of the fact that its activities are mainly educational.

48. As in Quito, the mission splitted in two groups, to carry out a series of visits. In personally visited FONADE, an organization which finances feasibility studies for development, and, as such, could be a good INTIB user: and the Royalties Section of the Superintendencia de Industria y Comercio, which has no special interest.

III.7. VENEZUELA

49. On the occassion of our visit, the Consejo Nacional de Investigación Científica y Técnica (CONICYT) organized a technical meeting, with the aim of reestablishing the Technological and Industrial Information Network, in view of an improved Venezuelan participation in international projects, like RITLA and SAIT. A number of organizations were invited, with the final goal of signing a document to relaunch the above mentioned network. It appears that CONICYT had an industrial extension service, sometime ago, but it was abandoned, and they maintain now that this type of service should be provided by Industrial Research Centres.

50. We should stress, as a general feature, that public sector has a great importance in Venezuela, as a good proportion of the main industrial firms, specially those of strategic value, are state-owned, at least partially. In these firms, there is at present a serious productivity problem, which the government should solve, through adequate information mechanisms. The cooperation of technology registries is also considered very important, as they can bring out the actual demand of technology in the country.

51. The possibilities of UNIDO action in Venezuela are, to a certain extent, doubtful, due to the special features of the industrial situation, dominated by big firms, which solve their information needs by themselves, and also to the very little significance of small and medium-size industries.

52. Besides the above mentioned meeting, CONICYT organized a general presentation, to inform on INTIB activities. Most attendants were members of CONICYT staff and, as there was no simultaneous interpretation, the spanish-speaking members of the mission took charge of the best part of the session, which, on the other hand, had a purely descriptive character.

III.8. NICARAGUA

53. The visit to Nicaragua was prepared during our stay in Venezuela, splitting the mission being necessary to make it possible. It consisted of a working session, at the Direction of Technology, Ministry of Industry,

and a visit to the Minister of Industry. There is a total lack of any information service or system in the country, and so the discussion dealt mainly with the possibilities that UNIDO could offer in order to establish a minimum infrastructure for industrial information. It should be point out, however, that Nicaraguan authorities, realizing the need of starting from zero, in all aspects, want to establish, at the same time, an Industrial Information Service and a National Documentation Centre.

III.9. COSTA RICA

54. As I was in the group which visited Nicaragua, I missed a good part of the stay in Costa Rica, and was only present in the visit to the Instituto Tecnológico de Costa Rica and its Technological Information Centre. The Institute is basically a training organization, with an information centre, located at the Research and Development Division. They have developed some links with foreign data bases and, in a limited scale, their own data bases. They provide also technical assistance services to industry, though this is not an important activity.

III.10. MEXICO

55. INFOTEC organized a seminar in Mexico, which happened to be quite different from those held in other countries. After Mr. de Mautort's presentation on INTIB and UNIDO activities, there was a general presentation of the Mexican situation, as regards technology transfer, followed by the description of five concrete experiences in various Mexican industries. Generally speaking, all cases showed a marked trend towards the use of data bases and on-line services. All firms seem to be relatively big or, in the case of the smaller ones, with comparatively highly developed technological capabilities.

56. The mission paid a visit to INFOTEC, where we could realize that their activities are evolving towards consulting work for relatively big firms, leaving therefore, to a great extent, the field of information properly, specially as regards small and medium-size industries.

From a population of 15.000 firms, they have selected a group of 1.000, where INFOTEC activity will concentrated. This activity is more and more oriented towards technological studies, technological forecasting and the like.

57. To complete our stay in Mexico, we visited SECOBI, the data-base search service belonging to CONACYT. It is a central service, which has the responsibility of coordinating all Mexicans activities in this field. SECOBI offers to the users direct access to five on-line search services in the United States (Lockheed, SDC, BRS, DRI and New York Times); access to french system Questel is now under negotiation. SECOBI has four offices, two in Mexico City and two in the provinces. Searches are made for the users on request, or the user can hire a terminal to perform the searches by himself. Other activities include the organization of training courses and a document delivery service.

58. Our last visit was paid to the firm AROQUIM, where we visited the information service. It is a good example of a firm which develop with direct cooperation from INFOTEC. We should stress the good place the information service has within the company structure, where they cooperate with manag-ment in developing new products: very far, in short, from the librarian concept of information services.

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59. A brief summary of the situation in the countries visited has to stress, once again, the practically total absence of Industrial Extension Services, as conceived by FID/II and UNIDO Philosophies. That is very important, as we feel that UNIDO action can only be effective if it is channelled through adequate national counterparts. Generally speaking, and taking into account the peculiarities of the different countries, we should say that Technological Research Institutes are the best placed organizations to establish that type of services.

60. Last but not least, we should mention the very interesting meetings the mission had, in all countries, with the Resident Representatives of the United Nations Development Programme. These meetings proved to be extremely useful, as sources of basic information on the respective countries. We should also thank the continuous and very valuable assistance we received from Senior Industrial Development Field Advisers and Junior Profesional Officers. The excellent organization of seminars in all countries should be mentioned too.

IV. GENERAL REMARKS ON REGIONAL COOPERATION IN LATIN AMERICA

61. As regards cooperation in the field of scientific and technical information, we should mention the activities (past, present or in project) of some international organizations, like UNESCO, OAS, FID, RITLA and SAIT, as well as the two meetings of the Iberoamerican Conference on Scientific and Technical Information and Documentation (REUNIBER).

62. UNESCO activities, within the framework of its General Information Programme led to a general consciousness on the need to formulate and implement National Scientific and Technical Information Policies, and, consequently, to create national coordinating bodies, which, at the same time, will act as national GIP "focus". Many countries have created, or are planning, National Information Systems, according to UNESCO guidelines and recommendations. Nevertheless, and as we have already mentioned, such Systems exist only on paper: the mistake has been, perhaps, to try to create coordinating bodies without the previous existence of an adequate infrastructure of actually operating services. UNESCO has recently created a special Advisory Committee for GIP in Latin America and the Caribbean, but it has not met as yet. This approach, which can be very effective to strengthen regional cooperation, has however a potential disadvantage: the presence of an increasing number of small Caribbean countries, with different language and different problems, can distort the picture and introduce new and additional difficulties for cooperation.

63. The Organization of American States, through its Regional Information Programme, has accomplished an important task, which led mainly to the creation of several specialized technological information centres, particularly in the smaller countries. Although the strengthening of regional cooperation was one of the main objectives of the programme, in practice it was limited to some meetings, without any significant results.

64. The International Federation for Documentation (FID) created, in 1950, its Commission for Latin America (FID/CLA), which, since then, has met regularly and held various seminars and technical meetings. Nevertheless, FID/CLA is mainly oriented in a traditional librarian sense. Within FID/CLA there are several committees which correspond with those of FID; among them, FID/II/LA, which we have already mentioned. It has, howver, remained practically inactive in the past.

65. The creation of Latin American Technological Information Network (RITIA) was approved by SELA (Latin American Economic System) by 1978-1979, and has, as the basic objective, the exchange of information for technology transfer. But RITLA has not operated at all, up to now. Its members are Bolivia, Brazil Ecuador, Mexico, Nicaragua, Peru and Venezuela. Colombia intended to be a member, initially, but withdrew later on. Secretariat has been established in Rio de Janeiro, where we had the opportunity of meeting the Secretary General, Mr. Barbosa. He intends to prepare a Plan of Action, which has to be approved at the beginning of 1982. But from the information we gathered during the mission, we could deduce, except for a few exceptions, the existence of a general scepticism as regards the effectiveness and usefulness of RITLA. The organization is also seriously limited by the need of operating through diplomatic chanels and by its very limited resources. (see annex 1).

66. The Andean System of Technological Information (SAIT) depends from the Junta del Acuerdo de Cartagena. Apparently, it is a closed system for the exchange of information between member countries: Bolivia, Colombia,

Ecuador, Peru and Venezuela. Again as in the case of PITLA, the informations we gathered show no enthusiasm at all, as regards SAIT operation. On the other hand, we couldn't get any convincing explanation on the evident duplication of efforts between RITLA and SAIT: member countries are mostly the same in both cases (see annex 2).

67. In 1978 and 1981, the 1st and 2nd Iberoamerican Conferences on Scientific and Technical Information and Documentation (REUNIBFP I and II) were held in Madrid and Buenos Aires, respectively. They were organized to discuss very concrete problems, where a cooperation effort among spanish and portuguese-speaking countries would be feasible. A considerable work has been accomplished by various working parties, which have worked between the first and the second conferences, and will continue to operate in future. The most active working parties dealt with on-line information systems document delivery and the access to primary documents; and compiling national literature on science and technology. Another working party studied the problems of training, including user training. Although the specific problems of information for industry were discussed during the 1st conference, no special activity has been derived. Nevertheless, the various links and relationships which have been established, can be extremely useful to promote cooperation in that field.

68. As we can see from the foregoing considerations, Latin American cooperation in scientific and technical information is more apparent than real. We can conclude that there are very favourable conditions for cooperation in this field, but they are not fully exploited. Among the main obstacles, we should mention the lack of adequate infrastructures, and the high mobility of managing personnel, which seriously hinders the establishment of permanent contacts.

69. In the specific field we are dealing with, information for industry, perhaps a good way would be to relaunch FID/II/LA committee. The FID/II international committee has proved its effectiveness as a forum to exchange experiences, as a framework to define ways of action, and as a tool for

cooperation among the institutions there represented. Latin American presence has been very limited and sporadic, up to now. As we cannot ignore the difficulties derived from long-distance travelling, it would be better to encourage intra-regional cooperation through FID/II/LA. UNIDO assistance could be extremely valuable in this context.

70. But, in any case, the prerequisite for a regional cooperation will be the establishment of industrial information structures which, as we have seen, do not exist to-day, with the exception of INFOTEC and a few embryonic services. We shall come back on this topic later on.

71. Finally, and taking into account the decissive importance of language in information work, we cannot forget the very important role that Spain and Portugal can play in Latin American regional cooperation, as REUNIBER-I and II conferences have clearly shown.

V. POSSIBILITIES OF UNIDO ACTION. THE ESTABLISHMENT OF INDUSTRIAL INFORMATION STRUCTURES

72. As we have repeated through this report, adequate utilization of INTIB and, more generally, of UNIDO services, requires necessarily the existence of national organizations to channel that action. These organizations will be responsible of industrial information activities at the national level. The first and main effort should be directed, then, to the establishment or strengthening of such structures. Whenever possible (and it will be possible in most cases) it would be better to support existing centres, even with the necessary changes, rather than to create new ones.

73. Among the organizations we visited, technological institutes, where they exist, seem to be the best placed for the above mentioned task. We should mention the INTI, in Argentina; ITINTEC, in Peru; the Technological Research Institute of the National Polytechnics in Ecuador; the Technological Institute in Costa Rica; or even the Technological Institute in Colombia. There are, however, some institutions, like COLCIENCIAS in Colombia and CONICYT in Venezuela, which have the legal responsibility to establish

the system and, in such cases, it will be obviously necessary to act through them. Finally, in Uruguay the Centro Nacional de Tecnología y Productividad seems to be the best placed, while in Nicaragua, where nothing exists, a new centre has to be created. As for Chile, my very short stay does not permit any opinion. The former list is, of course, purely indicative; obviously, final decision has to be taken by national authorities.

74. To help in the establishment or strengthening of industrial information structures, UNIDO resources will be needed. Financial help will be required, even to purchase basic materials. And the assistance of experts will also be needed, either directly financed by UNIDO, or through the UNDP.

75. Another important consideration is the need of a global planning of UNIDO assistance, by integrating technical assistance for development with support for information activities. The main guideline will be that industrial information is an integral part of industrial development policy and should be dealt with as such, both at the national level and in international aid aspects. On the other hand, however, we should not forget that industrial information is also a part of the general scientific and technical information policy and should be included in the respective national systems. This dual consideration of industrial information, as a part of STI policy and as a part of industrial development policy has to be carefully considered on planning any international assistance action.

76. On the other hand, we could perceive, among organizations which made use of UNIDO services up to now, a rather general complaint on the delays in receiving answers. As a possible cause, among others, we suggest the shortage of personnel in the UNIDO Industrial Information Section. A quick solution to this situation will be required, if industrial information in developing countries is to be effectively promoted.

77. As regards "horizontal" cooperation between countries in the region, and besides its promotion from UNIDO, once established the required infrastructures, we insist in the convenience, as a complementary means, of UNIDO cooperation to relaunch the activities of FID/II/LA committee. We should remind, in this context, that one of the members of our mission came from INFOTEC, and the Director of INFOTEC is, at present Chairman of FID/II/LA. Now, the mission provided a number of contacts and relationships which will be extremely useful in order to select possible members of the committee. We should suggest a first meeting of FID/II/LA, to be jointly organized with an UNIDO sponsored seminar. All this will require, of course, the existence of an active Secretariat of FID/II/LA, operating in INFOTEC.

78. A last interesting aspect would be the possible cooperation of Latin American countries with other developing countries in different regions of the world. To encourage and direct that cooperation, UNIDO should try to have available, at least, the complete lists of answers the Latin American Information Services have sent to industrial firms, in replying their requests. This information, incorporated to INTIB and other UNIDO services will be, no doubt, of very great value to other regions in the world.

ANNEX 1

RITLA

Background

In the V m-eting of the Latin American Economic System (SELA), held in Caracas, in August 1979, the Constitutive Act of the Action Committee for the establishment of the Latin American Technological Information Network (RITLA) was signed.

Definition

RITLA is defined as a focal point to compile and disseminate technical, economic and commercial information. It will contribute, in this way, to strengthen the regional technological capabilities in this field. RITLA is conceived as a tool to strengthen the capabilities of national or regional systems as regards technology import, negotiation, commercialization and generation.

Objectives

- To strengthen national or regional capabilities in the generation and dissemination of information, and thus contributing to reach original or autochthonous solutions.

- To help to improve capabilities for the import, negotiation and adaptation of technologies.

- To promote commercialization of local technologies and engineering and consulting capabilities, by informing on existing opportunities.

Structure

RITLA will be managed by a Board, consisting of representatives of each of the member countries, and will operate through National Coordinating Centres, and through the executing units or organizations in the member countries.

Each executing agency will chanel information between the user and any institution, in any other member country, which could provide it.

A Secretariat, run by a Secretary appointed by the Permanent Secretariat of SELA, will deal with techno-administrative matters, and will act as a central node for the network.

PROJECTS OF THE ACTION COMMITTEE OF RITLA

- To improve the capability for technology import and negotiation.

- To support engineering and consulting capabilities.

- To encourage integration of technological institutes in Latin America and the Caribbean.

From these projects, the first one has been already formulated, and is divided in five programmes.

1. Training of technology negotiating experts.
2. Training of the national patent systems staff.
3. Exchange of information on technology contracts.
4. Latin American handbook for technology contracts.
5. Exchange and training of experts in industrial property, technology transfer and patent information.

Financing

Through member countries contributions. Each country will finance the operation of national centres and executing agencies.

ANNEX 2

ANDEAN SYSTEM OF TECHNOLOGICAL INFORMATION

Background

During the 20o period of ordinary sessions of the commission of the "Acuerdo de Cartagena", Decision 154 was approved, creating the Andean System of Technological Information (SAIT). This decision tries to fill the gap still existent in the process of strengthening technological capabilities, both individual and global, in Andean countries, as formulated in Decisions 24, 84 and 85.

Definition

In order to define SAIT, it was necessary to identify priority information needs in member countries, so as to design the most suitable mechanisms to fulfill them. SAIT is, then, designed, as a form of subregional Andean cooperation, through which it is intended to increase the amount and quality of available information, to record and analize it in a systematic way, and to develop means and procedures of supplying that information to the user.

Objectives

To strengthen capabilities for technology and capital negotiation in Andean countries: to encourage generation of technology: and to contribute to the proper use of the elements of industrial property.

Structure

SAIT is managed by a Board, consisting of two representatives (official and alternate) of each of the member countries: Bolivia, Ecuador, Colombia, Peru and Venezuela.

The system will operate through specialized networks in the following fields: foreign investments; international prices: technology transfer; and industrial property. And sectoral networks, which will be created according to priorities of the integration process.

Each network will be managed by a coordinating committee, consisting of representatives of the national institutions active in the corresponding subject or sector. For instance, in the foreign investments network, Venezuela will be represented by SIEX.

PROJECTS OF SAIT

Project 1. Exchange of information on direct foreign investments.

This project will lead to the establishment of a permanent mechanism for the exchange of information on foreign, subregional and neutral capital investments in Andean countries, so as to strengthen their negotiating capacity as regards foreign investors.

Project 2. Exchange of information on international prices.

This project will develop national mechanisms of information on international prices, and will define permanent strategies for the exchange of information at subregional level.

Project 3. Information exchange on technology transfer contracts.

In order to strengthen the negotiating capacity of local firms, as regards technology suppliers, a permanent mechanism will be created, to exchange the information contained in technology transfer contracts, authorized in the Andean countries.

Project 4. Exchange of information on patents and trade marks applications.

Through the creation and operation of a mechanism to exchange information on patents, trade marks, models and industrial drawings, granted in the Andean subregion, this project will try to improve the capabilities to examine applications, and the operations of industrial property agencies.

Project 5. Technological information contained in patents granted in the subregion.

This project will design and test a methodology to compile and disseminate technological information contained in descriptive memoranda and claims of patents granted in the Andean subregion.

Project 6. Inventory of the local offer of licensable technology.

This project will contribute to the dissemination of technologies developed in the Andean subregion, as well as to design a methodology to identify and evaluate those technologies.

Project 7. Search and dissemination of alternative technologies.

Within this project, a number of industrial profiles will be prepared, containing as many alternative technologies as possible. Specific searches will be carried out to this end.

Project 8. Preparation of rules and standards for the classification and exchange of information.

This project will define the organization and functions of SAIT units and will prepare a set of rules to define relationship between the participant national institutions, as well as the actions to be undertaken by JUNAC, through SAIT Secretariat.

Project 9. Inventory of national documents.

The aim of this project is to rationalize research and development expenditures in Andean countries, as well as to contribute to the proper valuation of the efforts already done, through the dissemination of their results.

UNIDO/INTIB PROMOTION MISSION

TO

LATIN AMERICA

November/December 1981

(Contribution to the joint mission report)

by

Dr. Adam Wysocki

January 1982

1. From 7 November to 19 December 1981 the Consultant has undertaken, as an INTIB team member, a promotion mission through Latin America visiting the following countries: Uruguay, Argentina, Chile, Peru, Ecuador, Colombia, Venezuela, Mexico.

2. Terms of reference

a) In accordance with the Consultant Contract N°CLT/81-396 the contractor has been instructed to undertake a promotion mission for INTIB, and to contribute to joint report on status of existing industrial information systems, services and networks in the countries visited and in the region as a whole, their role in the respective countries and in the region, the needs and problems identified and the role that UNIDO, and in particular INTIB, can play.

b) Accordingly to the detailed instructions received from Mr. R. de Mautort, Chief, Industrial Information Section, the contractor has been charged to prepare and present a report for the seminars held in respective countries on "International Information Programmes, Systems and Networks and the extend and limitations of their relevance to the industrial information needs". Furthermore as a member of the group the consultant was instructed to develop all manner of individual contacts of potential benefit to INTIB and search for local partners to help INTIB reach out to end users.

3. General characteristics of scientific, technical and industrial information in Latin America

The Latin America and Caribbean Region countries visited by the team, have many similarities in factors relating to their common historical background, cultural roots and language and in problems specific to the developing countries.

There are however significant differences between them as regards their relative level of development and the resources they have available.

In visited countries there are also many similarities in the development of scientific, technical and industry information. The team members noted that the industrialists and policy makers in most countries have not jet recognized the role and importance of industrial information as an essential component in the national development policies and plans.

Many countries have developed or are planning the establishment of national scientific and technical information system in which the industrial information is foreseen as one of the subsystems.

Several countries have set-up a National Information Focal Point responsible for national information policy, but only few of them have clearly determined an industrial information focal point.

In all visited countries a similarity is observed as to the priority fields for the information systems or services, namely:

- agriculture,
- science and technology,
- energy (production and conservation),

- industry,
- public health,
- education,
- socio-economic development.

In most countries the existing scientific, technical and industrial information systems or services are bibliographically oriented. There are only few countries which have established industrial information advisory or extention services.

In most countries the establishment and development of industrial information services is jeopardised by lack of adequate financial resources and/or qualified staff. The dominating role of bibliographic services, which pretend to cover industrial information needs, is not a favourable factor in this development.

Regional co-operation

In the Latin American and Carribean Region there are many organizations engaged in the regional co-ordination and integration in different fields. To the most important, which are linked with socio-economic development of the region, the following could be mentioned (this short review does not pretend to provide a complete picture of ongoing efforts in Latin America but rather to highlight the wide variety of activities going on mainly in information field):

SELA (Latin American Economic System)
is a permanent organization for economic co-ordination and co-operation established in 1975 and covers most countries in the region.

Cartagena Agreement (Andean Pact) signed in 1969 for the purpose of implementing and fostering subregional economic co-operation.

LAFTA (Latin American Free Trade Association), created in 1961 for the purpose of establishing a free-trade area and gradually eliminating tariffs barriers.

The organizations involved in regional or subregional co-ordination are attaching increasing importance in the co-operation in the field of scientific, technical and industrial information, by creating appropriate mechanisms.

The following two efforts merit special attention:

SAIT (Sistema Andino de Informacion Tecnologíca) established in June 1980 by the Commission of the Cartagena Agreement.

SAIT was conceived as a mechanism for expanding national and subregional technology capacity. It should consist in the permanent interlinking of units (institutions, enterprises or individuals) that request or supply information of a technological or related nature and it will be organized by specialized fields or by sectors of activities.

This mechanism involving joint action and horizontal co-operation among units in Bolivia, Colombia, Ecuador, Peru and Venezuela will cover the following fields of activity:

- information in relation to foreign investment,
- information concerning the ownership and use of technology, and
- information concerning technological knowledge.

/Unfortunately - no practical results of this mechanism were visible during the INTIB team mission)

RITLA (Latin American Technological Information Network) created by SELA in August 1979 with the aim:

- to contribute to the improvement of import and adaptation of new technologies,
- to promote the commercialisation of local technologies.

This network is defined as a focal point and distribution centre of technical and economic information.

Besides of the two information networks which are still not yet operational, there are active in the region several international organizations involved in information transfer, directly or indirectly linked with industrial information activity.

ECLA/CLADES (Centro Latino Americano de Documentacion Economica y Social) which plays a role in the field of socio-economic information, providing:

- technical advise,
- basic and in service training,
- studies and research on national information infra-structure,
- data processing (computerised system for information storage and retrieval).

UNESCO/PGI - Regional Office - set up by Unesco and located in Caracas with the aim to promote and assist Latin American Countries in the development of information systems and services at national, regional and international levels and by providing advice and technical assistance to the Member States. This activity is focused on two levels:

a) conceptual and normative,

b) operational level (technical assistance).

OAS (Organization of American States), which promotes the development of information systems and services - through the following special projects:

- Scientific and Technological Information Systems and Services Project (development of information sources, services, training, information technology, promotional activity, co-ordination and communication);

- REDLAC project (Latin American Computer Network in Brasil and Mexico).

IICA/CIDIA (Inter-American Institute of Agricultural Sciences) Inter American Centre for Agricultural Documentation, Information and Communication - set up for the co-ordination of the development of Inter American System of Agricultural Information. This Centre is also a liason and technical support centre for the system in conjunction with FAO/AGRIS.

There are many other intergovernmental organizations involved in the promotion, establishment and development of sectoral information systems and services in the region, such as UNEP (promotion of environmental information), UNCTAD/GATT (trade information), WHO/BIREME (medicine and public health information) etc.

In addition to the intergovernmental organizations working in the transfer of information there are several regional and subregional professional international organizations active in this field. To the most important one could mention FID, IFLA and AIBDA.

There also exist numerous bilateral co-operative agreements between various institutions in the region such as INFOTEC of

Mexico and CENDES of Ecuador and technical assistance projects financed on bilateral basis by the industrialized countries, which usually take the form of providing financial support for specific projects (Canada, Spain, USA, UK, Sweden etc.).

TENDENCIES IN THE NATIONAL SCIENTIFIC, TECHNICAL AND INDUSTRIAL INFORMATION DEVELOPMENT

Scientific, technical and industrial information activity in Latin America is based on traditional information requirements of specialists, scientists and researchers mainly for R and D purposes.

This approach stimulates in all Latin American countries the development of bibliographic information services and documents supply centres (specialized libraries, etc.).

The main task of the R and D oriented information systems in that region is the enhancement of science in general, enhancing the quality of scientific and engineering work and, to some extent, enhancing economic development through developing and/or making available information on research results or on new technologies.

The existing scientific and technical information infrastructures in Latin America form mainly information centres - bibliographically oriented, libraries, publishers of scientific and technical journals and few abstracting and indexing services and data banks.

These services are in their large majority public services, financed from governmental sources.

The information process ends mainly by providing bibliographic reference and, if available, the requested document.

This situation, and the still observed tendency of establishment and development of bibliographic information systems and services is due to the fact, that for many years after the II world war UNESCO and international organizations such as OAS, FID and IFLA have recommended this scheme and provided financial assistance for its implementation. This also proves the insufficient presence of UNIDO information activity in the region, which is mainly restricted to promotional actions without financial or operational follow up.

The policy makers and the existing services in the region ignore the fact that the end users in most of productive sectors (small and medium size enterprises) with limited technical skills and lack of information experience - prefer the information transfer through various expert intermediaries such as consultants and information brokers. They also ignore, that the reason for personal involvement of information intermediaries in the transfer process is the value-laden nature of conditions under which the information must be conveyed, often requiring professional judgment and certification of authenticity.

The INTIB mission team had an opportunity during its multiple visits to policy makers and during the seminars held - to sensitize the specialists on this important aspect of industrial information transfer.

Organizational tendencies

Although the general tendency of development of bibliographically oriented scientific, technical and industrial information in the region is clearly visible - there is no uniform approach as to the organization of the information infrastructure.

In this respect the three following tendencies can be distinguished:

A) Development of discipline and/or mission oriented services such as chemistry, agriculture etc. - with the aim to provide to users information on what research has been done, what publications are available, what knowledge gaps exist etc.

B) Problem-solving oriented services - passive (e.g. information on natural resources available, export facilities, new technologies etc.) - established in order to improve the quality of decision making, involving social uses of technology and especially utilized technology or production effectively - but acting on users' request.

C) Problem-solving oriented services - active (e.g. extension services, industrial advisory services) - created with the aim to anticipate and actively involve in the decision process those impacted by the consequences of significant new technological advances and applications.

Ad. A

The first group of systems and services - discipline and mission oriented forms the major part of national information systems in Latin America. The following countries

visited by the INTIB team adhere to this group: Uruguay, Argentina, Peru, Colombia and Venezuela.

URUGUAY

In Uruguay does not exist co-ordinated national information network in science and technology. There are several loosely conected information units involved in storage and retrieval of scientic, technical and industrial information - providing mainly bibliographic services. Few centres belonging to the Ministry of Industry and Energy provide also industrial information, including advisory services and industrial data.

Centro Nacional de Tecnología y Productividad Industrial (CNTPI)

The principal aim of the Centre is to provide at request advisory services in the field of technology and industrial management to private and public enterprises, together with technological information both bibliographical and factographical - serving governmental policy to improve industrial efficiency and export.

Laboratorio de Analisis Tecnologica de Uruguay

Set up to provide industrial information concerning norms and standards mainly for exported and imported products.

Direccion de Propriedad Industrial

UNIDO focal point for INTIB involved in question and answer service for industry.

Servicio de Informacion Comercial

(Ministerio de Economia y Finanzas) - working in the field

of export and collecting of commercial information provided by the Uruguayan commercial representatives.

Centro de Documentacion Cientifica, Tecnica y Economica, located within National Library with main task to publish Union Catalogue of Scientific, Technical and Economic Periodicals existing in Uruguayan libraries. The Centre co-operates largely with CONICYT in the field of specialized bibliographies and microfiche service.

ARGENTINA

In Argentina there is no formally established national information system, but rather a number of sectoral networks notably in the field of agriculture, industry, economy and biomedicine, each of which is responsible for satisfying the information needs of specialized users' groups. At the broader level, national services such as an inter library telex network and SDI service provide support for information transfer.

The national information focal point is CAICYT (The Scientific and Technological Information Centre of Argentina) which works under the responsibility of the National Council for Scientific and Technological Research.

The main task of CAICYT is to work towards a restructuring of information services, systems and networks and endeavouring to develop supervisory machinery and provide greater facilities for access to information resources in the country.

At the regional and international level CAICYT is seeking to harmonize the national activities with the international programmes by participating in them and maintaining the

necessary contacts. CAICYT supervises several specific projects such as Union Catalogue of Periodicals, the telex network for supply of copies, translation service, SDI service.

Among the Argentinean organizations involved in the transfer of technological and industrial information INTI (Institute Nacional de Tecnologia Industrial) is playing the key role. It is entrusted by the government to apply the new law No. 22426 of March 12, 1981 on transfer of technology. The new law requests the government to provide to the Argentinean industry more information available at world market in order to improve the conditions for better selection and better choice of new technologies. For this purpose INTI through its Documentation Centre has established and developed a communication network among the national and international institutions such as UNIDO, foreign industrial chambers, foreign industrial organizations involved in technological development.

INTI is also collecting foreign bibliographies relating to industrial development, participating in industrial fairs and exhibitions, conferences and workshops and maintains direct contacts with many foreign enterprises.

The transfer of technological information organized by INTI is not only linked with productive function. It also comprises other aspects such as - production costs, quality control, standardisation, use of computer technology in production area etc.

PERU

Another typical example of discipline and mission oriented information services - is the information activity in Peru,

where the responsibility for the co-ordination and promotion of national information activity rests with the National Research Council (CNI). For this purpose the National Centre for Scientific and Technological Information (CNIDYT) has been set up with the aim to organize resources in the field of scientific, technological and industrial information.

CNI secured the inclusion of Peru in the multinational programme (Special Project for Information and Technical Assistance for Industry) launched by OAS in 1972. The institutions involved in execution of this project included Institute for Technological and Industrial Research and Technical Standards (NTITEC), the Petroleum Company of Peru (PETROPERU), Peruvian Industries (INDUPERU) and the Fishing Company of Peru (PESCAPERU).

CNIDCYT has encouraged the specialized information sectors to join National Network of Scientific and Technological Information (RENICYT). This is seen as an integrated, multidisciplinary system comprising functionally interrelated branches and covering the complete spectrum of science and technologies vital to the development of the country. This network provides bibliographical information at the request of public and privat users.

As a tool for integration and co-ordination CNICYT has organized the National Referral Centre and starts to prepare a national union catalogue of scientific and technical periodicals.

VENEZUELA

The national information focal point in Venezuela is the Centro Nacional de Informacion Cientifica y Tecnica (CNIT), a department of the National Research Council (CONICIT). The statutory functions of CNIT made it responsible for the organization of national system of scientific and technical information and co-ordination of all information resources. CNIT is also responsible for training of actual and potential users, for organization of referral service, for the formulation of national information policy in harmony with the national development plans and for the promotion of standards and scientific and technical journals and, finally, for supplying of information to small and medium size industrial enterprises.

To implement these functions CNIT launched in 1978 the establishment of a national information network composed at the initial stage of: Instituto de Comercio Exterior (ICE), Instituto Venezulano de Investigaciones Cientificas (IVIC), Consejo Venezolano de la Industria (CUI), Centro de Investigaciones del Estado para la Experimentacion Agro-industria (CIEPE) and University of Zulia. In 1981 the network has been extended to Superintendencia de Inversiones Etranjeros (SIEX), Ministerio de Fomento and Comision Venezolana de Normas Industriales (COVENIN). As a part of this network CONICIT has launched in 1981 an "Automated System of Scientific and Technical Information" (SAICYT) composed of national computerized data bases and telecommunication lines.

The following data bases are proposed for the begining:

- Bibliografia Venezolana de Ciencia y Tecnologia, (bibliographic data on national and foreign scientific and technical publications

- Proyectos de Investigacion en Curso, (register of ongoing research undertaken by different research institutions in Venezuela - both public and private)

- Catalogo Colectivo de Publicaciones Periodicas, (union catalogue of periodicals stored in Venezuelan libraries).

It is also envisaged that SAICYT will be interconnected with foreign data bases in USA, Canada and Europe.
N.B. Both projects (The National Network and SAICYT) were not fully operational during the visit of UNIDO/INTIB team.

Ad. B

The second group of information systems oriented towards passive problems solving services is clearly visible in Ecuador (CENDES) and especially in Chile.

CHILE

The development of scientific, technical and industrial information in Chile is directed towards specific group of problems, solving of which is important to the country, notably:

- information on natural and productive resources (CORFO),

- information on export of agricultural, fishery and forestry products (ECOM),

- Commercial information (PROCHILE),

- Industrial, agricultural and mining information (INTEC),
- information on ongoing research (CONICYT).

CORFO (La Cooperacion de Fomento de la Produccion) has set up within its Institute of Natural Resources (IREN) an information Centre of Natural and Productive Resources with the aim to store and disseminate information on: climate, geology, soil, forestral resources, water resources, fishery resources, productive infrastructure such as energy, etc.

The system, which is a "computerized graphic interactive system" processes in integral form graphic information together with alphanumerical.

The system serves mainly the public sector. It is expected that in 1985 the register will cover natural resources of all regions in Chile.

ECOM is an computerized information system established jointly by Office of Agricultural Planning (ODEPA) and National Enterprise for Computerization and Informatics (ECOM).

The main objective of the system is the improvement of the agricultural market and the promotion of export of the agricultural sector.

The system collects data on forest, agriculture and fishery products, export facilities, and export markets. ECOM system operates on-line through "Public Network of Data Transmission" as well as produces several serial publications.

PROCHILE is a Commercial Information System (SIC) developed by the Chamber of Commerce with the aim to provide users with information on:

- commercial opportunities;
- export statistics, export firms involved in agriculture, forestry, fishery and sea exploration sectors;
- commercial bibliographic references.

The final aim of PROCHILE is to assist the decision makers in the promotion of Chilean export.

The users of the systems are industrial enterprises, banks, transport companies etc. - directly involved in export activities.

INTEC has established an Information and Documentation Service oriented towards Chilean productive sector and especially towards agriculture, industry and mining industry.

It consists of four main groups of activities:

- referral information - to identify information sources (chiefly through LOCKHEAD system);
- Documentation Service - to provide users with original or copy of requested documents;
- Information analysis - to evaluate information by INTEC specialists at the request of users, by selecting information and formulating conclusions and recommendations (choice of appropriate technology);
- Assistance in information systems design and systems implementation - with the aim to undertake, for the benefit of productive sector and governmental institutions, feasibility studies and information system design projects.

CONICYT (Consejo National de Investigaciones Cientificas y Tecnicas) - through its Information and Documentation Centre has developed computerized data base of ongoing research projects serving as an instrument for governmental planning and communication among scientists.

MEXICO

Ad. C

The single example of an information service oriented towards active problem solving actions is INFOTEC in Mexico City.

INFOTEC is a government supported organization that contributes to the technological and industrial development of Mexico through services to industry which depend on locating, obtaining, and providing information. Its information officers, sixty specialists with degrees in science, engineering or business fields, are able to provide professional interpretation of the information collected for any industrial problem.

Under its technological assistance programme, INFOTEC engineers can furnish a company with a techno-economic profile and comparative list of possible new products. They can evaluate a proposed technology, provide a market study, locate equipment suppliers and arrange for expert consultation. In this service the emphasis is on the analysis of the information to make it directly usable by the industrial client.

INFOTEC offers an alert bulletin "Naticias tecnicas" which covers ten industrial areas. Question - answer service is provided by a specialized group of information scientists and most questions are answered within 48 hours.

4. Problems and difficulties

As it has been said - there are many similarities in the region concerning its historical background, language and socio-economic development.

There are also many common or similar problems and difficulties the UNIDO/INTIB team has observed during its mission. They can be formulated as follows:

a) Problems linked with overall national and regional information policy

- At the national level - scientific, technical and industrial information, despite of considerable investment involved in some countries, has still not succeded in becoming a genuine instrument in the global development process, chiefly on account of failure to co-ordinate and consolidate all scattered efforts in this field and to set up interrelated national information systems.

- In most of visited countries there is a lack of coherent national industrial information policy, within the framework of overall information policy.

- At the regional level - there is no common information policy and coherent strategy between countries. The existing efforts are dispersed and mainly restricted to formal agreements without practical follow-up actions.

- In the region does not exist common approach to incorporate industrial information as an essential resource in the national development process.

b) Development of national and regional information systems and services

- In most of the visited countries it has been noted the inadequacy of financial and information resources and their uneven distribution, which to great extent, jeopardize adequate development of national industrial information infrastructure.

- There is also a lack of a complex diagnosis of information needs and necessary infrastructure in different sectors (industry, agriculture etc.) which leads to false opinion that the existing bibliographical information services can meet the industrial information needs.

- The sectoral information systems or services have no link between them due to the insufficient co-ordination.

- In most of visited countries it has been noted a lack of interest to the establishment of information systems or network at regional level. This reluctance is mainly due to the political and economic factors.

- With few exceptions - most of the Latin American countries have extremely limited access to information produced by other countries with adverse consequences for the assessment, evaluation and selection of foreign technology.

- In all countries it has been observed a shortage of industrial information specialists with the requisite qualifications.

c) Dispersion and duplication of international programmes

- There is a lack of co-ordination and harmonisation of the activities carried out by the different specialized UN Agencies and other international organizations working in the information field.

- In the region it have been concluded many agreements concerning co-operation and colaboration in the field of scientific, technical and industrial information - which in their large majority, are still on the initial stage of implementation. Different international organizations organized in the past regional meetings, conference work-shops etc. and adopted a number of recommendations duplicating each other. Most of these recommendations have a formal significance and were never implemented.

- The dispersion of international actions in the region leeds to the duplication of efforts, unnecessary competition and handicaps the information assistance programmes.

d) Utilisation of industrial information for socio-economic development

- There has been observed a lack of adequate methodologies for design and operation of industrial information systems and explanation of the role they can play in socio-economic development.

- In all countries, except Mexico, there is an insufficient link between information specialists and users - mainly due to the fact that the existing services have a passive approach to the users needs.

- The traditional bibliographic information approach to solve industrial information needs, even by application of modern computer technology, is not an effective way, but is still dominating in national information practice.

WFEO/CEI International Seminar "Information for medium and small size industrial enterprises"

The seminar took place on November 14 and 16, 1981 in Buenos Aires in conjunction with WFEO World Congress and the 8-th General Assembly of WFEO. It was chaired by Mme A. David (France) - actual Chairman of WFEO/CEI.

The programme of the seminar comprised many presentations related: a) to the needs, methods and means of information transfer (speakers: H. Medina - Mexico, J.R. Alvarez-Ossorio - Spain, A. Wysocki - Poland), b) to international and national experiences (Speakers: R. de Mautort - UNIDO, V. Krasonov - USSR, R. Gietz - Argentina, L. Chico - Technonet - Asia, G. Kirouac - Canada, E. Caviglia - Argentina).

The seminar has been followed by Round Table discussion on national information infrastructure in which the representatives of the following countries took part: Argentina, Canada, Hungary, Poland, Sri Lanka and Yugoslavia.

The members of UNIDO/INTIB mission submitted to the seminar a draft of conclusions and recommendations which was a basis for the seminar's conclusions.

Meeting of WFEO - Committee of Engineering Information

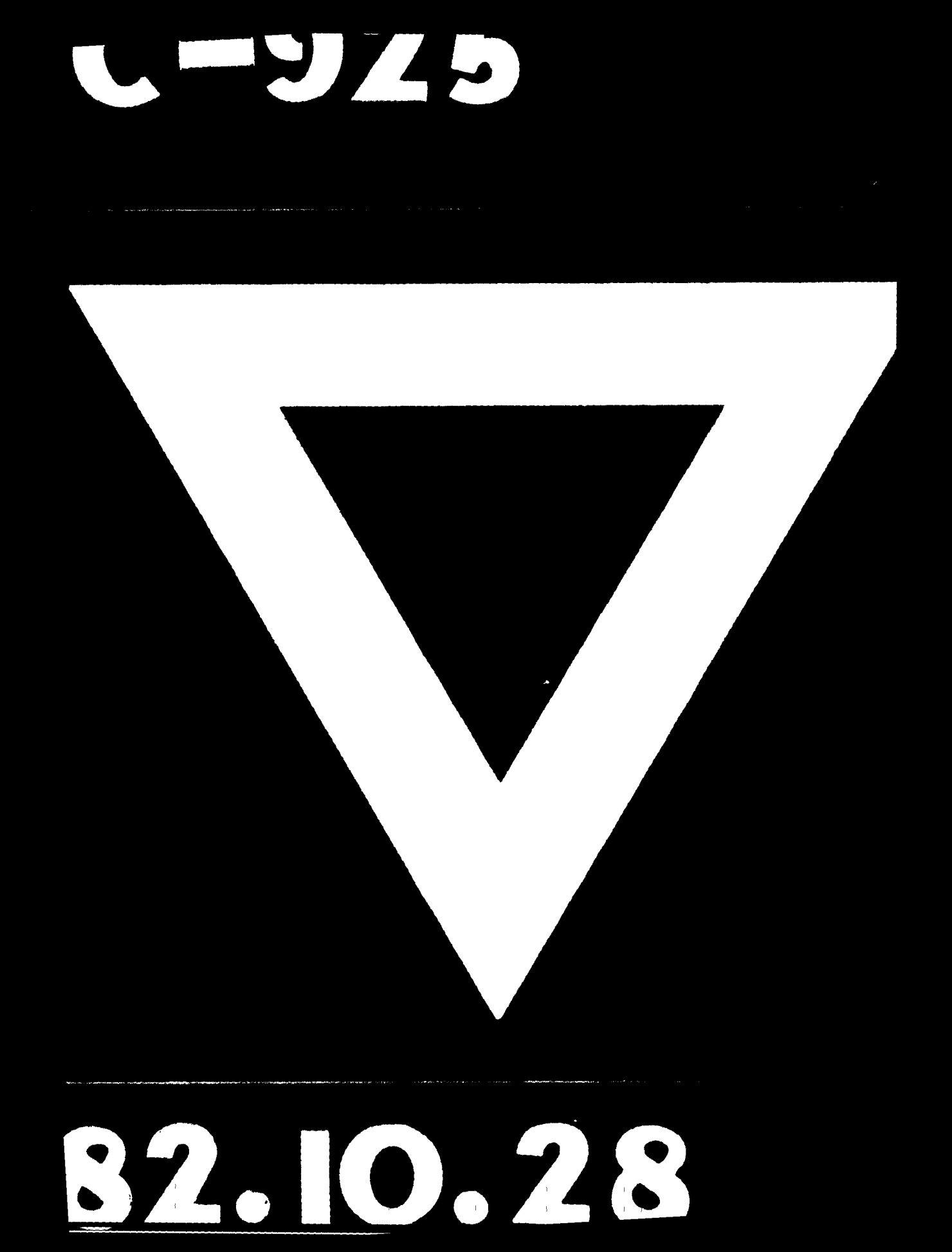
The meeting of WFEO/CEI took place on November 13, 1981

in Buenos Aires. It was chaired by Mr. Hovani (Hungary) in the absence of the CEI President Mr. P. Lazar.

Agenda of the meeting included, among others, information on the current WFEO/CEI project, the preparation and organization of the seminar and the discussion on future activity of the Committee. Among the points of the Agenda, which relate to UNIDO field of interest, a research project was submitted by Mr. L. Chico on "The roles and needs for technological information of engineers in the choice of industrial technology in developing countries"

The proposed project is focused on questions relating to the involvement of engineers in the selection of new technologies.

It has been decided to submit officially that project to UNIDO with request for financial assistance.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