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INDUSTRIAL INFORMATION IN ASIA AND THE PACIFIC

Report of a Seminar on Industrial Information for Countries Members and Associate Members of the Economic and Social Commission for Asia and the Pacific (ESCAP)

held in

Singapore, 21-27 October 1974

and

Bandung, Indonesia, 28-30 October 1974

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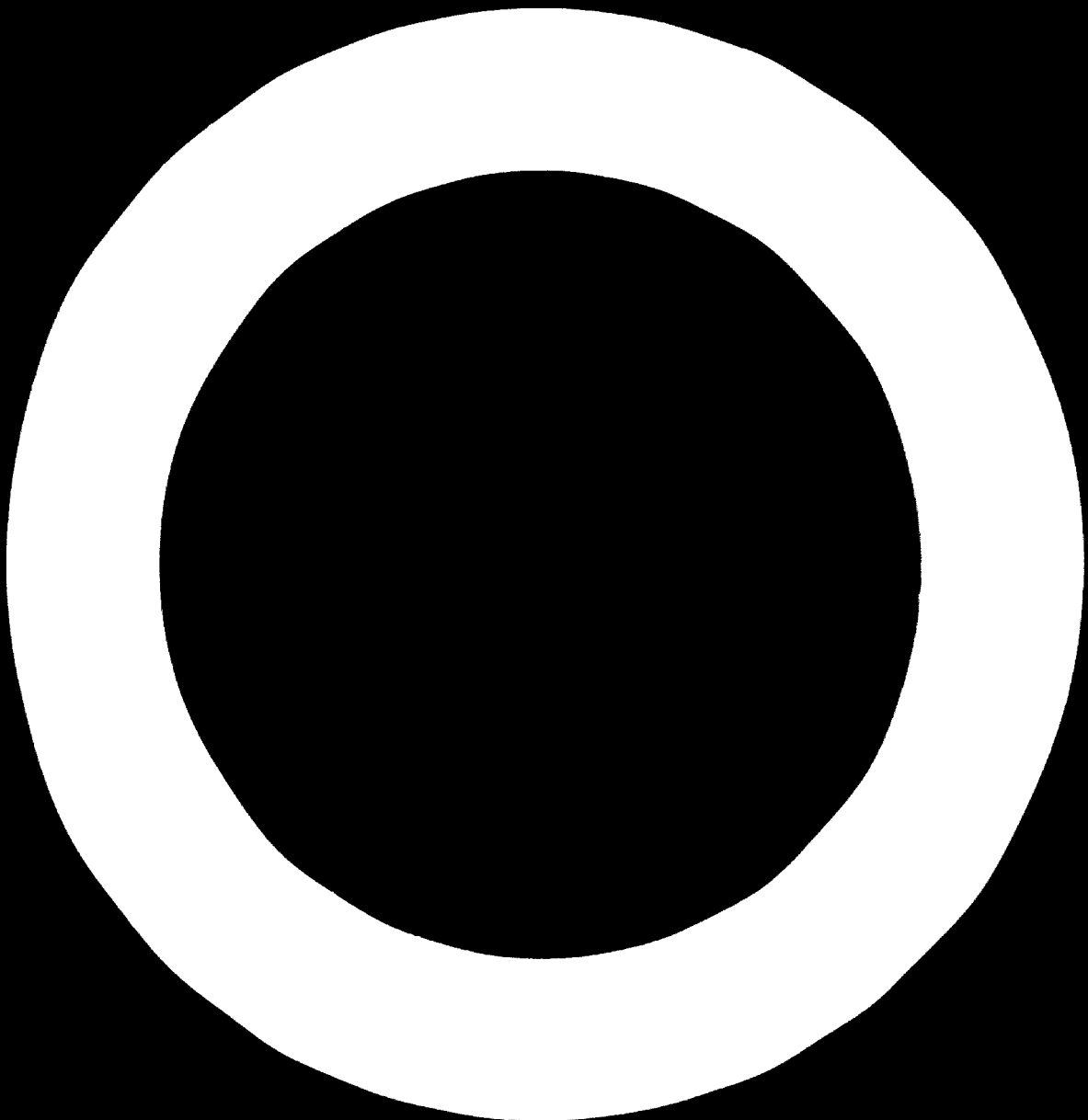

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I. ORGANIZATION OF THE SEMINAR

The Seminar on Industrial Information for Countries Members and Associate Members of the Economic and Social Commission for Asia and the Pacific (ESCAP) was organized by the United Nations Industrial Development Organization (UNIDO) in co-operation with the Governments of Singapore and Indonesia and the International Development Research Centre (IDRC), Canada. The first part of the Seminar was held in Singapore, 21-27 October, and the second part at Bandung, Indonesia, 28-30 October 1974.

The purpose of the Seminar was to bring together persons responsible for framing policies and establishing structures for industrial development services in the countries members and associate members of ESCAP in order (a) to determine the importance of the role played by industrial information in the industrialization process in those countries and (b) to decide on the best way of promoting the dissemination of industrial information in the region and of using it to accelerate industrialization and economic growth.

The first part of the Seminar was opened by Hon Sui Sen, Minister for Finance, Singapore. The second part was opened by Achmad Slamet, Secretary-General of the Ministry of Industry, Indonesia. Addresses were made by Lee Kum Tatt, Chairman of the Singapore Institute of Standards and Industrial Research (SISIR), R. T. de Mautort, Chief, Industrial Information Section, UNIDO, and W. J. Gall, Acting Administrator, TECHNONET ASIA (a project supported by the IDRC).

The following officers were elected for the first part of the Seminar:

Chairman:	Lee Kum Tatt (Singapore)
Vice-chairmen:	Mohammed Hashem Taufiqui (Afghanistan)
	F. Bermawi (Indonesia) and
	Soma Chitranganie Goonetilleke (Sri Lanka)
Rapporteur:	Louis T. P. Law (Hong Kong)

The officers for the second part were:

Chairman:	B. Kodijat (Indonesia)
Vice-chairmen:	Mohammed Hashem Taufiqui (Afghanistan)
	F. Bermawi (Indonesia) and
	Soma Chitranganie Goonetilleke (Sri Lanka)
Rapporteur:	Y. R. Chadha (India)

Of the 17 countries invited, 16 participated, namely, Afghanistan, Bangladesh, Hong Kong, India, Indonesia, Iran, Khmer Republic, Republic of Korea, Malaysia, Nepal, Papua New Guinea, the Philippines, Singapore, Sri Lanka, Thailand and Republic of Viet-Nam. The IDRC and TECHNONET ASIA were represented as co-organizers and the Asian Productivity Organization (APO) as observer.

The following guest lecturers participated: K. Klintøe, Director of the Danish Technical Information Service (DTC); G. Kirouac, Chief, Technical Information Service (TIS), National Research Council of Canada; and José Fernandez-Sueto, Chief, Technical Information Service, National Council of Science and Technology, Mexico. Representatives of the IDRC, of TECHNONET ASIA and of the UNIDO secretariat also contributed to the Seminar by giving lectures and participating in discussions.

The representatives of UNIDO made detailed statements regarding the various forms of assistance which UNIDO could render through the establishment or development of industrial information facilities or through the services of its clearing-house for industrial information. Emphasis was placed on the development of technical assistance projects on the basis of the provisional indicative planning figures for the period 1977-1981. Individual discussions were held with delegates with a view to generating project proposals. Some of these discussions resulted in actual project proposals for a number of countries.

Thorough discussions were conducted with the delegates of some other countries on the basis of project proposals previously formulated for further negotiations with the respective Governments.

The first part of the Seminar was devoted to the presentation of country reports in which the participants recalled the main characteristics of industrial information and described the state of the art in their respective countries, and to subsequent discussions on the papers. The guest lecturers and representatives of TECHNONET ASIA and UNIDO then introduced various topics for discussion such as concepts of industrial information, experiences of national industrial information centres, channels and sources of information, structure, networking and costing, and training and recruitment. Visits to institutions dealing with industrial information or involved in industrial development were another feature of the first part.

Arrangements were made for participants to visit SISIR and the Jurong Industrial Estate in Singapore, and the Textile Technology Institute, the Cellulose Research Institute, the Ceramic Research Institute, the Metal Industrial Development Centre and the Material Research Institute in Bandung. During these visits the participants were briefed on the industrial information facilities existing in the institutions.

Workshop on industrial information

During the second part of the Seminar, a workshop was organized to discuss:

(a) Cross information aspects and the multidisciplinary approach in the field of extension and information services;

(b) Selective dissemination of information to industry;

(c) Industrial extension services and personnel training;

(d) Identification of industrial problems and action by extension services.

The participants divided into four groups to discuss these topics. The discussion in each group was initiated by a guest lecturer.

Group I. (J. Ahmed, H. D. Lahiri, L. T. P. Law, M. T. Zamani and Chua Eng Kee) defined the term "industrial information" and considered three of the topics.

Industrial information could be defined as a chain linking the sources of information with the users. It is multidisciplinary in character, covering extension activities such as selective dissemination, recruitment and training of personnel, and problem identification.

For the selective dissemination of industrial information, the needs and problems of the users had first to be identified. For this, it was necessary to visit industrial enterprises. After identification, the problems had to be analysed and appropriate sources of information tapped for feeding the users with the relevant information.

Information personnel should be recruited from among persons having good academic background. They should be trained for selective dissemination, but though they need not be specialists in particular fields they should be generally conversant with different aspects of industry and be able to communicate in the language of the users.

Information officers were not expected to know all the answers to the various problems but they should be in a position to provide answers, if not by themselves by referring to the appropriate sources.

Group II. (M. H. Taufiqui, H. Rahman, Doo-hong Kim, E. J. T. Buencamin and S. C. Goonetilleke) discussed the selective dissemination of information and defined it as a "current awareness service provided regularly to stimula information demand by an information system according to the profiles produced through communication between information users and information officers". To convey the meaning in a more simplified manner, it could be described as "finding out the appropriate data needed by the users and channeling the same to them in a language which is intelligible to them and in a way which can be readily translated into concrete action".

Before selective dissemination of information could be applied, it was necessary to identify the users of information in various fields. The foremost among them would, of course, be the industrialists, who needed various types of information for the efficient and effective operation of their enterprises.

With regard to the different criteria for selective dissemination of information, the group was of the opinion that these would have to be determined according to the needs of the users in various fields, which, in turn, would have to be ascertained through personal contacts with the personnel directly concerned with the operations of the enterprises in question.

The consensus was that, whereas the different media provided excellent channels for the dissemination of information, the field extension officers, who understood and could speak the same language as the users, were the best lines of communication.

Group III (Ileana R. F. Cruz, E. A. Virata, M. Emami, Lee Kum Tatt, P. Sukarbowo and I. Unamboowe) addressed itself to the recruitment and training of personnel and the identification of industrial problems.

The need for sound personality in an information officer was stressed. He should have an aptitude for extension work and a sense of dedication. It was imperative that he be aware of human psychology in order to win confidence and establish communication. He should have the ability to listen to, comprehend the problem, and suggest a possible solution. He should also have the right attitude towards information work in order to realize the value of information for industry.

In order to identify the problems of industry, it was necessary to look upon knowledge as a commodity which could be traded according to the needs of the consumers - in this case, industry. The industrialist would

first go to his own files, and then to fellow industrialists or manufacturers' associations or related bodies and, as a last resort, to a library or research organization. In order to build up information within an industry, technicians should note down the problems they were confronted with and the solutions they arrived at. The main sources of information were: the technical personnel of industry; professional personnel; academic and research institutions; and libraries and documentation centres.

Group IV. (A. Nawawi, E. B. Boas, F. Bermawi, F. H. C. Goon, C. Sanguanruang, Le Van Hung and N. Thanh Duc) considered the question of a multidisciplinary approach in the field of industrial information services. Attention would have to be focused on two aspects: identifying the problems of industry and identifying how best the industrial information officer can formulate solutions to these problems.

Concerning the selective dissemination of information for current awareness, the qualifications of industrial information officers should stress a general knowledge of the various fields and aspects of industry; difficulties had arisen because of the different qualifications of industrial information officers in various developing countries.

During the second part of the Seminar, the representative of the Republic of Korea presented a brief note on the strategy and tactics for developing an information system used by the Korean Scientific and Technological Information Centre (KORSTIC). The methods utilized may be divided into two broad categories: strategical and tactical. The strategical methods may be considered as ways and means aiming at establishing a competent information system through governmental policy, demonstrative and workable resources and international linkages. The tactical methods are directed to improving the services, developing public relations and organising meetings (seminars, workshops etc.).

II. FINDINGS OF THE SEMINAR

Concept of industrial information

The Seminar identified two levels of information for industrial development: economic, statistical and social information required for planning industry could be classified as "industrial information", and technical information on manufacturing processes and techniques required for the operational function of industrial enterprises as "information for industry". It was agreed that the term "industrial information" would be used in the Seminar to cover "information for industry". Following the total concept of industrial information service, it was agreed that industrial information should include all technical, techno-economic and socio-economic information required for the planning and operation of industry. It would embrace information in the fields of technology; economics; training; industrial management; industrial legislation; investments; and trade regulations.

The importance attached to industrial information for planning and that for operational purposes differed in accordance with the stages of economic development of developing countries. Some countries required more basic economic, industrial and statistical information for the planning and decision-making needed to promote industrial development, others would require more technical information to be transferred for ready application in their industries, or even new technology for the development of new industries.

It was agreed that the industrial information to be disseminated in developing countries should be geared to the needs and development of small- and medium-scale industries.

Industrial information services

Co-ordination

It was recognized that there was a need to establish linkages among information sources within a country. At the same time, it was agreed that information available from international networks should be evaluated

in order to ascertain what types of information could be utilized. In order that the right information might be retrieved to the right person at the right time, a co-ordinating body, which might be a government-controlled or private concern, should be established to arrange for information flow. This body should provide a network of information that would bring users and sources of information together.

Centralization or decentralization

The Seminar recognized that there was a need for industrial information services to organize national information networks and discussed whether such services should be centralized or decentralized. It concluded that it was up to the individual developing countries to suit this service to their own geographical and economic situation. It was considered that the question was not so important provided users and sources of information could communicate intelligently. It was unanimously agreed that such industrial information services should co-ordinate their activities with existing sources of information in order to meet the needs of users, especially industrial enterprises.

The question whether the industrial information service should be a semi-autonomous body or a government department was discussed. It was agreed that the Government should take the initiative in providing the necessary funds to establish the service because information was vital for industrial development which in turn stimulated economic growth, produced more and higher quality products, created more jobs and raised the standard of living. Industrial information should be provided free to industry in developing countries, at least during the initial period of operation of the industrial information service. When industrial development had reached the stage where information could be financed by users, the industrial information service could charge for its services in order to cover part of its operating costs.

The Seminar concluded that the industrial information service should be an autonomous body, but financed either wholly or substantially by the Government. If it were operated by a government department, the information officers would become government inspectors whose functions might be misinterpreted as being more of a controlling nature than an effort to stimulate initiative on the part of users. Information officers are there to assist industries, not to run them.

Structure and costing

With regard to the costing and structure of an industrial information service, participants were advised that they should establish an inventory of industrial information centres and specialized information centres, including local and branch offices in their own countries. They could then define the role of the industrial information service with respect to its disciplines; a national network; a regional network; and an international network.

As industrial research centres were not usually active in disseminating information to industry, participants felt that there was a need for the Governments of developing countries to establish information linkages with all local sources of information and with other specialised networks suitable to their own requirements. International and regional information networks with which developing countries could possibly establish linkages included, in particular, Economic Commission for Africa (ECA), UNIDO, International Labour Organisation (ILO), United Nations Educational, Scientific and Cultural Organization (UNESCO), Asian Productivity Organization (APO), International Federation of Documentation (FID), and Organisation for Economic Co-operation and Development (OECD).

With regard to the question of payment for information services rendered to industry, the participants agreed that payment was an indicator of the usefulness of information to industry. If it was not considered necessary and useful, industry would not be prepared to pay for the service. It was recognised that the costs and benefits of industrial information services rendered should be measured. For the adjustment and development of information activities, however, it might be significant to attempt to measure it by actual time spent in various information programmes. Participants were informed of the experience of the DTO whose engineers were required to complete a weekly time sheet recording the actual time spent on information activities. The hours spent would be converted to monetary terms against income. In addition, engineers of DTO paid follow-up visits to industrial enterprises to obtain feedback information on the usefulness of the services rendered.

Channelling of information

On the question of how national information structures could be linked up, participants were briefed on the national information networks operating in Canada and the Republic of Korea (figures I and II).

Importance of information officers

People were considered far more important as sources of information than data banks, journals, books or other forms of information material (information properly stored but not retrieved is of no value to users). As a result, information officers have a significant role to play in meeting the industrial information needs of industry. Unlike documentalists, industrial information officers are responsible for the dissemination of information to all potential users, especially industrialists. The most efficient and effective instruments of active dissemination of information are the Selective Dissemination of Information service (SDI) and field liaison services, which require highly qualified information officers with technical backgrounds and a wide experience of industry.

Training and recruitment

It was felt that there was a need for more programmes for the training of information and extension officers at various levels in the ESCAP region. A number of training programmes were available, which include the Small Industry Extension Training Course organized by TECHNONET ASIA, the training course for documentalists organized jointly by UNIDO, UNESCO and the Union of Soviet Socialist Republics at the National Institute of Scientific and Technical Information (VINITI), UNIDO fellowship training at industrial information centres, and seminars on industrial information.

Participants also discussed the problems of recruiting information officers (also known as extension officers, extension engineers and, in Canada, technical advisers), who ideally should possess the following qualifications:

University degree in engineering

Some years of industrial experience

Linguistic ability (preferably more than one language)

Ability to plan and organise, or at least supervise, work with institutes

Broad knowledge of business and management
Diplomacy in dealing with people
Ability to speak the language of industry convincingly
Ability to formulate requests and questions intelligently
Ability to identify needs of industry
Ability to evaluate usefulness of information
Physical fitness (for field visits and follow-up visits)

It was recognized that information officers were difficult to recruit as they were in heavy demand with industry. Training for information officers could be flexible, with more emphasis on on-the-job training coupled with management training. To attract and retain good information officers, good remuneration should be offered to them.

Responsibility for setting up information services

The Seminar found that it was the responsibility of the Government to initiate the setting up and fundamental financing of information services for industry and to ensure that they were linked to regional and international infrastructures.

A Government needed an industrial information service for its own operations and decisions, and an information service for industry to stimulate the growth of industry through which vital socio-economic development could be fostered. It was possible to start from resources already available, ensuring that experiments were carried out by applying what could be learned from the experience of other countries.

After these first experiments had been made, and the achievements as well as failures evaluated, it was time to call in advisers on how an infrastructure tailored to the needs and demographic structure of the country in question could be arranged. Programmes and infrastructures could not be transferred intact from one country to another. They had to be tailored to each individual country.

Structure of an information service for industry

Information service for industry was by concept the marketing of the commodity called knowledge. The initial step was to establish a list of

enterprises, stating their field of operations (products, uses), size, location etc., and a list of centres providing specialized knowledge, stating their field and level of knowledge, specialized services carried out, size and locality. The next step was to start a visiting programme aimed at establishing personal contacts with individual enterprises and centres and to ensure that communication flows among them. After these contacts had been established, an active selective information service and a question-and-answer service would consolidate the communication and result in diversification of the basic programme into a structure of activities requested and appreciated by the users.

Infrastructure

It was necessary to understand the importance of establishing an infrastructure and to ensure that all sectors of industry were backed up by a centre of specialized knowledge. It was also necessary to have centres at various levels of knowledge, each centre having a certain number of industries and a local office of information service to serve them. Finally, it was important to link up the national infrastructure with those of neighbouring countries or with countries of the region. Information from a nearby infrastructure of information centres could be much more easily applied than information from distant industrialized countries.

Ten practical recommendations

The following 10 practical recommendations were directed to those responsible for setting up industrial information services for industry:

1. Make the decision to start
2. See what others already have done (Singapore, Hong Kong)
3. Read about the experiences of others
4. Prepare the ground (homework): study domestic industry and visit sources of information (libraries and laboratories)
5. Make the most important move: visit one company
6. Hire at least one engineer with industrial experience
7. Make mistakes, but learn from them
8. Visit the technical information services in Canada and Denmark and request assistance from them
9. Keep in touch with other technical information services
10. Recruit and train personnel in accordance with domestic needs

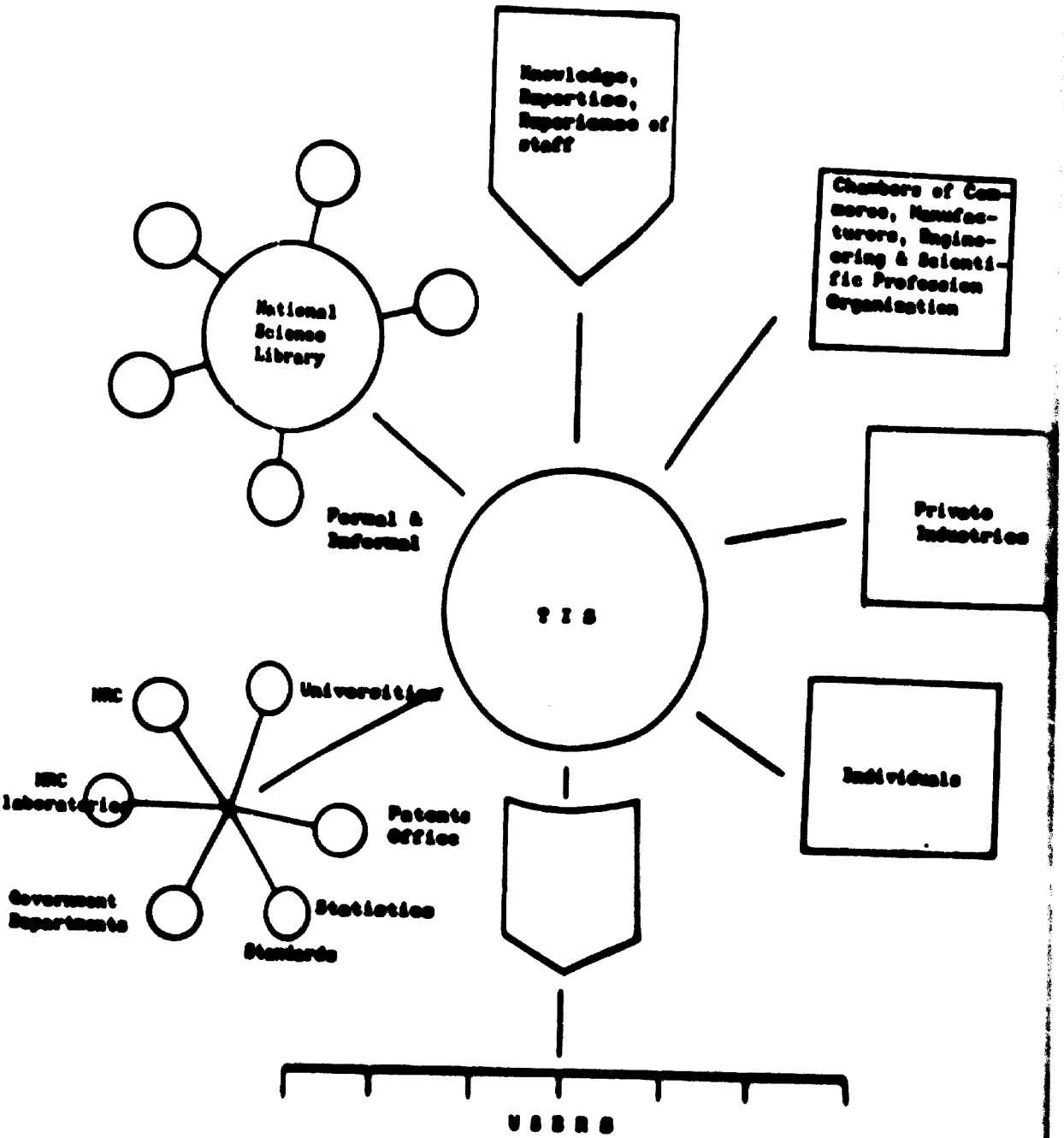

Figure I. Information network, National Research Council/ Technical Information Service (NRC/TIS), Canada

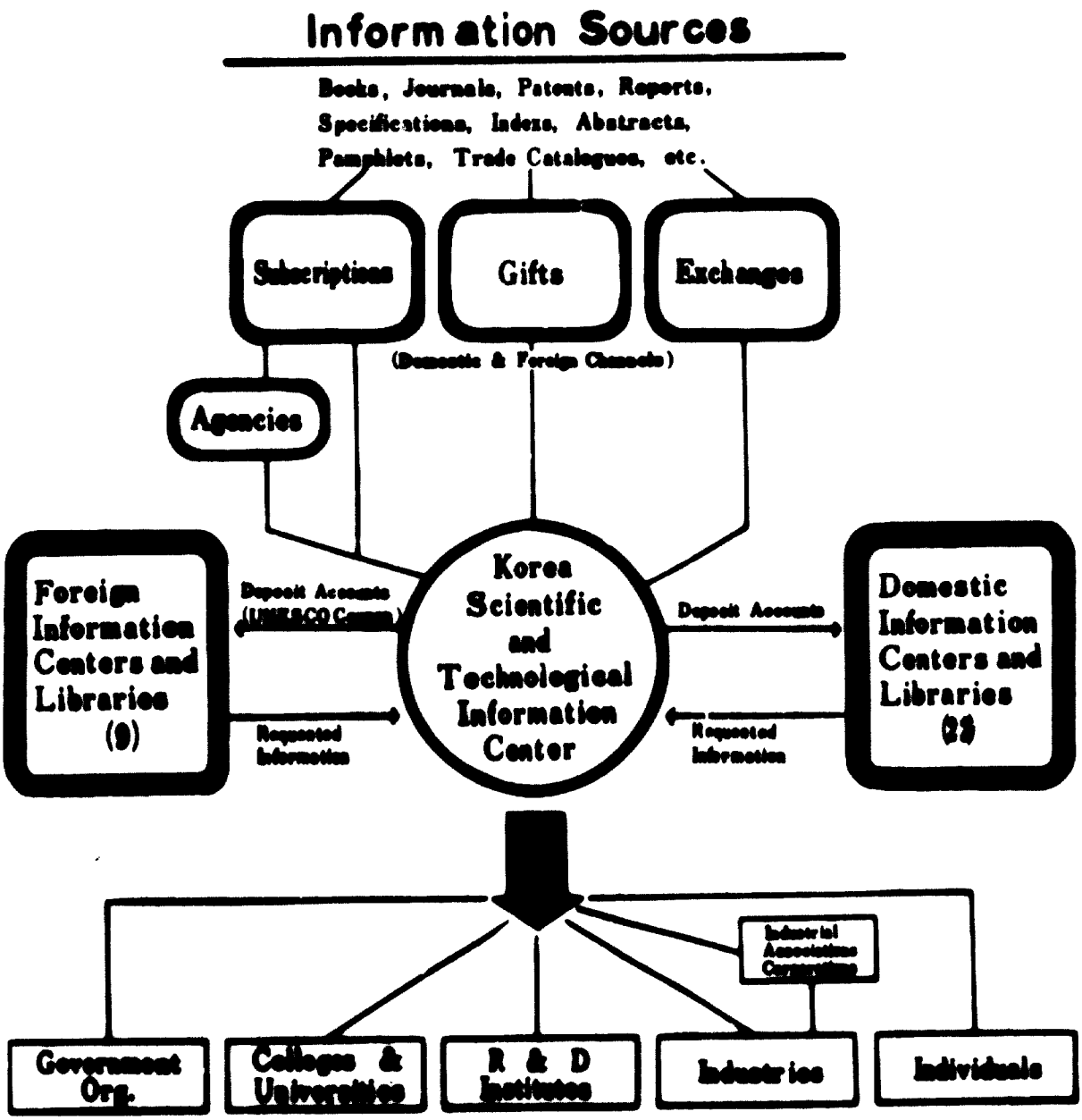

Figure II. Information Network, Korea Scientific and Technological Information Centre

III. SUGGESTIONS FOR FUTURE ACTION

A number of suggestions for future action were formulated by participants in the Seminar.

It was suggested that the countries of the region:

(a) Establish or reinforce industrial information organizations (IIOs) with the following objectives:

(i) To co-ordinate and rationalize existing industrial information sources and the services of specialized personnel in order to disseminate, in a suitable form, information required for and by industry at the planning and operational levels;

(ii) To promote industrial extension services for the efficient and effective transfer of industrial information, especially that concerned with technology, which can be readily applied to industry in the country;

(b) Strengthen their IIOs by obtaining additional personnel, materials and other resources and aim at providing an efficient and effective industrial information service which would encourage the upgrading of technology in existing industries and the promotion of new industries;

(c) Ensure that their IIOs establish linkages, both bilateral and multilateral, with appropriate international, regional and national industrial information organizations with a view to facilitating the exchanges of information and experience needed to strengthen national information networks.

It was suggested that UNIDO:

(a) Assist in strengthening national IIOs with a view to efficient provision of industrial information and extension services;

(b) Facilitate the promotion and development of linkages between the participating countries and the appropriate international, regional and national information networks;

(c) Organize, stimulate and support training programmes for industrial information and extension personnel at various levels for member countries of ESCAP;

(d) Help industrial information and extension personnel from countries of the region to receive on-the-job training in appropriate organizations;

(e) Conduct itinerant workshops for various levels of suppliers and users of industrial information;

(f) Compile an international directory of IIOs and devote one of its periodicals to facilitating easy communication among IIOs;

(g) Hold more meetings of this nature, at various levels, in view of the high value placed on them.

(In the context of the Seminar, "industrial information" was understood to include technical, techno-economic and socio-economic information.)

IV. SUMMARIES OF COUNTRY REPORTS

These summaries give an outline of the situation with regard to industrial information in each of the participating countries. Copies of the original reports are obtainable from the Industrial Information Section of UNIDO.

Afghanistan

The Ministry of Planning plays a key role in the formulation of industrial development plans. A Statistical Centre is concerned with information on goods and services exported or imported. An Investment Promotion and Development Department, under the Ministry of Planning, assists industrial establishments to carry out feasibility studies, evaluate projects, search for sources of finance, and to find technical know-how and expertise. A Norm and Standards Department, under the Ministry of Mines and Industry, assist industry to achieve better quality and to solve industrial problems. It is recognized that information on all aspects of industrial technology, production, marketing, finance and management is essential for industrial development.

Bangladesh

Industrial information in Bangladesh is fragmentary. Various sources do exist, however. At the governmental level, the Bureau of Statistics and the Central Statistical Office serve as principal organs for providing industrial information. Institutions that provide industrial credit (Bangladesh Shilpa Bank, Bangladesh Shilpa Rin Sangstha, and Bangladesh Small Industries Corporation) also provide information in the industrial field. They carry out surveys and research for industries, maintain statistics for their own use and publish some industrial statistics.

The most important source is the Ministry of Industries, which publishes investment guides and investment schedules for prospective investors - both foreign and local. The investment guides contain procedures for the establishment of industries and information on investment policies, facilities available to foreign investors, and tax concessions.

The main users of industrial information are the government and semi-government organizations involved in formulating policies and preparing and executing development schemes under the framework of the national plan. The country's industrialists are in great need of industrial information services to help them to arrive at decisions regarding production targets, production planning, sales policies, promotion, and inter-unit competition.

The need for a special organization to provide information services to the industrial sector is keenly felt in Bangladesh. The lack of a centrally co-ordinated and organized service is considered to be a great lacuna in the present institutional arrangement for the promotion and development of industries. The Government is therefore considering the establishment of a separate national organization, under the aegis of the Ministry of Industries, that would render information services to all users in both the public and the private sectors of industry. It intends to recommend the inclusion of an industrial documentation and information centre as a special project of the United Nations Development Programme (UNDP) Country Programme of Assistance for Bangladesh (1973-1978). The establishment of such a centre, and the reorganization and strengthening of industrial extension services in 13 industrial estates, as well as in various regions, are among the priority projects that the Government has in mind for implementation during 1975.

Hong Kong

In order to maintain its competitiveness, Hong Kong industry has to keep abreast of the latest developments in manufacturing technology.

The major sources of technical information are university and public libraries; suppliers of machinery and equipment; government departments such as the Census and Statistics Department and the Commerce and Industry Department; and industrial and trade organizations such as the Hong Kong Productivity Centre, the Federation of Hong Kong Industry, the Hong Kong Management Association, the Hong Kong Trade Development Council, and the Hong Kong General Chamber of Commerce.

The Hong Kong Productivity Centre provides technical information through its Technical Reference Library, Machinery Data Bank, Consultancy Services, and Question and Answer Service. The Centre is linked with the IDRC and the TECHNONET ASIA project. It is a member of the International Federation for Documentation and an implementary agency for projects of the APO.

In recognition of the important role of technical information in industrial development, the Hong Kong Productivity Centre and the University of Hong Kong recently co-sponsored a meeting of interested organizations to discuss the question of a centralized technical centre in Hong Kong. A sub-committee was established which submitted, inter alia, a project document to the Government aiming at establishing such a centre. A UNIDO expert has been requested to make recommendations on the structure, organization, siting, staffing and functions of the centre.

India

Industrial research in India is organized under the Council of Scientific and Industrial Research (CSIR) the charter of which, inter alia, lays emphasis "on the collection and dissemination of scientific and technical information in regard not only to research but to industrial matters generally". For this purpose, two central organizations have been set up by the CSIR, namely the Publications and Information Directorate (PID) and the Indian National Scientific Documentation Centre (INSDOC). In addition, a network of specialized information centres are functioning in the various national laboratories, each serving a particular industry.

The PID is engaged in the collection and dissemination of scientific and technical information through various publications. It publishes nine scientific periodicals, besides an encyclopaedia of Indian raw material resources and industrial products under the title The Wealth of India, monographs, proceedings of scientific and technical conferences, bibliographies and reports.

The INSDOC was established to provide a full range of documentation services in the country. It has the following functions: (a) to receive and retain all scientific periodicals required in India; (b) to inform scientists and engineers of articles which may be of value to them through a monthly bulletin of abstracts; (c) to answer specific inquiries from information available to the centre; (d) to supply photo-copies or translations of articles required by laboratories or individuals; (e) to be a national depository for reports both published and unpublished on the scientific work of the country; and (f) to be a channel through which the scientific work of the country is made known and available to the rest of the world.

The national laboratories under the CSIR pay special attention to the communication of research information to industry. Many of them publish reports, pamphlets and brochures containing processed information. They organize conferences and symposia to provide an opportunity for scientific staff in the laboratories to meet technical personnel from the industries and to exchange notes and discuss projects and problems with them. Most of these laboratories have their own information centres, stocked with data to feed any industrialists interested in indigenous know-how in any particular field of specialization. Besides technological assistance, these laboratories provide expert and consultancy services.

An information centre for the chemical industry is functioning in Bombay under the auspices of the CSIR. Apart from providing a general inquiry service, the activities of the centre include developing adaptive technologies in the laboratories and creating interest for production among enterpreneurs in the chemical industry.

Among other agencies which have developed or are in the process of developing information centres, the following may be mentioned:

Patents Library. The Patents Office has prepared a detailed plan, in co-operation with INSDOC, for the establishment of a patent library and information centre which will undertake novelty searches for patent claims. The centre will not only serve as a depository for Indian and foreign patents but also undertake patent literature search and information services.

Indian Standards Institution. The Indian Standards Institution has a good collection of the national standards of many countries and is in a position to offer standards information service. It maintains classified files of world standards literature and has published a number of subject bibliographies of standards literature.

SENDOC. The Small Enterprises National Documentation Centre (SENDOC) was set up in 1972 at the Small Industries Extension and Training Institute, Hyderabad, to collect, collate and store information, data and documents useful in the technological and managerial advancement of small industries and to disseminate information to persons or organisations engaged in activities related to the development of small-scale industries.

Indonesia

The industrial information services in Indonesia do not meet the needs of the public and the private sectors responsible for industrial development. Each of the organizations dealing with industrial information operates according to its own fields of interest. However, the Ministry of Information has been successful in directing the services of these organizations to the growing development needs of the country. The main organizations are:

(a) The Bureau of Public Relations of the Ministry of Industry, the main tasks of which are collecting, processing and disseminating industrial information through publications, conferences and audio-visual media;

(b) Five directorates generals in the Ministry of Industry, each of which covers subsectors of the industrial sectors along with its own field of activities and has its own units to organize the information services;

(c) The Institute of Industrial Research and Training, also a unit of the Ministry of Industry, provides services to various industries, such as R and D reports, seminars, testing reports, and national industrial standard improvements.

In addition to the above organizations, the Ministry of Information has provincial offices and district offices throughout the country which circulate all written information in the form of manuals containing guidelines and regulations. They also collect opinions from information users.

The National Institute of Export Development is another important body which operates industrial information services. They are geared particularly to the export promotion of small-scale industries, however.

Iran

In 1967 the Government of Iran established the Industrial Development and Renovation Organization (IDRO) the main functions of which are: setting up or assisting in setting up new industries, renovating or assisting in renovating ailing industries, and providing consultancy and management training services in technology and management, both to public and private firms.

Through its consultancy organs, IDRO has extended its assistance to investors by offering them technical information and advice before, during, and after making their investments.

Technolog Inc., one of the consultancy organs of IDRO, was created in September 1968 for the purpose of providing Iran's business and industrial communities with the kind of consultancy services that they need. Technolog is composed of the following divisions: management, industrial construction, research and agriculture. There is also an information centre within Technolog that collects, compiles and makes available information on and for industry. It disseminates this information in the form of techno-economic books, magazines, reports, standards, statistics and equipment catalogues. Its services are open to all private and public industrial organizations.

Khmer Republic

The main source of industrial information in the Khmer Republic is the National Investment Committee. This Committee, the Chairman of which is the Minister of Planning and the Vice-Chairman, the Director-General of Planning, is composed of representatives from the Ministries of Agriculture, Industry, Commerce, Finance, and the Cambodian National Bank. It is responsible for the collection of all legislative texts and regulations concerning investments and the dissemination of information on them to visitors. It provides the right climate for the facilitation of new industrial investments by answering investors' inquiries. It also liaises with various Government departments, centralizes information given by the departments, and reports to the Higher Planning Council on decisions being taken.

The main difficulties encountered by the country in developing its information systems are: national insecurity; lack of the funds needed to establish a modern information system in each province; lack of industrial statistics; and lack of scientific research centres.

Measures being considered for improving the situation include the creation of a board of industrial development, co-operation with the international information network, and reorganisation of institutions dealing with statistics.

Republic of Korea

The Korea Scientific and Technological Information Centre (KORSTIC) is a non-profit, public-service organization devoted to collecting, processing and disseminating scientific and technological information essential to the promotion and advancement of domestic industry, academic institutional programmes and research institutes. It occasionally provides advice and consultation to industrialists concerning the marketability of certain products and the economic feasibility of certain enterprises. Its activities could be broadly grouped into the following areas:

(a) Acquiring information on science and technology through subscription and exchange of gift;

(b) Processing information (classifying, indexing, abstracting and translating);

(c) Operating current awareness services through the publication of indexes to science and technology journals, consent lists of foreign patents, contents lists of foreign journals, and other technological information;

(d) Providing a reprography service to users in microfilm or hard copy;

(e) Searching literature, including patents, in specific subject areas;

(f) Providing a technical consultant service to industries interested in developing new techniques;

(g) Operating a field liaison service, in which field officers visit industries to help them identify their information requirements and solve their information problems;

(h) Providing a library service, including reading space and reference and referral assistance;

(i) Disseminating documentation techniques by holding seminars and training courses.

Its more important publications are Korean Scientific Abstracts, Korean Medical Abstracts, Union Catalogue of Foreign Scientific Journals and Documentation and Information Services.

KORSTIC promotes the use of its services by contacting industrial associations and offering to provide assistance to their affiliated enterprises.

Malaysia

The scope of the services provided by industrial information oriented institutions in Malaysia is relatively limited as most engineering and kindred institutions are of recent origin.

The main sources of industrial information are the Federal Industrial Development Authority (FIDA) and the National Institute for Scientific and Industrial Research (NISIR).

FIDA undertakes economic feasibility studies and industrial promotion work and facilitates exchange of information and co-ordination among institutions engaged in or connected with industrial development.

NISIR in particular (a) advises on questions of a scientific, technological or techno-economic nature affecting the utilization of natural resources and the development of productive enterprises and related services; (b) undertakes or collaborates in the preparation and disseminating of useful scientific and technical information; (c) promotes the training of research workers in the scientific and industrial field.

The Industrial Information and Extension Service section of NISIR is charged with the responsibility of collecting technical information and disseminating it to industries. To back up this function, the Institute has a good library of technical materials. The Institute has also compiled a catalogue of the industrial instruments and machinery available on the market. Such information is useful to industrialists in choosing industrial equipment.

Other sources of information are the Department of Statistics, the National Productivity Centre, the Malaysian Industrial Development Finance Berhard (MIDF) and MIDF Industrial Consultants Sdn Bhd (MIDFIC), the Standard Institution of Malaysia, the chamber of commerce, the Federation of Malaysian Manufacturers, and the universities and colleges.

With the increasing demand for industrial information, there is a need to establish a national scientific documentation centre to facilitate the co-ordination and consolidation of scientific and technical information resources in the country.

Nepal

At present, Nepal has no institution capable of providing useful industrial information. The main offices from which limited industrial information can be obtained are the Department of Industries, the Nepal Industrial Development Corporation and the Central Bureau of Statistics.

The type of information available from the Department of Industries concerns the number of industries already licensed or to be established, the scale and location of such industries, and the production record of some of them.

The Nepal Industrial Development Corporation is primarily an industrial development bank which provides loans to industrialists of up to 80 per cent of the project cost. Besides giving credit facilities to industries, it carries out industrial feasibility studies and industrial promotional activities. Information can be obtained on the provisions of industrial loans and lists of the industries for which feasibility studies have been carried out.

Information on cottage and village industries is obtainable from the Department of Cottage and Village Industries.

The country's new industrial policy allows for the establishment of an industrial service centre which would provide technical and managerial consultancy services, carry out feasibility studies, prepare project reports, establish and run industrial estates, introduce quality control of products and provide industrial information where needed.

Though UNIDO has recommended the establishment of a separate industrial information service, the Government of Nepal has decided to include such a service in the industrial services centre, which is to be established in the financial year 1974/75.

Papua New Guinea

Papua New Guinea is primarily an agricultural country. Its industry produces mainly for the local market. It is considering establishing an industrial information service to facilitate industrial development. (No country paper was presented at the Seminar.)

Philippines

The main sources of industrial information in the Philippines are:

(a) The National Institute of Science and Technology, which has five research centres: agricultural, biological, food and nutrition, industrial, and medical. Technical services are provided by tests and standards laboratories and

by the Documentation Division. The activities of the Documentation Division include: bibliographic checking and compilation; locating of reference source preparation of abstracts of selected periodicals and annotated lists of recent acquisitions of the library; and making photocopies, microfilms and photoprint enlargements of articles in periodicals or books in the collection.

(b) The Board of Investments (BOI), which provides two types of information service: industrial information for dissemination to the public, and industrial information for its own staff. Industrial information for the public relates mainly to investment promotion and assistance to investors. For its investment promotion activities, BOI relies primarily on publications and seminars. Industrial information services for internal use consist in particular of a central file of statistics, studies made by the various operational units of BOI, and a computerized monitoring report showing the status of project applications.

The Government intends to establish, with UNIDO assistance, a central industry data bank which would provide, in one easily accessible system, the following services:

(a) A data directory service to provide users with references to available published, computerized, unpublished and documentary sources of information related to the manufacturing sector of the economy;

(b) A statistical reference service comprising the data deposited in the central bank along with retrieval mechanisms and report-generation capabilities;

(c) A data analysis service.

The over-all result of the establishment of the bank would be an initial increase in the total information system effort in the Philippines. This increased effort is necessary in order to establish the cohesive body of industrial planning information which is currently lacking.

Singapore

The most important sources of information to industry include the Singapore Institute of Standards and Industrial Research (SISIR), the Economic Development Board, the National Productivity Board, Singapore Manufacturers' Association, the Singapore International Chamber of Commerce, trade associations, and libraries of educational institutions.

SISIR was established by an Act of Parliament in October 1973 as a statutory authority to provide Singapore industries and government agencies with industrial research and consultancy services in instrumentation, non-destructive testing, pollution abatement, food science and industrial microbiology, industrial design and product development, and to promote activities relating to standardization, quality and cost control and industrial technical information.

An Industrial Technical Information Service (ITIS) was established in 1973 to provide industries with up-to-date technological information on the properties and processing of materials, the efficient operation of manufacturing facilities, new industrial developments and the results of scientific research.

ITIS provides the following services and programmes:

(a) A current awareness service, under which articles in some 400 journals covering new techniques and processes readily applicable to industries in Singapore are scanned and fed into a computer and lists of titles are despatched monthly to members of ITIS for their selection and retrieval;

(b) A question-and-answer service which is linked with TECHNOMET ASIA and the Industrial Inquiry Service of UNIDO;

(c) An industrial liaison service under which ITIS officers pay visits to industry;

(d) A library service comprising standard specifications, reference books and periodicals;

(e) A reprographic service.

ITIS intends to branch out into the field of patent literature as additional input into the Current Awareness Service system. A machinery and equipment catalogue is being built up and the system will be computerized by mid-1975. There is a need for staff to be exposed to information systems and programmes in such organizations as the Canadian Patents Office and KORSTIC.

Sri Lanka

With the growth of industrialization and trade in Sri Lanka a definite need for a well organized information service has arisen. A few of the more important institutions currently providing library and information services for industry and trade are:

(a) The Ceylon Institute of Scientific and Industrial Research (CISIR), which was established in 1955. This is the only institution promoting industrial research. Its main divisions are: analytical chemistry, applied physics, chemical technology, food technology, microbiology, natural products, oils and fats, process engineering, rubber technology, and workshop;

(b) The Documentation and Publications Division of the Industrial Development Board of Ceylon (IDBC). The main task of this Division is to provide the most up-to-date, efficient and versatile coverage of library and documentation and publication services for industry. More specifically, it:

(i) Acquires and organizes documentary resources and relevant industrial information, including statistical data for planning and decision-making in the various sectors of industry at varying levels;

(ii) Provides a unified network of library and documentation services by co-ordinating existing resources in all institutions and corporations engaged in industrial activity;

(iii) Maintains contact with a network of institutions and organizations in industry and industrial development, both in the developed and in the developing countries;

(iv) Provides the agencies of the IDBC, the relevant government departments and corporations, private industrialists, potential investors and the general public with industrial information;

(v) Provides a liaison and promotion service between research and industry through information extension services; and

(vi) Ensures dissemination of information on industry and industrial development through various media - press, printed matter, conferences, seminars, exhibitions etc.;

(c) The Trade Information Service of the Export Promotion Secretariat, Department of Commerce. Set up in 1973, the Service covers library and documentation, trade statistics, research and trade information, and publications;

(d) The National Science Council, established in 1968, which co-ordinates and promotes research activities. It disposes of a library and a publications service.

Thailand

One of the aspects of industrial development that has been given special attention by the Government of Thailand is the establishment of an efficient statistics, information and research system.

The Industrial Information and Documentation Unit established within the Industrial Economics and Planning Division of the Ministry of Industry carries out economic studies, industrial surveys and industrial information and statistics work.

The industrial information work consists mainly of the preparation and publication of a series of reports such as Industrial Economics Record and Industrial Statistics of Thailand.

UNIDO has made available to the Ministry of Industry the services of two experts for a project aimed at strengthening the industrial information and documentation unit. A close working relationship has been established with other governmental agencies as well as with the private and public industrial enterprises related to the project. Projects such as defining the

data requirements of industry, advising on the concept of the information system, exploring the possibilities of enlarging the data coverage, preparing studies and research activities in support of policy decisions and industrial planning, answering specific economic questions, and training counterparts are being tackled systematically.

Republic of Viet-Nam

Industrial information activities are carried out by the Directorate for Industrial Development (DID) and the Productivity Organization of Vietnam (POVN).

One of the main objectives of DID is to provide information services, namely economic information and data on industrial property and the processing of raw materials to local industry and to all who are interested in industrial investment or who need industrial statistics. It has issued, in co-operation with other specialized organizations, various publications giving information on the various branches of industry that have been established in the country. DID also offers recommendations and guidance in the extension of existing plants or the establishment of new ones. Other DID publications give information on financial assistance, plant management, investment policy, dissemination of new foreign techniques, recent imports and exports of raw materials, equipment, finished products, and new regulations on trade and industry.

In the course of running this industrial information service, the following shortcomings have been identified: industrial documentation is inadequate; the techniques for collecting and disseminating industrial information are also inadequate and rather inefficient; no facilities for industrial research exist; funds needed to obtain technical information are lacking; and knowledge of industrial information sources is insufficient.

POVN publishes, in particular, a monthly magazine on business management and a monthly Industrial Development News. It also provides training in, and organizes seminars and workshops on, management and productivity techniques.

V. SUMMARIES OF GUEST LECTURERS' AND PARTICIPATING ORGANIZATIONS' REPORTS

National Research Council/Technical Information Service (TIS), Canada

G. Kirouac, Chief of TIS, described the activities of his organization. TIS provides scientific and technical information and extension services for all, but with emphasis on small- and medium-scale industrial enterprises employing less than 200. TIS services are people-oriented and the goal is to translate information into application. By establishing links with other information sources and maintaining regional offices, TIS formed an information network throughout the country. It provides inquiry services to local industry and international and regional information organizations. It also renders industrial engineering services which include production planning, design, and the improvement of integrated systems of machinery and equipment. It assists technologically developing industries to put their knowledge into practice. TIS also maintains a current awareness programme under which 400 journals are carefully scanned; titles of up-to-date articles are matched by computers with interest profiles of industrial companies.

To strengthen this service, TIS implements a subject retrieval programme in which titles of the more important articles retrieved in the course of a year are compiled in a list which is then sent to some 40,000 individuals active in promoting information services. The information disseminated is usually in the form of photocopies, cassette programmes, sound on slides, and video-tapes. All services provided by TIS are free.

Danish Technical Information Service (DTO)

K. Klintøe, Director of DTO, described the activities of his organization. DTO, which is financed by the Government, was established as a private, autonomous organization affiliated to the Danish Council for Science and Technology. It undertakes contact and liaison services; question-and-answer services; active information and loan services; conference, courses and training services; and advisory and consultancy services.

Mr. Klintøe considered that knowledge was like a commodity. To sell the commodity, one had to examine the structure of its market, analyse the demand situation, develop and stimulate demand, and train personnel to search for and use the commodity and to keep relations with customers. Information and extension officers had to ask industry questions before they could provide information services.

Technical Information Service of Mexico (SIT)

J. F. Cueto, Chief of SIT, introduced the activities of his organization. SIT was established to foster the use of scientific and technical knowledge by the manufacturing industries, particularly the small and medium-sized ones. It has drawn on the experience of TIS and DTO. It provides field liaison and technical inquiry services; and publishes the Technical News.

The Technical News is a monthly information service which keeps Mexican industries informed of the latest technological developments. It consists of eight one-page bulletins containing titles of articles selected from 300 journals in the fields of management, industrial engineering and pollution control. It has 1,700 users. To introduce and promote the services of SIT, brochures are being mailed out to various industrial and training establishments.

Based on his personal experience in the establishment of SIT, Mr. Cueto advised that before deciding to set up a technical information service, the planning officers involved should study what other organizations have done. They should read up on organizations that were too difficult to visit. They should also study the industrial structure in their country, identify the existing sources of information available, such as libraries and research institutions, and visit industrial enterprises to identify their information needs. If possible, they should visit DTO and TIS and make a comparative study to find out the type of information organization they need. Afterwards, they should maintain links with other information networks and recruit and train information and extension personnel.

TECHNONET ASIA

J. J. Gall, Acting Administrator, TECHNONET ASIA, described the establishment, terms of reference and activities of his organization. TECHNONET ASIA is a project supported by the International Development Research Centre with a budget allocation of $1.2 million over five years. It is "a co-operative network of organizations in the various countries in the region, is actively engaged in the development of industry - particularly small-scale industry - through the transfer of technical information and the provision of extension services, and was formed for their common benefits and that of the countries they serve". It is also an experiment in international co-operation and collaboration; at present it consists of eight organizations in six countries - Hong Kong, Indonesia, Malaysia, the Philippines, Singapore and Thailand. TECHNONET Centre, the focal point of the network, provides continuous liaison and co-ordinating services and support for the collective and individual activities of the participating organizations. It organizes training programmes for industrial information and extension officers. It has established close links with TIS in organizing training programmes and answering technical inquiries, and has access to the TIS current awareness service.

The organization publishes a newsletter which is primarily a communication link between participating organizations. In addition, it provides technical and financial support to the information and extension services of participating organizations.

Asian Productivity Organization (APO)

N. M. Khan, Public Relations Programme Officer, APO, introduced his organization and its information activities. APO's major activities embody, first, identification of the needs of its member countries to increase industrial, agricultural and service productivity and the planning; the designing and co-ordination of manpower development programmes emphasizing the training of consultants and trainers in both management and technological fields, and the post-training multiplier effect. Secondly, the promotion of productivity consciousness and the dissemination of productivity techniques through symposia, seminars, study missions, research and surveys, fellowships, and technical expert services.

The information programme of APO includes:

(a) The propagation of productivity consciousness and the projection of the APO image. These are carried out mainly through the distribution, free of charge, of publications, (including the monthly newsletter, APO News) among member countries for dissemination and use in their own programmes;

(b) The dissemination of productivity knowledge by means of technical publications (in management and technology fields) distributed through a worldwide network of commercial booksellers;

(c) The compilation of a catalogue of audio-visual materials possessed by National Productivity Organizations (NPOs) and a list of training manuals developed by the NPOs;

(d) The periodic holding of meetings of the information officers of the NPOs. These guarantee effective co-ordination of information activities between APO and the NPOs and provide a forum for reviewing and strengthening the information programme;

(e) The provision of technical expert services in the development, production and effective utilization of audio-visual aids;

(f) The referring of technical inquiries to UNIDO or to appropriate member countries for assistance.

United Nations Industrial Development Organization (UNIDO)

Industrial Information Section. UNIDO was created by the United Nations General Assembly to promote and accelerate the industrialization of the developing countries. The primary task of the Industrial Information Section of UNIDO is to promote the establishment or adaptation of industrial information services in these countries. Since its inception, the Section has been called upon to initiate, advise on and support many local activities in this regard. In order to promote inititative and to alert Governments to their responsibilities in the field of industrial information and to make persons involved in this field aware of the value of having access to industrial information transfer facilities, UNIDO has organized a series of seminars of the same type as the present one. Seminars were held in 1970 at Teheran, in 1971 at Lima, in 1972 at Addis Ababa, and in 1973 at Rabat. The interest sparked by these seminars was reflected in an increase in the number of requests received by UNIDO during the months following the meetings, from countries which had been represented, for assistance in establishing or adapting industrial information centres.

Another form of direct assistance, at the level of the personnel intended to operate information centres, is provided through training courses for industrial documentation officers which last several weeks and are organized annually in co-operation with UNESCO under the auspices and with the

assistance of the Institute of Scientific and Technical Information in Moscow. These courses are given each year alternately in English, Spanish and French; many participants (some of whom are directors of national centres) have since become regular correspondents of the UNIDO Industrial Information Clearing-house.

Industrial Information Clearing-house. The Clearing-house is a project designed to supplement efforts to assist developing countries in the establishment and strengthening of local, national and regional industrial information capacity and institutions as part of their basic industrial infrastructure. It includes separate components or services established in response to specific requests and recommendations received from developing countries.

Industrial Inquiry Service. At present, the main component is the Industrial Inquiry Service, which represents a major line of communication and transfer between industries and industrial institutions in developing countries and the accumulated knowledge in industrialized countries. During the period 1966-1973 more than 11,000 inquiries from over 130 countries were answered through this service. Some 50 per cent of the inquiries touched on problems of technical know-how, 20 per cent had to do with markets and statistical data and the remainder with machinery and other industrial equipment.

Only part of the inquiries can be answered by UNIDO itself; for major problems, especially for questions requiring research or feasibility studies, a Network of Correspondents has been established. The Network at present includes about 200 organizations, institutions, enterprises and individuals from 30 countries. The correspondents represent sources of information, or liaison offices to sources of information. They are essential partners in the Clearing-house project, offering their services in providing industrial information on all fields to the developing countries. A considerable number of these correspondents offer their services free of charge. About 40 of them have formal contracts with UNIDO, especially for more difficult technical and technological information, and charge modest fees for the work requested of them.

Roster of Consultants. As another important source of information and know-how, UNIDO established a Roster of Consultants covering some 1,600 consulting firms and individual consultants from over 60 countries. The

consultants provide detailed descriptions of their capabilities, fields of activity and past performance. The written and printed material provided by firms on the Roster is included in the collection of reports and feasibility studies that forms a part of the UNIDO library and documentation unit.

Information Service on Appropriate Choice of Equipment. In recognition of the importance of selecting industrial equipment to suit local conditions in the developing countries, UNIDO requests international co-operation, particularly through industrial organizations, to enable it to meet the demand for information regarding producers and industrial equipment of definite specifications.

UNIDO endeavours to compile, as fully as possible, documentation on sources of information, classified according to major categories of equipment. It invites the developing countries to draw up an inventory of industrial equipment and technology available for experts and will use its facilities to improve awareness of the opportunities for exchange of capital goods among the developing countries themselves. (The representatives of UNIDO also noted with interest the proposed development of industrial process information sheets and equipment information cards by TECHNONET ASIA in this area.)

Selective Dissemination of Information. In order to keep UNIDO staff stationed at headquarters or posted to developing countries informed regarding current developments in industry, the Clearing-house provides a selective dissemination information service. Based on the interest profiles of users, it processes, reproduces and distributes relevant material contained in all kinds of publications received by the UNIDO library. It is anticipated that this service will eventually be extended to selected national information centres.

Publications. The Newsletter is a monthly publication providing news about the main activities of UNIDO, details of expert services required, information provided to industrial inquirers, information on assistance sought by enterprises in the developing countries or offered by firms or industrial organizations, orders placed and contracts signed by UNIDO etc. The Newsletter is mailed to individuals, consultant firms and organizations on a mailing list maintained by computer.

The Industrial Research and Development News (IRDN) is a periodical which serves basically as a means of exchanging experience on cases of successful industrialization in different fields in developing countries.

The Industrial Development Abstracts is a series of publications summarizing the contents of all UNIDO documents and publications according to the terminology of an Industrial Thesaurus, which is aligned with OECD's Macro-Thesaurus.

Guides to Sources of Information is another series of UNIDO publications, each number of which contains, for a given sector of industry, a list by country of professional organizations, research centres, learned societies and specialised information serivces; a list of the yearbooks concerning the sector; sources of statistics and other economic data; and a list of basic works, periodicals, bibliographies, etc.

Annex

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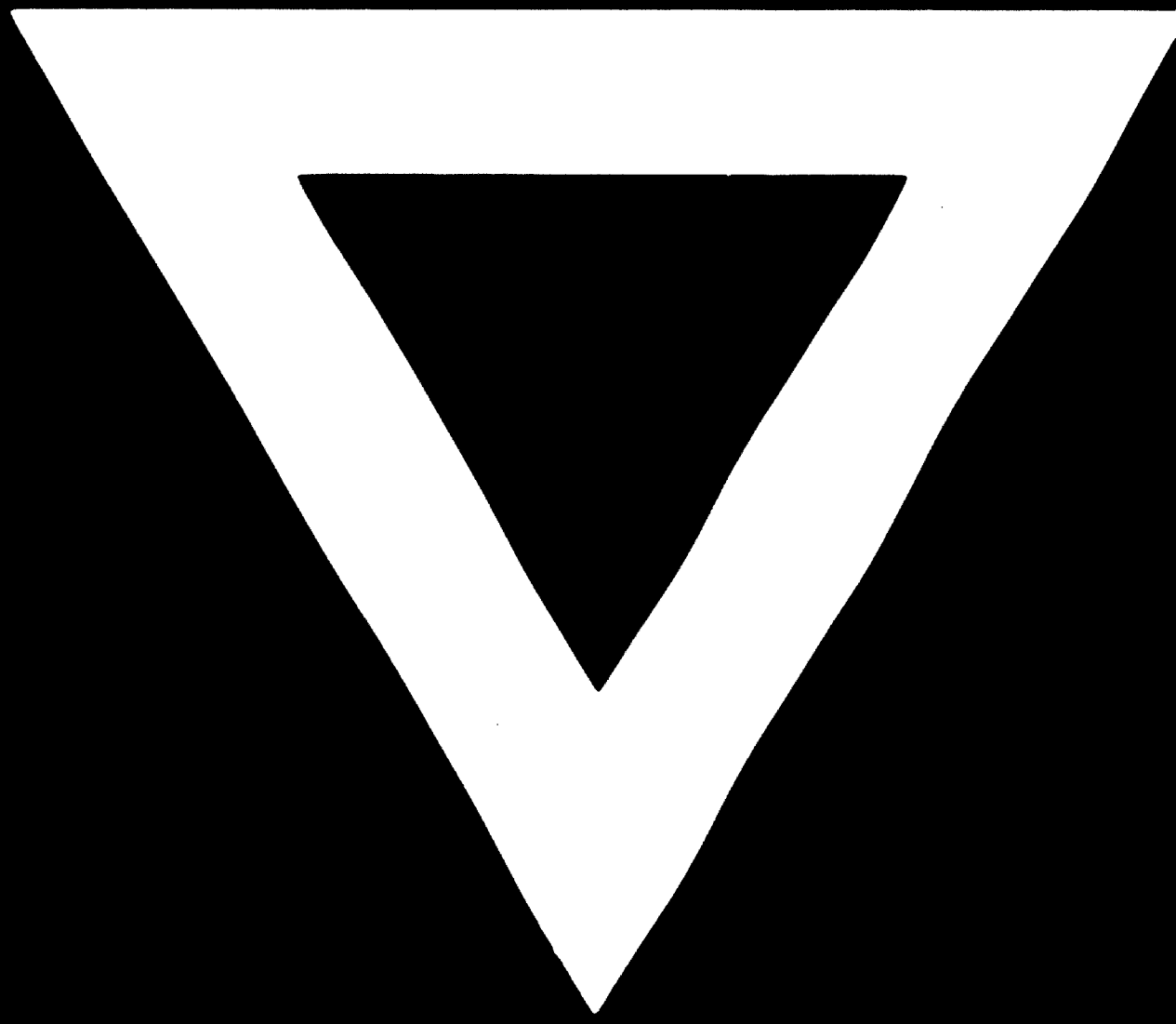

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