

Regional Network For The Exchange
Of Information And Experiences
In Asia And The Pacific
(ASTINFO)

FINAL REPORT

of the

***11th ASTINFO SEMINAR-WORKSHOP
and CONSULTATIVE MEETING***

3 - 8 May 1997, Tehran
Ministry of Culture & Higher Education
Islamic Republic of Iran

Organized by
Iranian Information and
Documentatin Center
(IRANDOC)

REPORT OF THE 11TH ASTINFO SEMINAR/WORKSHOP AND CONSULTATIVE MEETING

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11th ASTINFO Consultative Meeting and Regional Seminar/Workshop

IRIB International Convention Center

Tehran, IRAN

3-8 May 1997

A) INTRODUCTION

The eleventh ASTINFO Consultative Meeting and Regional Seminar/Workshop on Development of National Information Infrastructures and Services were held in Tehran, Iran from 3-8 May 1997. The two events, which were organized, jointly by UNESCO/PGI and the Iran Information and Documentation Center (IRANDOC) were attended by ASTINFO liaison officers from Australia, Bangladesh, China, India, Indonesia, Iran, Japan, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand and Vietnam. Annexes 1 at 2 give the program and list of participants.

Opening Session

Dr. Hussein Gharibi, Director, IRANDOC, welcoming the participants said that since its inception ASTINFO had strived to render necessary efforts towards the establishment of national information infrastructures and services in the Asia and Pacific Region. He acknowledged the catalytic role played by ASTINFO in strengthening and expanding regional and national information infrastructures and services.

Prof. H. Golpayegani, the Minister of Culture and Higher Education of Iran, in making the keynote remarks (Annex 3) expressed his pleasure in having the 11th ASTINFO Consultative meeting in Iran. He observed that now governments and the people have realized the important role which information could have played in their lives. He suggested that the meeting should adopt new approaches to face the Challenges of information technology.

Mr. Majduddin, Director-General of UNESCO-National Commission for Iran, welcomed the delegates and noted the value of the contribution of ASTINFO to the development of scientific and technical information services in the region over the past 13 years. Mr. Majduddin expressed great pleasure at the choice of Tehran as the venue for the 11th ASTINFO Consultative Meeting and Regional Seminar/Workshop and thanked IRANDOC and the Government of the Islamic Republic of Iran for their generosity in offering to host the meeting.

In her theme address, Ms. Torrijos (Annex 4) stressed the importance of the main topic of the regional seminar/workshop - the need for planning the development of the national information infrastructure of every country to support its national development programs as they formulate strategies and tasks to guide the transition to an information society. She drew attention to the immense possibilities presented by information and communication technologies that could be harnessed for development, so that developing countries can effectively participate and share in the benefits flowing from the emerging global information society and information industries.

Ms Torrijos drew attention to the blurring of boundaries brought about by the convergence of professions and disciplines, resulting in the progressive interdependence not only of various disciplines but also more importantly of nations in a world increasingly becoming a global village. She stressed the importance of the communication and information community in helping every member of humankind, regardless of race, color, religion, and culture, to understand and appreciate fully the interdependence of nations and peoples.

Election of Officers

The Regional Seminar started with election of officers for both the Regional Seminar and the Consultative Meeting. Dr. Hussein Gharibi, Iran, was elected Chairperson. Prof. Tamiko Matsumura, Japan and Dr. T. Dorjbal, Mongolia was elected Vice-Chairpersons.

A team of rapporteurs comprising Mr. N.U. Yapa, Sri Lanka, Ms. Amanah Ahmad, Malaysia, and Mr. Adrian Cunningham, Australia was unanimously elected, with Ms. Lindsay Milne, New Zealand as Adviser. The meeting decided to appoint a special committee to draft the recommendations of both the Regional Workshop and the Consultative Meeting. Dr. Abhijit Lahiri, India, Mr. Bhanu Patbak, Nepal, Ms. Sari Hartomo, Indonesia, and Dr. Lutfur Rahman, Bangladesh was elected to this committee.

Review of Guidelines and Events

Ms. Delia Torrijos outlined the strategy for the two events. The ASTINFO Consultative Meeting is held bi-annually to review regional and national activities and to draw up a work plan for the next two years. A regional seminar preceding the meeting is organized on a selected theme to examine some of the problems and issues facing the region. The overall aim of the gatherings is to address the issue of the uneven development of information services in the region, to facilitate the sharing of experience and perspectives and to prepare a plan action to improve the situation.

B) REGIONAL SEMINAR ON DEVELOPMENT OF NATIONAL INFORMATION INFRASTRUCTURES AND SERVICES

Technical Session 1: Information Society and Development

Ms. Delia Torrijos, Regional Adviser, UNESCO/INF, Thailand

In introducing the topic, Ms. Torrijos briefly discussed the information situation in many countries in the region and why it has never been directly linked or mainstreamed into the development process. This situation, however, has been dramatically changing with the growing popularity and fascination of many with the Internet and information superhighways. There is also an increasing recognition of the shift from agriculture-based to industrial-based information societies. She cited the 5% growth of the global information sector as compared to less than 3% growth of the world economy, further dramatizing the need for developing countries to seriously consider how they can catch up with the world developments and join the information revolution.

The paper summarized the characteristics of an information society as given in the articles written by Prof. Nick Moore, which could guide national authorities in developing strategies and initiatives for transition. She also pointed out the profound impact information and communication technologies (ICT) could have on people's lives and the far-reaching benefits that could be derived from its proper use. As countries embrace the information revolution and apply ICT, she cautioned against the danger of creating another form of exclusion, another form of societal stratification, i.e. the information haves and have-nots.

The paper emphasized the importance of planning the continuing development of the country's national information infrastructures and services in support of its national development program. The need to analyze the adequacy or inadequacy of country's NIIS, keeping in mind the human resources, institutions and policies that will support the entire information chain, namely information creation/generation, processing, transfer, delivery and use, was suggested. In doing so, it is hoped to ready see how NIIS supports the country's national development program and ultimately contributes towards the country's transition to information society and its implementation of a well-formulated national development program that will benefit all segments of its society.

Mrs. Molouk Beheshti, Head of the Research Groups, Iranian Information and Documentation Center (IRANDOC)

To harmonize the development process, it is important to provide the channels for information exchange in developing countries. The National Information system has to supply the informational and professional needs of researchers, planners, executive managers, consultants and educational groups. To obtain the relevant information that is required for the development process, the following should be considered:

1. Testing the regional communicative potentials to determine which technologies are used in the regional information process;
2. Identifying the information needs of the target audience;
3. Harmonizing information content in conformity with the traditional communication symbols of the addressant to facilitate the information flow;
4. Promoting the importance of information as an enabler of innovation;
5. Preparing a timetable for development planning and activities, which incorporates the efficient utilization of resources, budget and know-how;
6. Financing of information development projects, so that the budget plan of the country is submitted with its information gradients in place;
7. Designing the National Information System, which includes information centers, libraries, archives, as well as the information networks, to underpin activities in economic, social, cultural, educational and research areas.

Desirable features of a national information system include:

1. The incorporation of information policies and procedures which relate to the economic, social and cultural sectors;
2. Provision of specific programs for collecting, preparing and disseminating information in all areas of activities in the country in order to utilize all educational and professional institutes and information disseminating centers;
3. An effective evaluating and controlling system for strengthening information centers, so that the relevant units always endeavor to improve their work;
4. Appropriate educational programs, which provide the necessary human resources;
5. A comprehensive program for ensuring technology and information equipment requirements are met;
6. A network incorporating an efficient system of information collection in government and non-government organizations and institutes;
7. Cooperation with international organizations, institutes and information networks.

During the discussion for this session it was pointed out that the information process extends beyond dissemination to include assimilation and action. Linking rural and disadvantaged communities to the mainstream of information infrastructure was discussed. It was observed that UNESCO's program on community learning and resource centers could be an effective strategy for extending the reach of the national information infrastructure. Projects carried out in Vietnam, the Philippines, Laos, Indonesia and Bangladesh were cited in this context.

Technical Session 2: Conceptual Model for a National Information System

Dr. Hussein Gharibi, Director, IRANDOC

Dr. Gharibi spoke of a series of diagrammatic representations of a conceptual model for a national information system. The model encapsulates such issues, as the identification of what information needs to be collected and disseminated the methodologies to be utilized and the needs of the participants/recipients in the process. In designing a national information system, it is necessary to take into account matters such as subject areas, geographic regions, the role of support organizations and the state of the communications infrastructure, together with user profiles and aggregations. Dr. Gharibi stressed that a telecommunications infrastructure by itself is not enough. The information sets and systems have to be in place before communications services can even be considered.

Dr. A. Lahiri, Department of Scientific and Industrial Research, India

Dr. Lahiri commenced his presentation by exploring the reasons why developing countries stand to benefit from the creation of a national information system. Three reasons were identified:

- users within the country need easy access to the global knowledge base;
- there is a need to collate and collect knowledge generated within the country for both domestic and international users; and
- mechanisms need to be put in place to import information which has been published elsewhere and which relates to the country in question.

Developing countries often experience a number of impediments, which hinder the implementation of an efficient national information system; these include:

- Low entrepreneurial capabilities;
- Low investment capacities;
- Governments as the sole source of funding;
- Small and uncertain markets;
- Archaic telecommunications infrastructures;
- Rural areas characterized by high populations, low levels of literacy and inadequate telecommunications facilities;
- Declining library use and library acquisitions; and
- Diminishing government support for libraries.

Possible resource management solutions, which developing countries could pursue, include: avoidance of overlap; collective self-reliance; cooperative acquisition; use of new technology and media such as CD-ROM; and use of bureau-based services and information brokers. Means of contributing to the knowledge base include the production of good quality local publications and databases so that information centers in the region become strong global players. Governments have it within their power to facilitate the development of

national information systems by basing the elements of the system on a sound market footing and by encouraging the involvement of the private sector in the information dissemination chain.

In order to establish an enduring national information system all relevant stakeholders need to be brought together, users need to be educated, state of the art technology needs to be introduced, governments should not be the only source of funding, and single point-of-access services should be encouraged.

Technical Session 3: Resource Sharing: Data Collection

Resource Sharing Projects in China

Prof. Zhang Zhong, The Institute of Scientific & Technical Information of China (ISTIC)

For years, Chinese people have been paying a lot of attention to the hardware, software and telecommunication facilities. Less attention has been paid to information resources. Now, more and more people have realized that when the information network is there, most of our efforts should be spent on information resources; otherwise, few people will come to use it.

The second national database survey, jointly sponsored by the State Science and Technology Commission (SSTC), State Planning Commission (SPC) and the National Information Center in October, 1995, has shown that, although more than 1,000 databases have been created in China, most of them are not accessible via information networks. Almost all databases are produced by central and local governments in the way suitable for planned economy.

In order to tackle the above issues and promote information resource sharing among the general public, the State Science and Technology Commission has sponsored some key projects for the Ninth five-year Plan period (1996-2000). 50% or less of the budget will be given by SSTC while the remaining part (50% or more) will come from the participants in order to let them share the risk.

The China National On-line Cataloging System for Documents In Western Languages project aims at integrating existing stand-alone cataloging systems, facilitating the creation and update of union catalogs of documents in western languages and providing additional services such as interlibrary loan.

In developed countries, digital libraries (DLs) are becoming more popular in public libraries and universities. Despite their significance, the high cost of DLs is a major problem. A pilot DL project sponsored by SSTC is expected to promote the implementation of modern library facilities, R&D activities on DL and the use of PCs especially in the home.

Another project is expected to make existing databases more accessible over the Internet. Selected DBMs under multi-user, multitasking operating systems will be used and connected to Web servers via CGIs (Common Gateway Interface) to enable end users to search there using Web browsers such as Netscape or Internet Explorer.

The China information Project will be a Web-based information service similar to CompuServe and American On-line. Due to the vast amount of information to be collected, this project will be implemented by dozens of information centers. An English version will be made available after the Chinese version becomes accessible.

Resource Sharing: Data Collection, Efficient & Practical Methods

Mr. A. Parsi, Head of the Computer Department, IRANDOC

The problems of developing countries are different from those of developed countries. Developed countries, before the appearance of new technologies such as computers, communication facilities and satellites, used correct manual methods. Technology speeds up their preexisting manual systems, developing countries have often not had good manual systems for data collection. For this reason technology is often less effective in helping them. The main problem is not technology, but the infrastructures.

In the past the large amount of information that IRANDOC acquired created problems. There were two bottlenecks in our center, the indexing process and the data entry/editing process. It was not possible for IRANDOC to process all of the bibliographic information of Iran using traditional methods. In order to overcome this problem, we decided to adopt the OCLC network model, drawing upon the resources of all the major libraries in Iran. IRANDOC encouraged libraries to collect and forward data in standardized electronic formats. IRANDOC's new approach consisted of designing a thesaurus, automation of indexing adoption of a standard for data storage (IranMARC), training courses for using IranMARC software, designing data converters, and adopting flexible methods for regional data transfer.

The following databases represent the results of these innovations: Iranian dissertation abstracts (50,000 records); Abstracts of scientific-technical papers of conferences/magazines (50,000 records); Researches in Iranian universities and research centers (27,000 records); Union list of non-Persian serials held in Iranian universities and research centers (19,000 cites); Iranian government reports (6,000 records); Education information (books, dissertations, papers - 9,000 records), Khazar (Caspian) Information (12,000 records); Persian professional medical books (5,000 records); Iranian scholars and experts (Ph.D., MSc. - 6,000 records); Dissertation abstracts of Iranian graduates abroad (8,000 records); and a directory of scientific meetings held in Tehran.

Improving the culture of production and dissemination of electronic data, especially for developing countries is a vital necessity. In data storage, using standards is the most important consideration. Encouraging file data producers to know and use standards is one of the most important duties of organizations that are responsible for improving IT systems. Only through these means can an efficient data collection and data processing system be implemented. Developing countries should attend carefully to infrastructures such as standards to avoid wasteful investments. If we reach our nations the right culture of data storage, data collection should be a simple process.

Flexible Telecom Support & Research for Domestic Information Industries:

Report on visit to the Iran Data Communications Center

The Islamic Republic of Iran Data Communications Center (DCI) was established in 1990. The center is responsible for the national data communications networks and services. The following are some of the networks and services:

IRANPAC was the first public data network (PDN) established. There are more than 158 nodes installed in the Islamic Republic of Iran's major cities. IRANPAC is connected to PDNs in most countries of the world.

IRAN Videotex (IVTX) was set up in 1993 and uses the ANSI standard. IVTX users have a choice of either English or Farsi when accessing the various news services on the network. Other services available on IVTX are telephone directory, teleconferencing & user forums. There is also a software bank, from which users can download needed software.

IRAN Minitel Information Service has been operational since 1994. Subscribers can access a Minitel services in the Islamic Republic of Iran. They can also get connected to Internet through Minitel.

IRAN Audiotex is a Farsi language service that offers regularly updated news, Sura of Quran, and voice mail.

IRAN Net was established in 1995. Users of this network can access information services worldwide through Internet. IRANPAC users can be connected to IRAN Net.

Research Projects in DCI

DCI is currently working on a number of projects. One of these is the IRAN 400 network. This network is envisaged to service around 20,000 subscribers initially, and later to increase the number to 50,000. The protocol of this service is X.400. Equipment, called Message Transfer Agent, are placed in companies and government organizations and through IRANPAC can be connected to PRMD and finally to ADMD.

A network is another DCI research project. This network will be the backbone of Frame Relay and X.25 networks. It can support services such as video-conferencing, distance learning, video telephony, video on demand, medical imaging, multimedia services and so forth.

The advantages of A are in the capability to offer switched services at up to several gigabits per second, and its flexibility - being able to carry all kinds of information such as voice, text, graphics, and still and moving pictures. A is therefore capable of meeting all the needs of the new telecommunication environment.

Other current DCI research activities are:

1. Standardization of graphic user interface for Farsi and English languages (mixed) in multimedia network;
2. Standardization of user terminal (intelligent and dumb terminal), including keyboard monitoring (presentation) in Farsi databases;
3. Standardization of Farsi code set for development of on-line databases in Farsi language;
4. Network management center for monitoring, control, remote management and diagnostics;
5. Voice recognition and pattern generation system for audiotext network;
6. Fault tolerant PDN network;

7. Pulse to tone converter for audiotext system on a nationwide basis;
8. Optimization of PDN network utilization;
9. Traffic management in PDN network;
10. Hybrid data network (SNA/SDL - X.25 - Frame Relay - TCP/IP - ATM);
11. Standardization of Internet browsers for bilingual (Farsi & English) application;
12. Standardization of web server in Internet for bilingual presentation;
13. Typical Internet and intranet in conjunction with Internet;
14. Control & security system on X.400 message handling system;
15. Multimedia services.

In DCI, for each service there is at least one back-up system. This ensures that service to users is not interrupted.

Technical Session 4: Resource Sharing: Management of Information Services

Dr. Md. Lutfur Rahman, BANSDOC, Bangladesh

With the generation of a massive volume of information resources worldwide, especially in the field of science and technology, it is impossible for a single library to make an exhaustive collection of all these resources. Resource sharing among libraries and information centers is the only solution to this problem. Resource sharing was initially confined to interlibrary loan, but the concept has now been extended to other activities such as cooperative acquisition of books, exchange of bibliographic records and the sharing of common databases. Resource sharing entails reciprocity, improving a partnership in which each member has something to contribute to others and which is willing and able to make available when needed.

The aims and objectives of resource sharing and networking development are to:

- a) promote free flow of information resources;
- b) ensure better access to information resources;
- c) ensure maximization of information resources;
- d) save resources and avoid duplication of effort;
- e) ensure faster provision of information -and literature support to the users;
- f) facilitate reciprocal exchange of local publications.

Some basic agreements among libraries must be developed if a resource sharing system is to be achieved. The most important of these is the agreement to share currently owned materials with protocols, limitations and priorities carefully defined. In addition there should be agreement on acquisitions policies and bibliographic control. The advent of digital computers and modern telecommunication technology has provided opportunities for more effective design and operation of resource sharing systems.

Bangladesh has not yet been able to formalize the information acquisition - processing - dissemination cycle. However, some efforts have been made to proceed in that direction through interlibrary loan and other means.

Currently, several networks such as BANSLINK, HELLIS, NAIS/AGRIS, and POPIN are now functioning in the country. The process of networking is taking place in the form of interlibrary loans, document delivery, exchange of publications, advisory services, sharing of facilities, and so on.

With a view to ensure rapid collection, analysis, processing and dissemination of scientific and technological information, the Bangladesh National Scientific and Technical Documentation Center (BANSDOC) is now implementing a project entitled "Automation and Networking of Science and Technology Libraries in Bangladesh". The network has been named BANSLINK. Under this project, 16 libraries of major R&D organizations and universities of Bangladesh will be computerized and brought into an online networking system with BANSDOC as the central host. The success of such a resource sharing system will largely depend on the mutual understanding and cooperation of the participating organizations.

Libraries Nationwide Membership

Sirous Alidoosti, IRANDOC

Hitherto, interlibrary loan has constituted the major form of resource sharing pursued by libraries. Interlibrary loan, however, has its limitations; not all materials held in libraries are available for loan. Moreover, interlibrary loan is inherently resource intensive and usually involves delays in delivery of the requested item. In many cases it may be more efficient to take the user to the resource, rather than to take the resource to the user.

In response to this, IRANDOC is piloting a scheme, which allows library users to have research and borrowing rights in 200 different university libraries and research centers in Iran. In the first stage of the project the participating libraries are limited to those, which report to the Ministry of Education. Postgraduate students and faculty members can join the scheme and are issued a membership card, which grants them access to the facilities and services of all of the participating libraries. An online union list of serials holdings guide's users to the library, which holds the material, they require. The scheme incorporates a mechanism for damage compensation of library materials. Should a library book be damaged by a user from another library, the affected library is compensated for its loss by IRANDOC in the first instance IRANDOC subsequently obtains reimbursement from the home library of the offending user.

Technical Session 5: Resource Sharing: Development of Library Services

Mrs. Amanah Ahmad, Head of Technical Services, National Library of Malaysia

The increase in the volume of library materials and information, the increasing costs of acquiring and processing them, the need for trained personnel, storage space and the increasing demands by users are motivating factors for libraries to share resources. Resource sharing involves cooperation and coordination. In Malaysia a number of resource sharing activities are being carried out on either at national level coordinated by Perpustakaan Negara Malaysia (National Library of Malaysia) and/or Persatuan Perpustakaan Malaysia (Library Association of Malaysia) and at various types of libraries. The paper highlighted major resource

sharing and cooperative activities among Malaysian libraries and information centers. They are PERPUN, SCOM (Subcommittee on Microforms), National Committee on Cataloguing and Classification, BILCO (Committee on Bibliographic and Library Cooperation), Publication Delivery System, JARINGAN ILMU (knowledge network), development of public libraries, Council of State Libraries Directors, School Resource Centers Training, Malaysian Resource Centers Overseas and cooperation from the private sector.

Resource sharing amongst libraries in Malaysia has definitely contributed towards the improvement and development of library services in the country. Their willingness to cooperate has brought about better understanding, closer relationships, mutual benefits and, above all, has improved the provision of library and information services to all sectors of the Malaysian community both in urban and rural areas.

Technical Session 6: Information Services for the Handicapped Using Communication Technologies **Mr. Nader Naghshineh, IRANDOC**

The question of services to handicapped persons enjoyed the same level of attention in Iran as in other developing countries. Most often the question was answered in terms of the country's ability to provide marginal welfare benefits and employments. The Iranian language lacks the words such as "invalid" or "handicapped". Instead, has words such as "Tavanjoo" or "Tavankhah", literally meaning those who seek empowerment.

Because of the great increase in the number of invalids as a result of the Iran-Iraq War, a group of Iranian engineers decided to focus on the most disadvantaged of these empowerment seekers. It was decided to see whether a means to improve information services for those people with impaired personal information collection and processing facets could be devised. Early the focus was on the repackaging of available technology for use in the home.

A test-bed was devised. The problem of repatterning of information collection and processing was studied; the technological approach was to make the information materials available for this group more accessible. The main problem was how to adapt this hardware to the average technological power available amongst the target group.

A line of research with a maximized spin-off rate in ancillary products was adopted. By using off-shelf technologies and software, the system has a low installation fee. The question of content of course lies within the purview of service providers in future. The question of voice pattern recognition and conversion need to be addressed.

The Iran OCLC Project: Fusion of Private and Government Resources **Mr. Nader Naghshineh, IRANDOC**

Mr. Naghshineh described a project to link through a distributed network the library catalogues of the various academic and research libraries in Iran. The prototype system, which is based on the OCLC model, provides

1200 subscribers from six libraries with access to records of 100,000 titles. The major difficulty encountered in this project is the lack of system software standardization between the participating libraries.

SEMINAR RECOMMENDATIONS

1. That ASTINFO member states work to develop their national information systems.
2. That member states ensure that the reach of their national information systems should not be confined to the boundaries of urban areas, or around academic institutions, but also extend to serve hitherto neglected rural and remote areas and communities irrespective of their economic state, religious affinities and literacy levels.
3. That the MIS scheme should give due attention to the pooling of information resources and services, developing measures that strengthen the domestic information market and encouraging activities that help national entities to contribute to the global information market.
4. That in recognition of the fact that government support for information provision activities may not increase substantially in the future, it is essential that all players in the information market including producers, distributors, communicators and consumers, whether in the public or in private sector, work closely together.
5. That based on the principle of limited centralization with planned decentralization; a NIS may be implemented using Internet/intranet gateways technologies.
6. That the establishment of an MIS be based on the widespread adoption of recognized standards.
7. That international funding sources be utilized to compensate for national short comes.
8. That in the development of NIS, priority be given to making more accessible information reflecting the cultures and languages of the region.
9. That based on the experiences of India and Iran, member countries should give close consideration to the establishment of libraries' nationwide membership (LNM) in the following areas:
 - Academic and Special Libraries
 - Public Libraries
10. That information exchange between LNM-operating countries takes place and that design of a practical approach for these countries be pursued as a UNESCO supported joint project.
11. That countries which have a national information system in place should document their experiences and situation and share their knowledge with other countries in the region.
12. That developing countries should pay special attention to standards of data storage. As regards bibliographic data, the adoption of MARC formats, even at a minimal level, is recommended for ASTINFO countries in order to facilitate the sharing and exchange of bibliographic information.

13. That the NIS should enable and empower the vast illiterate and disabled population of the region to enjoy the benefits of the information revolution.

C. 11th ASTINFO CONSULTATIVE MEETING REPORT

Review of ASTINFO Activities by PGI/ASTINFO Regional Adviser

Ms. Delia Torrijos, Regional Adviser UNESCO/INF, Thailand

Mrs. Torrijos reported on the activities undertaken by UNESCO over the past two years in support of the development of library and information services in the region, through the following strategies and mechanisms:

1. ASTINFO: The Regional Network for the Exchange of information and Experiences in Science and Technology in Asia and the Pacific (ASTINFO) was established by PGI in 1983. ASTINFO works through a National Advisory Group in each country, associated centers and a comprehensive string of networks, with the aim of providing a forum for exchange, and assisting Member States to acquire the tools to create, access and use scientific and technical information. For this biennium, UNESCO has provided support for the consultative meeting.

2. APINMAP: Traditional medicine is a priority in the Asia-Pacific region, as both cost-effective means of providing primary health care and as a potential product for the world market. A special network for information on Medicinal and Aromatic Plants - APINMAP - has been seated by PGI within the framework of ASTINFO. APINMAP assists its member countries to improve their ability to collect, process, and use research data on medicinal and aromatic plants. With 14 member countries and 14,196 entries on its database, APINMAP has recently hooked up with the International Development Research Center of Canada, with whom it is working to produce a marketable product - a CD-ROM on health developments in Asia, which will help to promote traditional medicine around the world. The APINMAP Secretariat and Technical Network Center are currently based in the Philippines. UNESCO support is coming to an end this biennium, but the APINMAP Management Board has decided to continue its operation even without UNESCO's support.

3. UNAL: The technological revolution is transforming the way information is structured, stored and accessed. As a result, high-technology information-rich libraries are emerging across the world. To empower local public and school libraries in the Asia-Pacific and ensure that the local information sources are not left behind - PGI coordinates Asia-Pacific involvement in UNESCO's Network of Associated Libraries (UNAL). This is a worldwide network aiming to ensure that all libraries are included in national development programs and are thus well able to participate in the global information society.

A sub-regional seminar/workshop for South Asian countries was organized in February 1997 by BANSDOC in cooperation with the Bangladesh Library Association, as well as the Department of Public Libraries.

4. CLARC (Pilot Project): With an emphasis on the word "community", the UNESCO Community Learning and Resource Center (CLARC) acknowledges that it is through interaction with the family, school and the community as a whole that an individual develops. CLARC therefore encourages community leaders and

representatives of various agencies to work together to achieve community-identified goals and to solve community problems. Launched in 1993 and funded through the Japanese-Funds-in-Trust, CLARC represents an important new means of strengthening information services at the local level. The CLARC model has been disseminated by UNESCO to regional and national authorities and the project has been launched in rural villages in Thailand, Lao People's Democratic Republic, the Philippines and Vietnam. Modified versions of CLARC have also been implemented in rural areas of Bangladesh and Indonesia. The CLARC strategy focuses on:

- Basic literacy, through strengthening the information supply to the community;
- creating institutional linkages to reach better equipped resources in urban areas;
- increasing productivity, by developing the skills of village leaders to improve their communication and problem-solving skills;
- income generation, through providing training activities such as gardening, carpentry or poultry raising, with an emphasis on environmental awareness; and
- cultural and physical development, through fostering sports, recreation and other social activities.

The success of the CLARC projects in the above-mentioned countries has reached countries in other regions too. For example, a South African representative has visited the project sites in Vietnam and Thailand. Recently UNESCO together with ITU has launched pilot projects in 2 provinces in Vietnam on multipurpose community telecenters (MCTs). MCTs are basically CLARC plus telecommunication facilities, where telecommunication applications in improving delivery of medical services, education and training, setting up small and mediscala business and even sports and entertainment services to the rural areas will be developed. In this joint project, ITU and the national Post and Telecommunication Administration together with UNESCO will develop the applications of the telecommunication facilities being established in the areas required by the community, e.g. in education and raining, medicine, small and medium scale industries, etc. The ministries and other government agencies involved in the applications to be developed will be asked to participate in the development process and may even are asked to share in the development costs. This is expected to ensure that the users of the facilities will gradually be trained to use them and to eventually develop the market for the services. This partnership with local, national and international stakeholders will ensure the sustainability and affordability of the services.

The pilot projects are expected to demonstrate the social and economic impact of provision, of information and communication technologies and services in the rural areas. The economic impact is in terms of improved livelihood and improved market for the products of the community. The social impact is more in terms of community people being better integrated in the national life, more opportunities to see and experience some of the facilities available in the urban centers, and perhaps too, a growing realization that opportunities for development are there in their community and therefore they need not go and migrate to city and urban areas, where they may not be able to compete and succeed in improving their quality of life.

For the government, the impact is more visibility and cost-effective delivery of government services. Indeed a good means to show that government is there in all corners of the country, and also to monitor performance of the government agencies in the rural and isolated areas. It can also set the stage for improved and more reliable data collection for planning, monitoring and evaluation of government programs.

Pilot projects are currently being established in Vietnam; others are under negotiation with donors and respective governments in Bhutan, Nepal and Indonesia.

5. Study of National Information Infrastructures and Services: The information infrastructure of a country is made up of a complex web of institutions and individuals involved cross-sectorally in the creation, processing and analysis, and delivery and transfer of information. From the creators of information, such as researchers, writers, journalists and academics, to those who collect, process and analyze information, such as computer programmers, librarians and information specialists, to those involved in the transfer and delivery of information, including telecommunications, networks and libraries, all play a role in meeting the information needs of society today - and the cooperation of all is needed if a country is to develop an information infrastructure that can support its development programs.

To assist countries of the Asia-Pacific to participate effectively in the global information society, PGI together with ULIS has initiated a research project, study of national information infrastructures and services (SISNAP), to develop a new approach and to create a cross-sectoral, interagency mechanism for the development of information infrastructures in member countries. Supported by a Japanese research grant, the project was initially confined (through the ASTINFO network) to strengthening information infrastructure in the fields of science and technology. However, a key result of this work was the development of a model and methodology, which is now being expanded and adapted to assist countries to develop comprehensive information infrastructures that involved all segments of society and all areas of human knowledge. The three SISNAP international workshops have produced reports that are planned to be widely disseminated in an international conference being organized jointly by Japan (Monbusho and ULIS) and UNESCO/Bangkok in Tokyo, Japan on 16-18 September 1997.

6. Memory of the World: UNESCO's Memory of the World program is a new international approach to safeguarding endangered documentary heritage material. It aims to join together the great documents of the world in a decentralized interactive library, which both serves to preserve this information and to make it widely accessible. The first step of the program - presently under way - involves identifying endangered documentary heritage collections and recording them on a database. Potential priorities in the Asia-Pacific region include documents from Afghanistan and Tibet, China, and Buddhist leaf manuscripts from India, Sri Lanka and the Lao People's Democratic Republic. The National Archives of Malaysia is the temporary secretariat of the program.

The second phase will involve a long-term initiative to determine which materials need to be preserved in digital format and, finally, to use this information to create products that can be used for mobilizing resources

for further document preservation works. Archive, museum and library personnel from all Asia-Pacific participating in this project, which is coordinated by PGI.

7. Cooperation for Development: Under this program action, projects are formulated and resources mobilized to fund the projects. An excellent example of this initiative was the project on the Re-organization of the Nepal National Library in support of Promotion of Literacy. This is supported by DANIDA and executed by UNESCO. In implementing this project, it is important to note the unique strategy used, by co-opting local professional bodies to provide expertise, and improve cooperation and coordination with relevant agencies and individuals. External consultants were brought in only when local expertise is not available, thus considerably reducing the cost and motivating the local professionals to continue to improve themselves. We have also been successful in negotiating the Japanese-Funds -in-Trust for PGI Asia/Pacific, which was used for organizing the regional consultative meeting held at the Sukhothai Thammarat Open University to discuss the human resource development for information societies. Prof. Matsumura will present the report of the meeting.

The continuing education part of the regional HRD program may be funded by JFIT. Please refer to the recommendations of the meeting in Bangkok for further details. We have also supported strengthening of bilateral programs in selected countries to include library/information services development in their priority list.

COUNTRY REPORTS

Each participant presented brief individual country report highlighting significant activities and developments. Summaries of the reports are given hereunder. Further information is available in the full text country reports submitted by each ASTINFO Liaison Officer and distributed to ASTINFO members during the meeting.

Australia

ASTINFO - UNESCO Activities, 1995 - 1997

The National Library of Australia continued to support a UNESCO subsidized document supply service to ASTINFO member countries. The NLA has been managing the orderly cessation of the project on schedule during late 1996/early 1997. Due to a rapid increase in use of the project towards the end of its duration, the project experienced a cost overrun of US\$11,000. The NLA has decided to absorb these additional costs within its budget. The NLA recommends that, as follow-on from this project, ASTINFO coordinating units become participants in the IFLA Interlending voucher scheme so as to facilitate continuing international document supply in the region.

The other major NLA activity for UNESCO has been its support for the UNESCO Memory of the World (MOW) program. Dr. Jan Lyall of the NLA coordinated the preparation of the MOW guidelines and carried out a worldwide survey to assess current preservation activities and to identify significant documentary heritage material.

International Cooperation: The NLA continued to involve itself in a wide range of international liaison, and cooperation activities. Major activities have involved:

Continuation of the Library in regional cooperation program continued support for IFLA, including maintenance of the IFLA core program on preservation and conservation (PAC) center for South East Asia and the Pacific. The NLA has also filled the positions of IFLA Treasurer (Warren Horton) and Secretary of the IFLA Regional Standing Committee on Asia and Oceania (Amelia McKenzie) continued participation with the Australian National University in a cooperative project to prepare Vietnam for access to the Internet commencement of a project to provide the Papua New Guinea Office of Libraries and Archives with facilities and training to gain access to the Internet;

Compilation of a directory of librarians and archivists in the Pacific Islands to be provided in hard copy and made available over the Internet during 1997;

Hosting the 4th international meeting of experts (March 1997) to consider the further development and implementation of the 'Dublin Core' set of standard meta data elements for the description and discovery of networked electronic documents, continued operation of the Libraries Regional Office In Jakarta.

Other Highlights

The libraries joint redevelopment of its national bibliographic facilities through the Australia/New Zealand NDIS project was terminated due to technical and legal difficulties. The library has now embarked upon a revised redevelopment of its bibliographic facilities and resources through its Networked Services Project.

The Australia Bibliographic Network continues to grow and develop. The database now has 25 million holdings records.

In March 1997 the library commenced provision of sales and technical support for ARIEL for Windows software. This product supports the scanning and transmission of document images over the Internet.

The NLA has continued to develop its World Wide Web-site (<http://www.nla.gov.au>). Included in the site now are scanned images of thousands of items from the libraries pictorial collection and finding aids for hundreds of manuscript collections. The site also serves as the major entry point for online government information and for access to other Australian library sites.

The Library has devoted a considerable amount of effort and attention to issues associated with preserving and providing long-term access to Australia electronic publications. The PANDORA project operated by the library has commenced identifying, storing and preserving significant terms of Australia electronic documentary heritage.

The Internet continues to grow rapidly in Australia. Most medium to large organizations and enterprises maintain World Wide Web sites and provide Internet access facilities. A high proportion of private individuals have access to the Internet from their homes through a network of commercial Internet access providers. A rapidly growing proportion of public libraries are providing free public access facilities to the Internet.

The Commonwealth Scientific and Industrial Organization (CSIRO) Library network has undergone a major restructuring over the past 2-3 years. The CSIRO Central Library in Melbourne has been closed down and its collections dispersed amongst branch libraries and other libraries. The Library network is now headed by a management team committed to knowledge management techniques.

Bangladesh

Bangladesh National Scientific and Technical Documentation Center (BANSDOC), as the apex organization of the S&T information system, is now implementing a project entitled "Automation and Networking of Science and Technology Libraries of Bangladesh". Under this project 16 libraries of the major universities and R&D organizations of Bangladesh will be automated and brought under an on-line networking system with BANSDOC as the central host. The necessary hardware and software has already been installed in all the participating libraries.

BANSDOC implemented the following programs and projects as included in the ASTINFO work plan for 1995-1996 formulated in its 10th Consultative meeting held in Beijing in 1995:

1) National Seminar on Common Communication Format (CCF); A common communication format (CCF) has been devised by BANSDOC in consultation with the library and information scientists of Bangladesh.

2) National Union Catalogue of Serials: About 9000 completed catalogue cards on S&T serials holdings of all the libraries of Bangladesh have already been compiled and stored in electronic form. A database of all these serials is now being created by BANSDOC.

3) Projects on Abstracting of R&D Reports: A computerized database of abstracts of articles of all the S&T periodicals of Bangladesh is now being prepared by BANSDOC.

ASTINFO Document Delivery Pilot Project: BANSDOC has been the most frequent user of the ASTINFO Document Delivery Service. During 1996, it received 924 documents against a total request of 1 423. The delivery rate is 65%

During 1995-1996 BANSDOC implemented the following projects with UNESCO assistance:

I) Under Participation Program (1995-1996):

a) Pilot project on Community Information Services;

b) A comprehensive analytical study of National S&T Information Infrastructures and Services in Bangladesh

2) Under the Regular Program and others:

- a) Sub-regional Workshop on Redefined Roles of Libraries in an information Society and Promotion of UNESCO Network of Associated Libraries (UNAL), 16-18 February 1997. 30 participants from all the SAARC member states attended the workshop;
- b) Training course on Application of Information and Communication Technology and Library and Information Services, 26-28 April 1997. Prof. Lourdes T. Dávid, College of Science Library of the University of the Philippines, conducted the training course, which was attended by 17 participants from different libraries of Bangladesh.

Recommendations: ASTINFO should explore the possibility of continuing the Document Delivery Service for a few more years. Training of library and information personnel should be the topmost priority of ASTINFO.

China

According to the ASTINFO work plan for 1996-1997, the following actions have been taken:

- 1. The 6th Workshop on Exploration and Utilization of Information Resources In Asia-Pacific Region was held last October with 20 attendees from the Asia/Pacific Region.
- 2. The 7th Workshop on Exploration and Utilization of Information Resources in Asian-Pacific Region is being held in Beijing on 6-19 May 1997.
- 3. Mrs. Han Li, Director of Research and Education Center, ISTIC, attended the Experts'/Donors' Meeting on the Education and Training of information professionals.
- 4. The training course of CDS/ISIS for Chinese users has been conducted through 1996 and 1997.
- 5. Continuing efforts are being made by ISTIC engineers in developing and updating the Chinese version of CDS/ISIS in order to use it in conjunction with the Web servers.
- 6. The Workshop on Information Technology Towards 21st Century was held in October 1996 in Beijing, supported by UNESCO and SSTC, and attended by 35 participants.
- 7. A two-week study tour to Philippines, Thailand and Vietnam by the ISTIC delegation consisting of 3 senior engineers in early 1996.
- 8. A two week study tour to the National Library of Malaysia October 1996.
- 9. Two professionals from the Industrial Market Information Network Ltd. made a study tour to ISTIC for investigating information service and management.
- 10. A regional meeting in Beijing was postponed due to the financial constraints of UNESCO.

As suggested by Ms. Delia Torrijos, activities other than ASTINFO-supported activities have also been reviewed. Ten major activities in the library and information service domain have been mentioned in order to give a complete picture.

India

The Indian information market is nearing maturity. The information infrastructure has markedly improved. Apart from government agencies like the National Informatics Center, Department of Electronics, Videsh Sanchar Nigam Ltd., a host of private companies offer e-mail services, Internet access and various value added services. Both government and private companies offer VSAT-based Wide Area Networks. In its efforts to globalize its economy, India has opened its telecom sector for foreign participants. Tie-ups of various kinds for cellular and paging services, basic services, and value-added services, have been entered into by the Indian companies with the international giants in the field.

The information sector per se has also attracted global participation. Companies like the Duns & Bradstreet have set up a base in India. Organizations such as the Knight Ridder Inc. and Faxon were already there.

In keeping with the international trend, the news houses have started taking active interest in reorganizing their operations on modern lines. Apart from publications from multiple sites simultaneously, the major ones have already set up their home pages. Once again, in an effort to extend their international reach, the Indian companies have started putting up their web sites. However, since the speed and the convenience of accessing Indian sites is still low, most of the home pages have been hosted on servers in Singapore, UK and the US. The situation may improve very soon.

The congenial environment has started breeding new information enterprises. The public activities like the NISSAT and NIC are getting more market-oriented. Technically skilled entrepreneurs have set up small enterprises to produce multimedia databases of various kinds, e.g. Gandhi, Yoga, Mystica India and so on. Not to be left behind, educational institutions such as the SNDT Women's University, (SUCHAK - a social science database) and RAZD institutions like the National Institute of Science Communication (AHEAD, a regional database on health and environment), which includes the APINMAP database, have published commercial CD titles.

In the library field, the uses of CD titles are on increase. At least a copy of all well-known databases is available in India today. Library networking ventures at the national level, metropolitan level and on sectoral basis are at various ages or implementation. A host of locally developed library automation software at various price ranges is available today.

It is well known that India has a strong skill base in computer hardware and software. If the tempo of current developments were maintained, India would soon emerge as a significant player in the Global Information market.

Indonesia

Although developing the country's economy has been the top priority of the Indonesian National Development Plan since 1968, the government support for the development of Science and Technology has also been

increased each year. The program on Science and Technology (S&T) is getting larger and more varied. The Science and Technology Information Program also faces tremendous challenges in fulfilling the information needs for S&T activities. Many information service activities have been run by institutions belonging to different ministries. Better coordination among them is needed in order to achieve a well-integrated program.

The country's activities in 1998-1999 focus on developing and strengthening national information infrastructures. Starting from the basic level, increasing literacy by conducting reading habit campaigns for people of all ages and followed by popularizing science publications for the public. Providing basic information on S&T for the rural community will be an important activity, but maintaining and strengthening the services for research and development activities will remain a priority. Hand in hand with those activities, the development of human resources will also be an integral part of the program.

Constraints during the past years include insufficient funding, lack of capable manpower and lack of infrastructure. It is suggested that cooperative programs among institutions which were implementing such activities and which have resources be established to optimize available resources and put resource sharing in practice.

IRAN

There had been a pronounced shift towards more concrete research in the areas of information production and delivery. The research in the area of simulation research conducted by IRNDOC yielded a powerful tool in design, launch and management of databases. More emphasis had been placed on the linguistic research, particularly in the area of specialized thesauri in Persian in order to support the efforts in development of Sci-Tech Databases of language-language content.

The nascent Iranian information industry saw fresh players from the private sectors. With the downscale in the price of basic computer and communication costs, there had been an explosive growth in both local and national networks. It is hoped that the Internet connectivity problems would be solved by 1999. With respect to ASTINFO related activities, IRANDOC monitored and promoted the ASTINFO document delivery program among Iranian research centers. IRANDOC has laid the groundwork for focusing more on research in management and development of information resources and the training of specialized information professionals.

Japan

The major ASTINFO/UNESCO related activities during 1996-1997 are as follows:

1. 3rd SISNAP Workshop, 8-11 October 1996, Tsukuba, Japan: 17 members of the SISNAP Study Team attended the workshop from the countries in the region. The 3-year SISNAP studies produced the following outputs:

National case study reports based on the methodology used, e.g. inventory questionnaire, conduct of the survey and writing of the report by national interagency study team, validated by the Japanese team through country visits and national seminar/workshops; Directories of information institutions, with focus on STI; Regional cross-country assessment report. This regional cross country assessment report, which was produced by Dr. A. Lahiri based on country reports and other data, shows that tangible results have been achieved in raising the level of appreciation and understanding at country level of the scope and significance of the information infrastructure in development.

2. Presentation on SISNAP and ASTINFO in INIS Regional Officers' Meeting: To follow up the decision of the 10th ASTINFO Consultative Meeting in Beijing 1995 where Mrs. Taghrid Atieh, representative of INIS/IAEA attended as observer, Prof. T. Matsumura made two presentations: one on SISNAP studies and the other on ASTINFO in the INIS Regional Officers' Meeting In Asia and the Pacific, which took place in Kyoto in June 1996.

3. Report on the 10th ASTFNFO Consultative Meeting and Regional Seminar/Workshop at the 11th Session of the Intergovernmental Council for the General Information Program, 2-3rd December 1996, Paris: In accordance with the decision of the 10th ASTINFO Consultative Meeting, Prof. Matsumura reported to the 11th Session of the Intergovernmental Council of PGI on ASTINFO activities during 1995-1996 period.

4. Establishment of Japanese Funds-in-Trust: The Ministry of Education, Science, Sports and Culture, Japan, established a Funds-in-Trust for PGI/Asia in the 1996 fiscal year for the development of human resources in information in Asia and the Pacific. As the first activity supported under this funds-in-trust, the 5-day consultative meeting/workshop "Planning Human Resource Development for Information Societies" was held on 3-7 March 1997 at Sukhothat Tharnathirat Open University, Thailand. Attended by 27 experts from 11 countries, the meeting identified the skills and competencies that will be required of information professionals in the future; prepared specific plans and programs to support and promote the development of education and training programs in the region; and discussed the mechanisms for developing curricular guidelines for degree and concluding education programs.

Malaysia

The country report highlighted the National Conference on Multimedia Digital Library held on 19-22 November 1996, ASEAN COCI Books for all, ASEAN Conference on Book Development held on 17-15 August 1996, and Conference on Rural Library Services in ASEAN Countries: a new perspectives held on 13-15 January 1996.

Perpustakaan Negara Malaysia with the cooperation of Golden Arches Restaurants (M) SdnBnd and Dewan Bahasa dan Pustaka has produced talking books based on ten selected titles of Malay fictions suitable for young adults. These were distributed to all public libraries and schools and associations for the visually impaired throughout the country. Eight of these titles are then to be converted to CD-ROM using DAISY

Plectalk for the visually impaired. IFLA Section for the Blind has appointed Perpustakaan Negara Malaysia and Malaysian Association for the Blind to undertake this project.

Selected Nursery Rhymes in Bahasa Malaysia by a well-known Malaysian author in Bahasa Malaysia would be available soon on CD-ROM in the Malaysian market. This is to be undertaken by Perpustakaan Negara Malaysia and sponsored by ago Production Malaysia.

'Standard Floor Areas for Public Libraries' was prepared by Perpustakaan Negara Malaysia with the cooperation of public libraries. This is a guide for floor areas of state public library building metropolitan library, branch libraries and rural libraries in Malaysia. NLG-SEA Directory Computer Systems, Software and Database In Southeast Asian libraries has been published as a project under the National libraries Group - Southeast Asia (NLG-SEA).

In 1996, under the Malaysian Technical Cooperation Programs 50 Library Assistants were selected and attended the Basic Course for Library Assistants and 15 librarians and information specialists in the middle management group attended the Library Visits and Attachments program. The total number of CDS/ISIS users in Malaysia has increased to 159 and beginners and advanced training was given to them. In 1996 and will be continued in 1997.

MASTIC (Malaysian Science & Technology Information Center) was launched on 12 March 1997 and MASTIClink, a service that provides access to science and technology management information is now available on Internet.

Mongolia

The telecommunication backbone network has been extended both in its capacity and coverage area in the capital city. International exchange capacity was considerably increased. Internet service capacity also has been increased.

Several state, semi-state and private companies are involved in development of the rural area telecom backbone network. At least three projects in this field are being implemented. Within the framework of these projects there would be V-SAT backbone networks established which will cover 21 provincial centers to give access for users to the Internet services as well as to other networking information resources.

Regarding the Intranetwork development, a kernel of networks in such areas as education, customs, statistics etc. has been established.

Database creation in the various fields has been growing; efforts are also being made to establish on-line facilities in the cities. Bibliographic databases and environmental databases are made available to the public through a dial-up network. Two central newspapers, daily news and weather forecasting data have been installed on an Internet server for public usage.

Nepal

The activities of the ASTINFO Coordinating Unit (ACU) are undertaken by the Research Center for Applied Science and Technology (RECAST), an institution under Tribhuvan University in cooperation and collaboration with other institutions and professional associations in Nepal. For technical reasons and because of problems caused by frequent changes of government it was difficult to carry out all the planned activities for 1996 and 1997. Nevertheless, the following activities were completed even though most of them were not planned for:

- National Union Catalogue vol. 1 prepared;
- National Survey of Libraries and Information Centers conducted;
- Department of Library Science established;
- A master list of subject headings prepared;
- Training on IT and communication skills for information professionals organized.

Some of the activities planned for 1996/1997 were postponed to 1997/1998 and the rest are ongoing and will be completed.

New Zealand

In August 1996 the Prime Minister officially launched RS&T 2010. It provides a detailed context for the government's commitment to science and technology made in Path to 2010 (1993), and aims to increase public investment in research, science and technology to 0.8% GDP by the year 2010. This is the first time a national strategy for research, science and technology has been articulated and the whole of the government's investment in science and technology has been drawn together in one coherent framework.

Maori Partnership in Science: This is an area where some progress has been achieved, but a lot more needs to be done. The major issue identified for Maori was that of access to the PGSF (the Public Good Science Fund), although the interface with western science is also a very important issue. The National Library of New Zealand has established a small Maori unit to assist in implementing its goals relating to the Treaty of Waitangi, University libraries and many of the public libraries that have a strong Maori focus and collections. There is also an increasing range of Maori Internet resources.

SISNAP: Two members of the SISNAP (Study on the Information infrastructure for Planning Information Systems and Networks in Asia and Pacific Countries) visited New Zealand for two days, 26-27 February 1996. New Zealand was pleased to participate in the 3rd SISNAP workshop on information infrastructures and services in Asia and the Pacific, 8-11 October 1996, Tsukuba, Japan.

NDIS: The New Zealand National Document and Information Network project (NDIS) that was being developed by the National Library of New Zealand in conjunction with the National Library of Australia will not

proceed. There is some concern that with the very rapid developments of the Internet, it is no longer appropriate or necessary for a national library to develop a full bibliographic utility.

Library and Information Education: Significant changes are occurring at the two library schools: The department of library and information studies (DLIS) has become part of the faculty of commerce and administration. From 1998 the school of library studies, Wellington College of Education, will become part of the undergraduate degree program of the Bachelor of Applied Science, the Open Polytechnic of New Zealand.

New Zealand National Commission for UNESCO: The National Commission has been reorganizing its activities and has strengthened its subcommittees. ASTINFO now comes under the Communications subcommittee, and the ASTINFO Focal Point is a member of this committee. The Communications sub-Committee is responsible for the Internet Project, funded under the Participation Program. In September/October 1997 a workshop will be held in Fiji for ISP's and policy makers in States. It is hoped that funds will become available for follow-up training in New Zealand in 1998.

Pakistan

1. The industrialized world is racing into the information age, very quickly on the information superhighway. The gap between the first world and the third world is widening. It was felt necessary for Pakistan to develop an information policy and program. The Following broader issues have been identified:

- An integrated system to meet people's basic needs;
- Information network and universal access;
- Innovation to develop appropriate applications and content;
- Human resource development;
- Support for business, especially for small, medium and micro enterprises;
- Support for governance - good, sound, transparent government;
- Support employment and cultural heritage;
- Building the Infrastructure.

2. Information and communication technologies and services have the potential to offer a significant contribution towards the promotion of sustainable growth in economy of the country. By developing an infrastructure and utilizing it we will be narrowing the current gap in economic and social development. In view of availability of better telecom infrastructure in the country we are mobilizing our dispersed resources, to bring a significant change by redirecting efforts towards the information age needs. Essential components for information society are:

- Computer literacy and increased computer awareness;
- Computer hardware and software skills and training;
- Data network expansion and wider coverage;
- E-mail, Internet coverage and information services;

Local/wide Area networks for business and the corporate sector;
Software development in the private sector;
Databases and information data banks;
Information technology literacy workshop and training;
Public and private sector cooperation.

3. To have effective integrated information in the country it was considered necessary to establish and chalk out detailed plan covering above aspects and prepare a code to protect intellectual property rights, data privacy and security. It is planned to adapt innovative approach to develop information and content bases, promote and accelerate information society joint ventures and assist efforts of private sector in developing information society in the interest of country needs. By developing Information technologic products and services a new knowledge-intensive global economy is emerging. This can stimulate new industries and employment opportunities.

4. While planning information programs, we are going for harmonized social awareness and uplift of society. Comprehensively coordinated national and international policies by governments and industry are essential to guide the evolution towards information societies within a framework of international cooperation.

5. However, while we want to move faster in the information technology field we expect ASTINFO to take up the issues at proper forum. We need cooperation and help to enhance our technical know-how skills and training in the information sector. We need assistance in framing sectoral policies to further liberalize and open the sectors to derive benefit from future information age.

Papua New Guinea

Over the three years, Papua New Guinea has gone through some very difficult and confusing times. Declining budget allocations and reduced staffing levels have greatly affected the public sector organizations and the services they provide. Some of the activities in the 1996-1997 Work Plan for PNG were directly affected by the harsh financial climate. Those activities, which were not carried out or completed, are included again in the 1998-1999 Work Plan.

One activity that we have made some progress on is the revival of the PNGLA. The only thing that is slowing down the execution of this project is the release of the UNESCO funds. Although approved in the 1995 General Conference, these funds have not been released to us.

NLW: Another activity, which can be considered a success, is National Literacy Week. Although not included in the 1996-1997 Work Plan, NLW was proposed to the National Library and Awareness Council and was approved. The first NLW was celebrated in 1996.

An exciting development for us is the Internet Pilot Project. This project is being carried out as part of the NLA's assistance to the PNGOLA.

Still on Internet, PNG Telekom launch the Tiare Internet Gateway in April 1997. There will be five commercial distributors for Internet in PNG. This has been established and now links the 21 agencies and regional offices of DOST through the Fiber Optic Network.

The Philippines

The Philippines is now considered a "young tiger of Asia", no longer the "sick man of Asia". To support the socioeconomic development programs, and emphasis is now given to the development of information infrastructure and services.

National Information Infrastructures (NII): Substantial gain has been attained in the past two years such as DOST Enterprise Network.

PHNet - a DOST funded research and academic network - has increased its membership from original 10 members in 1995 to 50 members. Likewise, commercial ISPs have grown from 12 to 60 and Internet users have increased from 15,000 to 80,000 this year.

PDWeb - a precursor to the Philippines information infrastructure - is a project initiated by the Philippine Congress to be signed by the President of the Philippines into administrative order. RPWeb specifically order the 20,000 government entities to connect to Internet via any commercial ISP. Also it orders all ISPs to help develop a national Internet backbone to improve the local network connectivity. Due for implementation this year 1997.

Library and Information Services: There are two main S&T related information services in the Philippines. These are:

a) SCINet (Science and Technological Information Consortium) is a consortium of S&T libraries in the Philippines founded two years ago. It now maintains a WWW site since 1995 and could be accessed at: "<http://www.stif.dost.gov.ph/Sdnet.html>"

b) ESEP (DOST-Engineering and Science Education Project) as a World Bank Announced project whose objectives is to produce 3000 competent scientists engineers by 1998. Some of its major programs are the upgrading of the library holdings and facilities of the top academic institutions in the country and making these resources accessible from the PHiNet/Internet.

c) APINMAP (Asia Pacific information Network for Medicinal and Aromatic Plants) has now a homepage, which can be accessed at "<http://www.pchrd.dost.gov.ph/apinmap>".

Sri Lanka

ASTINFO activities in Sri Lanka are closely associated with those of the Natural Resource, Energy and Science Authority (NARESA). Largely due the fact that NARESA had taken several important steps to expand and strengthen its services offered to the scientific community, 1996/1997 saw a significant improvement in scientific information services in Sri Lanka. Sri Lanka Library Services Board (MLSB), Sri Lanka Library

Association (SLLA) and Sri Lanka Standards Institute (SLSI) are other key national organizations, which are responsible for the development of different aspects of librarianship in Sri Lanka.

NARESA compiled a simplified manual on CDS/ISIS in Sinhalese and English and drew up a common bibliographic format for the promotion of the use of CDS/ISIS, which has become the standard library software in Sri Lanka. NARESA installed a local network with 15 workstations and 5 multimedia PCs which are connected to Internet and to a national network, providing visitors and remote users accessibility to foreign and local databases. Sri Lanka Library Association continued Sri Lanka ISIS Users Club (SLISIS) and a course on Library Automation. Sri Lanka National Library Services Board installed a computerized union catalogue of books. 13 new standards in the library and documentation field had been adopted by the Sri Lanka Standards Institute.

Thailand

Introduction: The National Research Council of Thailand (NRCT) has been designated as the ASTINFO Coordinating Unit (ACU) for Thailand with another 12 Associated Centers, most of which are universities in metropolitan and provincial areas. NRCT works closely with THAINATIS (National Information System), which comprised of 6 branches, e.g. Medical Science, Agriculture, Economics, Science & Technology, Humanities, and Social Sciences.

From the Fifth National Policy of Research (1997-2001) the strategic direction of the science and technology program has been focused on development of science and technology manpower, technology transfer, promoting role of private sector in research and development, and more support to industry.

Activities of ASTINFO (1995-1996) in Thailand:

Organization of Seminar/meeting/training/workshop, such as the IFLA-RSCAO meeting upon the request of IFLA-RSCAO Regional Manager hosted by the National Library of Thailand;

Library Computer Networking by Chulalongkorn University;

Library Network by Kasetsart University;

TQM for library work by Science Service Department;

Workshop for Health Science Librarians (for Hellis Network) by Mahidol University;

Periodical Index for S&T network by NIDA;

Directory of Researchers by Research Information Center, NRCT.

Cooperation/network - among the associated centers of ASTINFO: The academic libraries play the leading role in all aspects of library cooperation and development in Thailand, while National Library of Thailand cooperates closely with the countries of Southeast Asia, such as in the NLDC-SEA Consortium, etc. The University Library group under the support of the Ministry of University Affairs has formed the Library Development Committee to expand the services and to avoid duplication of work in the following areas:

- acquisition or resource development;
- cataloguing and classification;

serials;
library and Information service;
education technology (A-V).

Computer Network: THAILINET (Thai Academic Library Network in Metropolitan area) and PULINET (Provincial University Library Network) linked with Internet through Thai SARN (Thai Social/Scientific, Academic and Research Network), which is also the national computer network of Thailand.

Vietnam

Overview of situation in Vietnam: Vietnam became the member of ASEAN in July 1995. The government approved the resolution 'Orientation of development strategy for science and technology in the industrialization and modernization period and main tasks by year 2000. Vietnam has Internet access and the Minister of Science, Technology and Environment was appointed as the head of the National Coordinating Committee. The summit meeting of French-speaking countries will be held in Hanoi in November 1997.

Information and documentation education and Training of Information Personnel:

- O. Two new training centers on information science have been established.
- O. The improvement of the curriculum for the education and training of information personnel has been discussed with the assistance of consultants from UK.
- O. A number of training courses on library management skill, organization and management of information activities, exploitation and use of information resources, management of Information services and marketing of information products have been organized by the National Library, NACESTID and Department of Library under the Ministry of Culture and Information.
- O. National Seminar on Information Policy will be held in September 1997.

Establishment, Promotion and Marketing of library and information service: The following services are provided to users: Publications; Electronic bulletin; Database services.

Every year NACESTID answers more than 500 queries and provides 1 00 projects for 500 user-groups in SDT regional and supply thousands of documents. All these services are fee-based service.

Referral tools for providing information services are indigenous databases and foreign databases (CD-ROM), LAN and WAN. In 1996 there were two projects namely "Upgrading LAN at NACESTID" and "Linking two WANs, VESTERNET (300 users) in NACESTID and UNESCO in the National Library" (53 Users).

In order to unify indexing in all NACESTID databases, NACESTID has operated a project entitled "Compilation of keywords for Scientific and Technological Bibliographic Databases". This collection has 50,000 keywords.

Documentation and Document Delivery: NACESTID has launched the project "Establishing a database of Vietnamese Union Catalogue of foreign scientific and technical periodicals". This database covers 560 periodicals of the 41 libraries on S&T and public libraries in the whole country.

Vietnam has supplied 164 bibliographic records to the APINMAP database and 50 records to the factual database through the APINMAP Regional Center in the Philippines.

ASTINFO WORK PLAN FOR 1998/99

The 1998/1999 ASTINFO WorkPlan was developed using a new methodology. The ASTINFO participants were divided into groups to discuss the six selected themes listed below (This was considered a very successful way for the participants to work together in teams and to produce high quality, focused outputs.):

Resource Sharing - Discussions: The participants agreed that Iranian model on Library Nationwide Membership (LNM) could be adopted by many ASTINFO countries after modification to suit local requirements. IRANDOC was requested to distribute the documentation describing the LNM project so that ACUs could initiate awareness programs. This responsibility could be handed over to the apex library authority of the country, if the ACU does not enjoy that position. ACU could organize a national seminar in this topic to introduce the concept and identify the interested parties. A coordinator for the LNM should be appointed, a regional seminar on LNM could be organized by UNESCO with resource persons from the Islamic Republic of Iran and India, aiming at training the national project coordinators in modeling LNM.

The cessation of the document supply project coordinated by the National Library of Australia, following the exhaustion of the project's UNESCO funding, has affected member countries. Promotion of resource sharing activities in relation to document delivery was discussed. It was agreed that ASTINFO countries should be endeavoring to increase regional self-sufficiency in document supply. ACUs should promote the compilation of national union catalogues of serials and make them available to other countries by publication, CD-ROM, microfilming or by uploading them on Web sites.

The availability of union catalogues is a necessary prerequisite for the efficient operation of a largely self-sufficient, regional document supply service. Document delivery could be expedited by using an internationally accepted payment voucher system.

The meeting discussed the merits and demerits of the two widely used systems, namely UNESCO coupons and IFLA interlibrary loan vouchers. Mr. Cunningham explained the IFLA/ ILL procedure. Australia and New Zealand have experienced difficulties and delays in redeeming UNESCO coupons. However, some countries in the region preferred UNESCO coupons as they are widely known and can be purchased using local currency.

Regardless of which payment methods members used, it was agreed that major research libraries in the region stand to benefit from registering themselves as participants in the IFLA voucher scheme. Once their name appears on the register they may receive vouchers from outside the region from libraries wishing to obtain copies of documents published in their country. In this way regional libraries could become exporters of information, thus reversing the one-way flow of information from developed to developing countries. Ms. Milne and Mr. Cunningham stressed that there is demand for Asian publications in western countries, a demand that the western countries often have difficulty in satisfying. Involvement in the IFLA voucher scheme could benefit everyone.

Resource Sharing - Recommendations:

1. The participating libraries explore the possibility of developing a mechanism to extend library membership nationwide. ACUs should organize a national seminar to introduce the concept and draw up a strategy.
2. A regional seminar to be organized by UNESCO with resource persons from the Islamic Republic of Iran and India on Library- Nationwide Membership to train project coordinators identified ACUs.
3. The experience in resource selling gained from the ASTINFO Document Delivery Project and the principle of self-sufficiency continue to be utilized by ASTINFO members through use of UNESCO and IFLA coupons.
4. ASTINFO members make their own information more readily available to other countries and where possible register as participants in the IFLA voucher scheme so that other nations become aware of reliable sources of information/documents from the Asia/Pacific countries.
5. Each ASTINFO Liaison Officer provides the name of the main institutions, which should be contacted at the national center for resource sharing with other member states.
6. Use of automated document interlending systems be encouraged. India, Australia and New Zealand are currently using ARIEL and it is recommended that where appropriate, ASTINFO members consider joining this scheme.
7. Resource sharing is promoted at national level, and also at regional level by ASTINFO ACUs.

Copyright - discussion: The Meeting agreed to discuss copyright in relation to resource sharing. It was observed that copyright laws are not clear in many areas associated with information resource sharing. Following issues were discussed:

- Copy given at free of cost;
- Copy given after recovering photocopying charges;
- Cover to cover copying of journals and books;
- Copying a section of a book;
- Scanning a document;
- Copying materials, which have no copyright statement;
- Changing authorship of a document, which has no copyright statement;
- Downloading an unpriced document or database in public domain and multiplication and transmitting it;
- Creating a new database by selective downloading of several databases;
- Who hold responsibility for violating copyright when an imprinted copy is found with an end-user (end user, librarian, book seller, printer);
- Who owns intellectual property right in the case of products created by joint research ventures.

Copyright - Recommendations:

1. ACUs should organize a team of experts to study the copyright laws of the country and prepare a situation report. Guidelines to be prepared for this purpose by India.

2. ACUs should lobby to represent views of the library and information professions in the drafting of copyright legislation for their country.

3. National seminars to be organized to create awareness of intellectual property right in all categories of professionals involved in information provision.

4. Regional or sub-regional workshops to be organized to assess the current situation in member countries, with a view toward assuming the emerging scenario concerning copyright.

CDS/ISIS - Discussion: The meeting acknowledged the fact that micro-CDS/ISIS is the most widely used software in libraries of the member countries. Continued support by UNESCO for development and maintenance of the software is expected. The Windows version, which could be downloaded from UNESCO Web Site, is now available for testing. This has many features making it user friendly. The necessity of releasing the Windows version officially through distributing agencies was stressed. The UNIX version has a few problems, making it difficult to use. These should be corrected to make ISIS databases accessible by remote users.

Inability of many libraries to handle micro-CDS/ISIS for local languages is a major problem faced by some member countries. Expertise is available in the region to help member countries in solving this problem. There should be a program to obtain services of experts.

Utility developed by member countries to improve the capabilities and user friendliness of the software should be made known to others. It was observed that some users attempt to develop utilities that are already available.

The Philippines has created an ISIS website which has enhanced and added features such as Boolean searching, mailing print results to e-mail addresses, multiple record selection, etc.

India offered to share utilities developed by them among the member countries. India has established a CDS/ISIS Clearinghouse with the support of the member countries. Two databases on CDS/ISIS experts and networking experts will be established. The national distributors are requested to send information regarding to their countries. The clearinghouse will collect information on CDS/ISIS Pascal programs, utilities, applications, documents, etc. It will compile an ASTINFO directory of CDS/ISIS installations. The clearinghouse will set up a Web page to make its services accessible to remote users and publicize its existence and activities in the ASTINFO newsletter.

There was some discussion about the lack of availability of the CDS/ISIS source codes for those libraries that want to develop new applications or utilities for CDS/ISIS. Dr. Gharibi pointed out that while UNESCO had supplied the code to some Arab states, it had refused to make it available to IRANDOC.

CDS/ISIS - Recommendations:

1. UNESCO continues its support for maintenance and development of micro-CDS/ISIS.
2. ACUs practice the development of CDS/ISIS utilities and interfaces by identifying local experts and by funding the development programs.
3. Countries that already have developed CDS/ISIS Utilities should publicize it in the ASTINFO Newsletter and send information to the clearinghouse in order to facilitate sharing with other countries in the region.
4. Countries with software development expertise should make their services available to other ASTINFO member countries.
5. Organize a regional workshop for ISIS trainers in application of utilities, customizing the software application of the Windows version.
6. The Philippines ISIS web-site manager should establish a CDS/ISIS discussion list on the internet, investigate mounting a page on the Indian CDS/ISIS clearinghouse on its site and should publicize these initiatives in the ASTINFO Newsletter.
7. In order to help ASTINFO members to develop varied applications of CDS/ISIS and in particular to cope with the problem of variant scripts, UNESCO be requested to make the CDS/ISIS source code available to interested ASTINFO members.

Community Information Services (CIS) - Discussion: Ms. Torrijos explained the UNESCO literacy program which was later transformed into the Community Learning and Resource Center Pilot Project. The CLARC concept had been very successfully implemented by the Philippines and used as the concept in the development program for 19 priority provinces. CIS should be linked with income generation through skill development, transfer of technology, etc. Information provided to the community should be appropriate. Each community has its own characteristics and needs, and hence development of a common CIS model is not feasible.

Dr. Rahman related his personal experience in development and implementation of a community information service in Bangladesh. He said personal commitment of the project leader is essential for the successful operation of CIS. CIS needs project management teams at two levels: a) national level (decision makers, policy makers, and library professionals); b) community level. Rural communities are often not much interested in book-based information. An institution should be given the responsibility to transfer information extracted from external sources into a format acceptable to the community. Rural communities would not generally easily recognize the relevance of information for improving their quality of life. It is necessary to draw up a program to create awareness of the importance of information in any development activity.

Mr. Alidousti said that marketing approaches would be suitable for CIS. Provision of information should have an impact on quality of life. In order to achieve this aim the services should be in harmony with the values of the community.

Community Information Services - recommendations:

1. A broad-based model of Community Information Service provision that could be identified by the member countries according to the requirements of individual communities should be developed. Dr. Lahiri was requested to undertake this task with inputs from IRANDOC.

2. Since community information provision is overlooked in many countries, ACUs should pursue initiatives that raise awareness of the issue amongst national planners and decision makers.

National Information Infrastructure - Discussion: It was observed that rural communities are often excluded from the reach of national information infrastructure. Strategies to accommodate these neglected areas in the national information infrastructure should be pursued by ACUs.

National information policy of many countries does not adequately cover library and information services. Library and information professionals should be represented in policy-making bodies.

Information provision is very much affected by telecommunication facilities. Library and information professionals should establish good rapport with telecommunication authorities. Role of telecommunication in information infrastructure was acknowledged by the participants. Privatization and utilization of cellular technique would lead to rapid progress in telecommunication services making information provision much faster, easier and cheaper.

National Information Infrastructure - recommendations:

1. Action should be taken by member countries to formulate national information policies. Countries having national information policies should review them to ensure that library and information services are adequately covered.

2. Member countries should improve national information infrastructure by ensuring that:

- each library/information center has written mission statements, goals and objectives;
- each library/information center adopt quality management;
- organize information awareness campaign regularly.

Human Resources Development - Discussion: The report of the consultative meeting and workshop on planning human resources development for information society held from 3-7 March 1997 in Bangkok, Thailand and funded by Japan was circulated. This seminar had been organized jointly by Sukhothai Thammathirat Open University and the UNESCO Bangkok with the support of the Ministry of Education, Science, Sports and Culture of Japan.

It was observed that human resources development is aimed at increasing the regional capacity to educate and train the information professionals and workers needed to aid the transition into an information society, and at reducing the imbalance in capacity between developing and developed countries in the region where this aspect of human resource development is concerned.

The participants carefully examined the recommendations of the workshop/seminar and decided to adopt them.

Human Resources Development - Recommendations:

The meeting agreed to develop and support a regional program with the following components and courses of action:

A. Synthesizing the discussions relating to the education and training of information professionals and workers. The Meeting agreed on a regional program with the following components and courses of action:

A. a. Overall aims:

- to increase the Region's capacity to educate and train the information professionals and workers needed to aid the transition into an information society; and
- to reduce the imbalance in capacity between developing and developed countries where this aspect of human resource development is concerned;

A. b. Specific Objectives:

- to identify the strengths, weaknesses, opportunities, and threats of the present education system for information professionals and workers in the region through a comprehensive baseline survey;
- to meet training needs among practicing information professionals and workers through the provision of short-term training courses;
- to produce, disseminate, promote the use of and evaluate the guidelines on curriculum development for the education of information professionals and workers.
- to enhance the provision of distance learning for information professionals and workers taking into consideration the special needs of rural libraries by:
 - expanding the STOU survey and publishing the results on the World Wide Web,
 - providing training in the development of distance learning programs,
 - developing distance-learning packages on specific topics to meet high priority training needs.
- to facilitate the exchange of experience and discussions of common problems by educators through a framework of conferences and workshops
- to encourage individual countries to strengthen the infrastructure, both human and technical, in information education and training institutions in developing countries in the region, particularly through access to bilateral and multilateral aid arrangements.

B. Mode of implement:

B. a. Baseline survey:

- 1) An institution within one country whose interest coincided with that of the Meeting is identified to prepare a regional participation program request for submission to UNESCO, through its UNESCO National Commission; and to manage the project. The University of the Philippines' Institute of Library Science volunteered to prepare the proposal and manage the project.
- 2) UNESCO will explore other funding sources to support the project that can include a budget for full-time staff.

B. b. Short-term training courses:

The Meeting agreed to work on the initial list of short-term training courses below and to approach the Japanese-Funds-in-Trust for a financial contribution towards the cost of these courses, listed in no particular order of priority:

- 1) trainers' training (including teaching techniques);
- 2) intellectual property rights;
- 3) designing electronic information services;
- 4) project management;
- 5) charge management;
- 6) evaluation of services;
- 7) basic library skills;
- 8) organization of information resources (e.g. cataloging / classification, Internet, CD-ROM);
- 9) reference work;
- 10) use of computers in small libraries;
- 11) preparing for ISO 9000 accreditation (for libraries);
- 12) packaging information for rural audiences;
- 13) writing (technical, personal and corporate communication);
- 14) professional journal management and accreditation;
- 15) communication skills (presentation, negotiation);
- 16) information policy;
- 17) information systems and infrastructure, information technology, telecommunications, information networking, and applications in libraries

ASTINFO and UNESCO member-countries were asked to courtier the areas of training listed and notify Ms. Torrijos if this fitted with their training priorities. Further, the members were also requested to submit a list of experts in these fields.

C. Curriculum development:

The meeting agreed to support the development of curriculum guidelines by appointing a group to write a UNESCO document with the following outline and timetable:

C.a. Outline:

- 1) a definition of an information society;
- 2) a description of the current situation of the Asia Pacific region vis-a-vis part 1;
- 3) a suggested curriculum that could be suggested as part of a strategy to bridge the gap between part 1 and part 2 in terms of human resource development program for information professionals and support staff (first professional qualifications, continuing education and training, training for support paraprofessionals).

C. b. Timetable:

- 1) submission of final draft: 30 April 1997;
- 2) comments on the document: 1 May - 30 June 1997;
- 3) consolidation of comments: 1 July - 15 August 1997;
- 4) editing, printing the final UNESCO document for distribution: 31 August 1997.

D. Distance Education:

The meeting agreed STOU be approached to help with the following:

- a) Expand and continue the survey conducted by Ms. Prudtikul on institutions in the region which are offering library and information studies through distance education;
- b) provide training to the library and information schools in the region on how to develop distance education programs;
- c) collect, develop, and disseminate information and packages on distance education programs for information professionals and workers particularly those working in rural libraries; and
- d) prepare a proposal to support these tasks for possible funding by Thailand's Department of Technical and Economic Cooperation.

2. To contribute to the electronic mail discussion group, Listserv, for library and information professionals and workers and others who are interested in this field in the region that has been already created by Ms. Maureen Henninger, Australia, in collaboration with Prof. Edward Hück Tee Lim, Australia.

3. Regular face-to-face meetings be encouraged, and that existing forum for doing so be explored such as the International Federation of Library Associations and Institutions (IFLA) meeting in Bangkok in 1999, Conference of Southeast Asian Librarians (CONSAL in 1998), International Federation for Documentation and Information/ Commission for Asia and Oceania (FIDICAO), Commonwealth Library Association (COMLA). UNESCO was requested to approach IFLA and FID to sponsor such meetings.

4. The strengthening of key information education institutions was recommended to be left at country initiatives, but assistance be given in mobilizing resources, whenever needed.

Visit to Sharif University of Technology

The Vice Chancellor for Public and International Relations of the University and the Head of the informatics and Computing Center welcomed the ASTINFO delegates to the University. The university was established in 1965 and has 7,000 student population with 282 professors, trained mainly in USA and Europe. It has LAN that connects every department in the University to the computer center, making it the first University in Iran to have Internet facilities for both leading staff and students.

The delegates were then taken to visit the computer center to see the computing facilities and the main library and its services. The new five-story library has 120,000 books, 1,800 titles of serials and subscribes to 500 current titles.

OTHER ACTIVITIES

Date and Venue of the 12th ASTINFO Consultative Meeting: The meeting agreed in principle that the venue for the 12th ASTINFO Consultative Meeting is to be Indonesia. Indonesia and the other interested country, such as Mongolia, were asked to submit firm proposals with dates, costing and workshop/seminar topic to the UNESCO/PGI Office in Bangkok by 30 September 1997. A suggested seminar topic was "The 21st Century: the Century of the Asia/Pacific Region".

Adoption of the Report, Work plan and Recommendations: After discussion and some amendments, the 11th ASTINFO Consultative meeting adopted the draft report, the ASTINFO Work plan for 1998-1999 (Annex 5) and the following conclusions and recommendations:

1. That the 11th ASTINFO Consultative Meeting commends the efforts by the governments of several member states in supporting regional STI workshops and in assisting ASTINFO members to become more self-reliant. The governments of Japan, Australia, New Zealand, Malaysia, China and Thailand were commended on the total, or partial cost sharing for attendance at the 11th ASTINFO Consultative Meeting. Member States were requested to continue to extend the cost-sharing initiatives for the 12th ASTINFO Consultative Meeting. Moreover, the voluntary contribution given to ASTINFO by the Governments of the Islamic Republic of Iran, China and Japan were also acknowledged and highly appreciated.
2. Recognizing the excellent information research experience, as well as activities being undertaken by IRANDOC and other related institutions in Iran and their potential applications to other information institutions in Asia and the Pacific, the ASTINFO Consultative meeting recommends that IRANDOC take the lead in implementing a research program for ASTINFO members. It is suggested that IRANDOC, in coordination with UNESCO, discuss this matter officially with concerned Iranian authorities, keeping in mind that for such a program it would be extremely useful if an Iran Funds-in-Trust could be established to set up the program.
3. That ASTINFO commends the initiatives of the Japanese Government with the SISNAP (Study on the Information Infrastructures for Planning Information Systems and Networks in Asia and the Pacific Project).

4. That ASTINFO commends the support given by the Government of Japan and UNESCO in organizing the International Conference on Information Infrastructure Development in Asia Pacific to be held on 16-18 September 1997. ACUs are asked to bring this international conference to the attention of key policy makers and appropriate library and information personnel.
5. Great importance within the region continues to be given to document delivery by the ASTINFO participants, who expressed their grateful appreciation to the National Library of Australia for its long-standing involvement in this very successful project.
6. That the Philippines be commended for mounting the ASTINFO homepage on the Internet (<http://www.sti.dost.gov.ph/astinfo>) and that the homepage be publicized, promoted by ASTINFO ACUs, and that it be linked to the UNESCO/CII homepage as soon as possible and its further development be give priority.
7. That each ASTINFO ACU continue to submit appropriate projects to their National Commission for UNESCO for inclusion in their country's Participation Program request.
8. That the principle of continuity of country, institution and where possible personal attendance, was reaffirmed, noting the positive effect of such continuity of attendance at the 11th ASTINFO Consultative Meeting.
9. It was reaffirmed that the principle of sharing the workload and responsibilities that has worked well at this 11th ASTINFO Consultative Meeting and Seminar/workshop be continued.
10. That the required country reports summary and the proposed work plans should be submitted on diskette and hard copy to the host country by the liaison officers not later than 4 weeks before the Consultative Meeting.
11. It was also agreed that the host country provides participants at the meeting with a printed summary of each country report, and each work plan, and a consolidated disk of all the country reports in the agreed word processing format.
12. Requests for membership to ASTINFO are constrained by the very limited funds available. In considering requests for membership, it is essential to create a better balance in the level of membership from Asia and the Pacific. It was agreed that, despite limited resources, Fiji and the Democratic People's Republic of Korea be invited to join ASTINFO.
13. That the Consultative Committee Meeting in Tehran recommended that the Islamic Republic of Iran should take initiatives for assisting the Central Asian Republics in strengthening their information activities. It is recommended that IRANDOC as the ASTINFO focal point in the Islamic Republic of Iran, in coordination with UNESCO and other ASTINFO members should undertake the following activities to start with:

- Arrange short-term training courses on specific topics such as computer application in libraries, CDS/ISIS common communication format, information marketing, copyright, use of modern information technologies, etc.
- Conducting of surveys and analyses of information resources in various libraries for developing the Nil Document support system.
- IRANDOC, in conjunction with UNESCO, will investigate alternative sources of funding (e.g. funds-in-trust Regional Participation Program Requests to UNESCO, etc.) for these activities.

14. The lack of notebook computers for the 11th Consultative meeting was deeply regretted; it was strongly recommended that as many participants as possible bring a notebook computer to the 12th ASTINFO Consultative Meeting to facilitate preparation of the meeting and seminar reports.

15. That ASTINFO commends the support of the Government of Japan in establishing the Funds-in-Trust for the development of library and information systems and services in Asia and the Pacific. This support will greatly augment UNESCO's regular program, foster sharing of expertise, and open opportunities to develop more experts in the region.

16. Considering the vital strategic importance of the work undertaken by library and information professionals in assisting socioeconomic and cultural development, UNESCO/PGI and the governments of ASTINFO member countries are urged to support the implementation of both the recommendations agreed at the seminar, and the ASTINFO work plans which were developed by the very successful theme discussion groups.

17. That countries wishing to host the 13th ASTINFO Consultative Meeting should submit written proposals to the 12th ASTINFO Consultative Meeting.

CLOSING SESSION

The Regional Seminar on National Information Infrastructures and Services and the 11th ASTINFO Consultative Meeting were concluded as scheduled on 8 May 1997. The host organization of the Islamic Republic of Iran expressed thanks to the participants.

Ms. Delia Torrijos, on behalf of UNESCO, thanked the host country, the Islamic Republic of Iran for the excellent support provided to PGI / ASTINFO, the participants and observers, and the officials and staff of IRANDOC, the host organization, for their active participation and cooperation. She specifically acknowledged the very able chairing by Dr. Gharibi and the excellent work done by all the rapporteurs. She noted that the success of ASTINFO is due to the individual and collective hard work and cooperation of the participants.

*Welcome Address by Minister of Culture and Higher Education,
Islamic Republic of Iran*

Mr. Chairperson,

Ladies and Gentlemen,

In the beginning I wish to welcome you all and express my pleasure at having the 11th ASTINFO meeting taking place in Iran. The meeting is taking place when for sometimes the world has been faced with new Information challenges. Each day we witness new developments taking place in various aspects of Informatics.

- The fascinating and increasing development in Information and communication technology and their impact on the nature, volume and content of information and telecommunication.

The convergence of electronics, dataprocessing and telecommunications have been responsible for this fascinating development. It had provided us with novel tools for collection, storage, processing , organization, communication and presentation of Information. One may interpret these achievements as direct result of the advances made in micro-electronics; advances that had impacted on all fields of science; advances that has enabled us to store and process a vast amount of information.

- Increased awareness of government and people concerning the importance of information and its impact on regional, national and international decision-making.

Decades ago, neither the people nor the governments were aware of the important role which information could have played in their life. Yet since economic and political issues enjoyed a high degree of importance, the need for informations for diverse issues such as competition becomes more manifest and makes decisions made more realistic.

- _ Increase in the impact of information on the individual lives around the world and the creation of information societies.

What is obvious is that lack of information causes wrong conclusions; a principle that made people use comprehensive data in order to achieve their goals. Enjoying comprehensive information certainly requires a center that is capable of preserving and maintaining information and offering the required services.

- _ The increased growth in international information providers and the diffusion of various forms of information.

The availability of wide range of information in the present area entails two issues. One being the corporations and institutes providing the information and the other being the suitable media for information storage and presentation.

The former manifests itself as powerful databases thus necessitating the development of suitable softwares for quick storage and retrieval.

The latter makes it necessary to increasingly optimize and boots the tools used for information presentation so as to cope with the rapid growth of information. One could cite the current compression softwares.

– The accelerated development of international information networks

As you have no doubt been aware, Internet is one of the most important international information networks. This network has two important application. One being that it imparts an international dimension to research activities. Using this network, the researchers could embark on joint research activities, exchange views and findings and even carry out joint experiments without the necessity of having to gather physically in one place. One could communicate printed information, pictures of even audio and visual materials by using this network. Certainly it provides an outstanding opportunity for the developing countries.

Secondly, internet provides the most diverse information resources. Presently this network has evolved into world wide web offering services to the universities, corporations, groups and individuals.

– Wide ranging shifts in the nature of media and the application of innovative information media.

Since both the volume of the information available as well as the information user are growing day by day, the media equipments and hardwares are also changing. These changes are important from two aspects. First the information capacity of storage media are increasing.

Second, the information seek time for accessing the information stored on these media are growing shorter.

- _ Increase use of information as a national resource and Information becoming a new commodity in the international trade

It is interesting to point out that the information technologies are so flexible, that they make the scope of potential products almost as being infinite. Therefore, it had made the traditional mass production principles as obsolete. It is now possible create a product online to address the demands specialized market niche. No doubt the pace of advancements in technology and information would speed up the rate of mutual interdependence within the international relations. The relations would not only encompass the economic and financial transactions but the political and cultural aspects as well.

- _ Finally... fundamental changes in both the goals and missions of the Information Institutions.

Paying attention to these important infrastructures within the framework of the national scientific and research systems had forced the developing countries to enjoy less facilities in responding to the challenge; in spite of their need to technical and scientific information. Therefore they have been entangled within a one-sided flow of information production and consumption, the continuation of which leading to their ever-more dependence. Thus the role played by institutions formed for regional cooperation in this field, such as ASTINFO, is increasingly important.

Given the precalling conditions in the world, it is appropriate for ASTINFO to adopt new approaches in its workplan and provide the necessary coordination for cooperation among its member states in a way that their sum total for capabilities are put to the best use. In this way one member could compensate for its weakness by enjoying the strengths of the rest of the member states. By adopting such course of action, the dynamism of information would be guaranteed in ASTINFO member countries. It is therefore suggested that the ASTINFO member countries contemplate on devising appropriate mechanisms towards attaining this goal.

- Conversion of old methods to new methods using the information technology and establishment of modern systems for rapid and direct access to information.
- Establishment of complying standards for coordination of regional information services
- Boosting resource sharing in various areas such as library materials, specialist staff, technical and physical assets, information systems and networks
- Broadening of the scientific and technical information to cover all members of society towards elevation of public knowledge.
- Using supra-national assets to compensate for national shortcomings
- Making information more available and accessible from the standpoint of culture and language

- Cooperation in skilled manpower training
- Establishing coordination in information research especially through joint project

It is my pleasure to announce here that in spite of all the existing limitations and constraints during the reconstruction period, the Islamic Republic of Iran has adopted a basic approach to the development of national information system and services as being one of the infrastructures required for social and economic development.

This year's 8000 million rial budget allocation earmarked for research in information science and technology, will provide the opportunity to address and resolve some of the fundamental problems facing Iran in this field.

In the end, while once again welcoming the dear delegates to my country. I wish success for the 11th ASTINFO meeting and hope that the dear guests of the Islamic Republic of Iran would have pleasant memories of their visit.

May the peace and mercy of Allah bless you all

H. Golpayegani

The Minister of Culture and Higher Education
Islamic Republic of Iran.

11th Consultative Meeting ASTINFO

Tehran, IRAN

3-8 May 1997

Review of ASTINFO/CII Activities*

In presenting this agenda item, I will concentrate on strategic interventions that UNESCO has made to support country initiatives and/or to assist countries in getting started. In some countries such support included negotiations with national officials at political and technical levels, and in some instances even down to the rural community level. This was done mainly to strengthen the position of the information personnel, who invariably have to struggle for proper appreciation of their initiatives and proposed programmes. For some countries it is very important in convincing their policy- and decision-makers to be able to point to others successfully doing the same thing or along similar lines.

However, let me start by recalling the fundamental basis of UNESCO's Communication and Information Programme. Communication and freedom of expression are both closely related to human rights, and an essential component of development. Promoting the free flow of ideas by word and image is therefore an important part of UNESCO's mission.

The General Information Programme (PGI) in the Asia Pacific, which has been overseen by the Regional Adviser at PROAP since 1987, aims to ensure access to knowledge by providing Member States with the technical tools, methodologies and expert advice needed to generate, store, process, exchange and use information and to foster the development of libraries, archives and other information institutions. These were done through the following strategies and mechanisms:

1. ASTINFO

The Regional Network for the Exchange of Information and Experiences in Science and Technology in Asia and the Pacific (ASTINFO) was established by PGI in 1983. ASTINFO works through a National Advisory Group in each country, associated centres and a comprehensive string of networks, with the aim of providing a forum for exchange and assisting Member States to acquire the tools to create, access and use scientific and technical information effectively.

For this biennium, UNESCO has provided support for the consultative meeting.

*By the UNESCO Regional Adviser, Ms. Delia E. TORRIJOS, UNESCO, Bangkok, Thailand

2. APINMAP

Traditional medicine is a priority in the Asia-Pacific region, as both cost-effective means of providing primary health care and as a potential product for the world market. A special network for information on Medicinal and Aromatic Plants - APINMAP - has been created by PGI within the framework of ASTINFO. APINMAP assists its member countries to improve their ability to collect, process, and use research data on medicinal and aromatic plants.

With 14 member countries and 14,196 entries on its database, APINMAP has recently hooked up with the International Development Research Centre of Canada, with whom it is working to produce a marketable product - a CD-ROM on health developments in Asia, which will help to promote traditional medicine around the world. The APINMAP Secretariat and Technical Network Centre are currently based in the Philippines. UNESCO support is coming to an end this biennium, but the APINMAP Management Board has decided to continue its operation even without UNESCO's support.

3. UNAL

The technological revolution is transforming the way information is structured, stored and accessed. As a result, high-technology information-rich libraries are emerging across the world. To empower local public and school libraries in the Asia-Pacific - and ensure that these local information sources are not left behind - PGI co-ordinates Asia-Pacific involvement in UNESCO's Network of Associated Libraries (UNAL). This is a worldwide network aiming to ensure that all libraries are included in national development programmes and are thus well able to participate in the global information society.

A sub-regional seminar/workshop for South Asian countries was organized in February 1997 by BANSDOC in cooperation with the Bangladesh Library Association, as well as the Department of Public Libraries.

4. The UNESCO Community Learning and Resource Centre Pilot Project

With an emphasis on the word "community", the UNESCO Community Learning and Resource Centre (CLARC) acknowledges that it is through interaction with the family, school and the community as a whole that an individual develops. CLARC therefore encourages community leaders and representatives of various agencies to work together to achieve community-identified goals and to solve community problems.

Launched in 1993 and funded through the Japanese-Funds-in-Trust, CLARC represents an important new means of strengthening information services at the local level. The CLARC model has been disseminated by UNESCO to regional and national authorities and the project has been launched in rural villages in Thailand, Lao People's Democratic Republic, the Philippines and Viet Nam. Modified versions of CLARC have also been implemented in rural areas of Bangladesh and Indonesia.

The CLARC strategy focuses on:

- Basic literacy, through strengthening the information supply to the community;
- creating institutional linkages to reach better equipped resources in urban areas;
- increased productivity, by developing the skills of village leaders to improve their communication and problem-solving skills;
- income generation, through providing training in activities such as gardening, carpentry or poultry raising, with an emphasis on environmental awareness; and
- cultural and physical development, through fostering sports, recreation and other social activities.

The success of the CLARC projects in the above-mentioned countries has reached countries in other regions too. For example, a South African representative has visited the project sites in Vietnam and Thailand. Recently UNESCO together with ITU has launched pilot projects in 2 provinces in Vietnam on multipurpose community telecenters (MCTs).

MCTs are basically CLARC plus telecommunication facilities, where telecommunication applications in improving delivery of medical services, educational and training, setting up small and medium scale business and even sports and entertainment services to the rural areas will be developed.

In this joint project, ITU and the national Post and Telecommunication Administration together with UNESCO will develop the applications of the telecommunication facilities being established in the areas required by the community, e.g. in education and training, medicine, small and medium scale industries, etc. The ministries and other government agencies involved in the applications to be developed will be asked to participate in the development process and may even be asked to share in the development costs. This is expected to ensure that the users of the facilities will gradually be trained to use them and to eventually develop the market for the services. This partnership with local, national and international stakeholders will ensure the sustainability and affordability of the services.

The pilot projects are expected to demonstrate the social and economic impact of provision of information and communication technologies and services in the rural areas. The economic impact is in terms of improved livelihood and improved market for the products of the community. The social impact is more in terms of community people being better integrated in the national life, more opportunities to see and experience some of the facilities available in the urban centers, and perhaps too a growing realization that opportunities for development are there in their community and therefore they need not go and migrate to city and urban areas, where they may not be able to compete and succeed in improving their quality of life.

For the government, the impact is more visibility and cost-effective delivery of government services. Indeed a good means to show that government is there in all corners of the country, and also to monitor performance of the government agencies in the rural and isolated areas. It can also set the stage for improved and more reliable data collection for planning, monitoring and evaluation of government programmes.

Pilot projects are currently being established in Vietnam; under negotiation with donors and government in Bhutan, Nepal and Indonesia.

5. Study of National Information Infrastructures and Services

The information infrastructure of a country is made up of a complex web of institutions and individuals involved cross-sectorally in the creation, processing and analysis, and delivery and transfer of information.

From the creators of information, such as researchers, journalists and academics, to those who process and analyze information, such as computer programmers, librarians and information specialists, to those involved in the transfer and delivery of information, including telecommunications, networks and libraries, all play a role in meeting the information needs of society today - and the co-operation of all is needed if a country is to develop an information infrastructure that can support its development programmes.

To assist countries of the Asia-Pacific to participate effectively in the global information society, PGI together with ULIS has initiated a research project, study of national information infrastructures and services (SISNAP), to develop a new approach and to create a cross-sectoral, inter-agency mechanism for the development of Information Infrastructures in member countries.

Supported by a Japanese research grant, the project was initially confined, through the ASTINFO network, to strengthening information infrastructure in the fields of science and technology. However, a key result of this work was the development of a model and methodology which is now being expanded and adapted to assist countries to develop comprehensive Information Infrastructures that involved all segments of society and all areas of human knowledge.

The three SISNAP international workshops have produced reports, that are planned to be widely disseminated in an international conference being organized jointly by Japan (Monbusho and ULIS) and UNESCO/Bangkok in Tokyo, Japan on 16-18 September 1997.

6. Memory of the World

UNESCO's Memory of the World programme is a new international approach to safeguarding endangered documentary heritage material. It aims to join together the great documents of the world in a decentralized interactive library, which both serves to preserve this information and to make it widely accessible.

The first step of the programme - presently under way - involves identifying endangered documentary heritage collections and recording them on a database. Potential priorities in the Asia-Pacific region include documents from Afghanistan and Tibet, China, and Buddhist leaf manuscripts from India, Sri Lanka and the Lao People's Democratic Republic. The National Archives of Malaysia is the temporary secretariat of the programme.

The second phase will involve a long-term initiative to determine which materials need to be preserved in digital format and, finally, to use this information to create products that can be used for mobilizing resources for further document preservation works.

Archive, museum and library personnel from all Asia-Pacific member states are participating in this project, which is co-ordinated by PGI.

7. Cooperation for Development

Under this programme action, projects are formulated and resources mobilized to fund the projects. An excellent example of this initiative was the project on the Re-organization of the Nepal National Library in support of Promotion of Literacy. This is supported by DANIDA and executed by UNESCO. In implementing this project, it is important to note the unique strategy used, by co-opting local professional bodies to provide expertise, and improve cooperation and coordination with relevant agencies and individuals. External consultants were brought in only when local expertise is not available, thus considerably reducing the cost and motivating the professionals to continue and improve themselves.

We have also been successful in negotiating the Japanese-Funds -in-Trust for PGI Asia/Pacific, which was used for organizing the regional consultative meeting held at the Sukhothai Thammatirat Open University to discuss the human resource development for information societies. Prof. Matsumura will present the report of the meeting.

The continuing education part of the regional HRD programme may be funded by JFIT. Please refer to the recommendations of the meeting in Bangkok for further details.

We have also supported strengthening of bilateral programmes in selected countries to include library/information services development in their priority list.

11TH ASTINFO CONSULTATIVE MEETING, TEHRAN, 1997

REPORT BY THE NATIONAL LIBRARY OF AUSTRALIA

ON THE

ASTINFO DOCUMENT DELIVERY PROJECT, 1989-1997

Introduction

1. Since its launch in June 1989, the ASTINFO document delivery project has enabled the National Library of Australia to coordinate the delivery of more than 8000 photocopied documents, at a subsidised cost, to over forty science and technology information organisations in developing ASTINFO member countries. The project has met its objectives by supplying inexpensive documents (\$AU3.00 a document), by introducing organisations to the international document supply process and by providing targeted training in national and international document delivery infrastructure.

The funds provided by UNESCO to support this project are now fully committed and the National Library is moving toward an orderly cessation of the project by the finishing date of June 1997, as foreshadowed at the previous ASTINFO Consultative Meeting in Beijing.

Background

- 2 At the third ASTINFO Consultative Meeting, held in Canberra in September 1985, delegates from several developing Asian countries identified access to current literature in science and technology as a major problem for libraries and research institutions in their countries. The National Library of Australia, the Australian focal point for ASTINFO, proposed establishing a pilot project to facilitate a more effective document delivery service for these countries. In late 1986 UNESCO commissioned IFLA consultants Stephen Vickers (the Program Officer, Universal Availability of Publications Office, IFLA) and Maurice Line (from the British Library's Document Supply Centre) to undertake a feasibility study to determine whether a document delivery system to support ASTINFO could be established. The study concluded that there was a large demand for science and technology information and that a document supply service serving ASTINFO members should be based at the National Library of Australia. The Library was chosen because of its existing strong collections in science and technology, because it operated an efficient document supply service and because it had acted for some years as a focal point for international requests in the region.

- 3 In June 1989 the Library commenced the ASTINFO document delivery project with the aims of:

providing a subsidised document delivery service, based on the science and technology resources of the National Library and the CSIRO, to science and technology libraries and research institutions in Bangladesh, China, India, Indonesia, Iran, Korea, Malaysia, Mongolia, Nepal, Pakistan, Papua New Guinea, the Philippines, Sri Lanka, Thailand and Vietnam. Documents were supplied at one third of the standard Australian charge, with the other two thirds of the cost being paid from UNESCO funds. Prior to September 1994 the charge was \$AU2.00 per document. In September 1994 the charge was increased to \$AU3.00 per document to reflect the increase in the standard Australian charge from \$6.00 to \$9.00. The subsidised charge was waived for the three member countries with a per capita GNP of less than \$US300, Bangladesh, Vietnam and Nepal. Libraries in these three countries were able to use the scheme free of charge. The procedures for using the project are detailed at *Appendix 1* and the use statistics at *Appendix 2*.

- collecting data on the volume and type of information requested by ASTINFO member countries
- providing this data to ASTINFO coordinating units so that appropriate collections and services can be developed to make the region as self-sufficient as possible for science and technology information
- providing training in the use of the ASTINFO document delivery project and in the use and maintenance of national and international interlending infrastructures.

Funding and Training

- 4 In total, UNESCO has provided almost \$50 000, under the terms of three contracts, to support this project. The funds were used to pay for about 8000 document requests, payment of a project officer to establish the project and the following associated training activities:
- Ms Margaret Henty, NLA, conducted a workshop on resource sharing and the ASTINFO document delivery project at the Institute of Science and Technical Information of China, Beijing, 23 May 1992
 - Mr Feng and Mr Lian, Institute of Science and Technical Information of China, Beijing, attended the ALIA conference at Albury, NSW, visited the NLA's Document Supply Service and discussed ASTINFO matters, September 1992
 - Ms Clair Lambert, Principal Librarian, Interlending, NLA and Ms Lek McFadden, Thai Collections, NLA, conducted a seminar on the establishment of a national document delivery system in Thailand at the National Library of Thailand, Bangkok, April 1993

- Mr Prachark Wattananusit, Head, Document Supply Service, National Library of Thailand, undertook a two-week placement at the NLA, December 1994
- Ms Amelia McKenzie, NLA's Regional Officer, Indonesia, conducted a one-day workshop on the ASTINFO document delivery project, at the Pusat Dokumentasi Dans Informasi Imiah, Jakarta, 4 May 1995.

Cessation of the Project

5 The reasons for ceasing the project are:

- The terms of the UNESCO contract specified that projects should run over a five to seven year time span. The project commenced in 1989, so the term has expired.
- The project has met its objectives by supplying inexpensive documents, educating organisations in the document supply process and providing targeted training in national and international document delivery infrastructure.
- The UNESCO funds for this project are now overcommitted and UNESCO is unable to provide additional funds to maintain the project. The National Library does not wish to support the continuation of the project from its own financial resources.
- The results of a survey of ASTINFO users conducted in August 1995 indicated that while the document supply service satisfied most of the users, primarily because of its very low cost, many of the more sophisticated information centres in the more rapidly developing countries in the region found the service slow. These organisations requested improvements such as sending requests to the NLA by e-mail or fax and the use of deposit accounts. These improvements were offered by the NLA and taken up by some participants in 1995.

Because of shifts in direction and emphasis in the National Library's collection collection development policy, the Library has been increasingly unable to supply documents from its own science and technology collections. In recent years more than 50 per cent of requests have had to be referred to the Australian Commonwealth Scientific and Industrial research Organisation (CSIRO) or to other Australian libraries, meaning that turnaround times have sometimes been up to four weeks.

Windup

- 6 Letters advising of the cessation of the ASTINFO document delivery project were sent to all ASTINFO coordinating units and all other clients of the service in late September 1996. Clients were given until 31 December 1996 to use up all their outstanding request forms, and the period until 31 March 1997 to redeem the purchase price of any unused pre-paid forms from the NLA. Clients

were given the option of receiving their refund either in the form of a bank draft in US Dollars or in the form of Australian Library and Information Association (ALIA) interlending vouchers to the equivalent value. Eight ASTINFO clients took up the option of receiving their refund in the form of ALIA vouchers, which can be used as payment for interlibrary loan transactions from any library in Australia.

By 31 March 1997 some 14 clients had returned 1,472 forms for refund. One client, Irandoc, had advised that it had returned 2,153 forms for refund, but as of 7 April these forms had not arrived at the NLA. Assuming the Irandoc forms do arrive and the refund processed, the end result is that the UNESCO funds for the project will have been overcommitted. The National Library of Australia is prepared to absorb the additional costs (estimated at \$AU14,000) incurred through the project.

Conclusion

- 7 The ASTINFO document delivery project has been a modest but successful project. It has provided specifically targeted, UNESCO-funded assistance to enable those countries which had limited access to foreign science and technology information to obtain documents cheaply and reasonably efficiently. It is very pleasing that one of the least developed nations in the region, Bangladesh, has gained the most benefit from this project. Science and technology organisations in Bangladesh sent almost half the total number of requests received by the NLA ie 4450 out of a total 9402.

The project has provided targeted training in various aspects of document delivery service and infrastructure in China, Indonesia and Thailand. This has better positioned those countries to be able to pursue greater self-sufficiency with regard to document access and delivery.

The Library would like to thank CSIRO Information Services, Melbourne, for referring requests not held by the NLA to its many divisional libraries for document supply backup. This invaluable service increased the document supply success rate significantly. Ms Amelia McKenzie, the NLA's Regional Officer in Jakarta deserves credit for actively promoting the service to libraries in Indonesia. The Library would also like to thank the General Information Programme at UNESCO in Paris for providing the funds to support this project and Ms Delia Torrijos, UNESCO's General Information Programme Regional Liaison Officer in Bangkok, for her indefatigable enthusiasm and support for the project.

- 8 Some comments on the service are set out below.

Ms Delia Torrijos, UNESCO's General Information Programme Regional Liaison Officer:

We appreciate very much the efforts you personally [Elizabeth Watt] put into it and the tremendous support provided by the National Library in this project,

by running it so well and inputting the training component fully supported by the National Library. On behalf of UNESCO, I wish to express our appreciation for the excellent support given to ASTINFO. I am sure, as you have time and again been told, many countries and institutions profited from this project, especially those who are so unlikely to be able to procure documents from abroad.

It is possible that bigger users of the project will complain for stopping it, specially now that it is so widely known among the research and academic community there, but as they say even good things must come to an end.

Ms Sara Gould, Universal Availability of Publications Office, IFLA:

I am sorry to hear that the ADDP will be coming to an end. It seems to have done a lot to make documents accessible to a large number of libraries which would not otherwise be able to afford them.

Mr Achmad, Head of ITS Library, Department of Education and Culture, Surabaya, Indonesia:

I was very sad after reading the letter from Mr. Warren Horton – Director – General, stating that ASTINFO document delivery project will cease by 30 June 1997. My sadness is because ASTINFO is very useful to our library users as the price is affordable, document delivery is generally faster and almost all requests were fulfilled, because ASTINFO has been working hard to find from other places if NLA doesn't hold it. I just enjoyed using it because I never heard about ASTINFO before. Indeed it was my fault. So, if I may implore, the ASTINFO should continue its services. Thank you very much, and hope this letter be able to be a supporting argument for not ceasing the ASTINFO document delivery project.

How to use the ASTINFO Document Delivery Project

Libraries and research institutions in ASTINFO member countries can request photocopies of articles from science and technology serials held in Australian libraries. Requests can be e-mailed, faxed to the NLA or mailed on ASTINFO request forms. Each request costs A\$3 and can be purchased from the NLA or the Regional Officer in Jakarta. (UNESCO subsidises the real cost of each request by \$6).

All requests are sent to the coordinator of the project, the NLA's Document Supply Service. If the NLA does not hold the item requested, it is referred to other libraries in Australia, including the CSIRO. Photocopies are airmailed to the requester. The turnaround time is about three to four weeks. Since the start of the project over 6000 requests have been processed. Forms are available from the NLA or the NLA's Regional Office, Jakarta

Use of the ASTINFO Document Delivery project

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	TOTAL
Requests received	218	446	922	1505	1036	1417	3804	9358
Requests supplied by NLA	132	245	466	750	592	852	1959	4996
Requests supplied by CSIRO			197	208	153	206	426	1190
Requests supplied by other libraries.					116	182	821	1119
Not supplied	86	201	259	547	175	177	598	2043
% fill rate	60%	54%	64%	64%	83%	87%	84%	78%

Requests received by country 1 June 1989-30 June 1996

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	TOTAL
Bangladesh	30	235	611	1135	684	718	1037	4450
China	14	2		7				23
India		25	125	107	63	112	307	739
Indonesia	45	44	53	14	13	152	866	1187
Iran	8					166	1012	1186
Malaysia	8	29	17	29	13	80	55	231
Mongolia				19	1	60		80
Nepal		4		16	54	54	178	306
PNG	52					1	209	262
Pakistan			11	83	13			107
Philippines	1	20						21
Sri Lanka	1	6	7	14	18	23	26	95
Thailand	21	81	68	72	81	86	78	487
Vietnam	38		30	9	96	19	36	228
TOTAL	218	446	922	1505	1036	1471	3804	9402

**11TH ASTINFO CONSULTATIVE MEETING AND
REGIONAL/WORKSHOP ON INFORMATION FOR
DEVELOPMENT**

3-8 MAY 1997, TEHRAN, IRAN.

RESOURCE-SHARING IN LIBRARIES

by

**Dr. Md. Lutfur Rahman
Director, BANSDOC, Dhaka.**

1. INTRODUCTION :

Through all the centuries since the Alexandrian Library, the aim of the librarians and the hope of scholars has been to amass in a single library all the resources for research in any branch of knowledge. With the generation of massive volume of information resources world-wide every year, the doctrine of attaining self-sufficiency is finally coming to be realised for what it is "a will-o'-the wisp. That any library could provide all the resources for research required by its readers is now generally recognized by scholars and librarians, albeit reluctantly, as an almost unattainable aspiration.

Accordingly, a sharing of holdings among libraries is increasingly accepted as an eluctable necessity and as the only realistic means of providing the full range of resources needed for scholarly research. To be effective, it goes without saying that access to materials not available in one's own library must be reasonably quick and altogether reliable. Resource-sharing was initially confined to inter-library loan only, but the concept has now gradually been extended to other activities like cooperative acquisition of books, exchange of bibliographic records and common databases with other libraries.

2. DEFINITIONS :

The term 'resource' applies to anything, person, or action which one turns for aid in time of need. When the term is used alone, it is not necessarily seen as implying reciprocity. The word 'sharing' connotes apportioning, allotting, or contributing something that is owned, to benefit others. 'Resource-sharing' in its most positive aspects entails reciprocity, implying a partnership in which each member has something useful to contribute to others and which each is willing and able to make available when needed.

Resource-sharing denotes a mode of operation whereby library functions are shared in common by a number of libraries. The goals are to provide a positive net effect :

- (a) on the library users in terms of access to more materials or services; and
- (b) on the library budget in terms of providing level service at less cost, increased service at level cost or much more service at less cost than if undertaken individually.

It is often said that inflation and budget reductions are the primary forces that lead to resource-sharing in libraries. But these are not the forces that make resource-sharing work. They are only pressures that force consideration of problems and opportunities. The only approach that permits resource-sharing to work is that which entails having resources to share, having a willingness to share them and having a plan for accomplishing resource-sharing, otherwise the concept is an empty one since help cannot be provided as and when needed.

3. AIMS AND OBJECTIVES OF RESOURCE-SHARING :

The aims and objectives of the resource-sharing and information network development are :

- (a) to promote free flow of information ;
- (b) to ensure better access to information resources ;
- (c) to ensure maximisation of use of information resources ;
- (d) to save resources through resource-sharing process and avoiding duplication of efforts ;
- (e) to ensure faster information and literature support to the information users ;
- (f) to facilitate reciprocal exchange of local publications.

4. PRECONDITIONS OF RESOURCE-SHARING :

The fundamental basis of resource-sharing and information network is that a group of libraries and information centres are able and willing to cooperate to improve their information services. Resource-sharing or library cooperation/library networking has different facets and components which are involved in fulfilling the objectives of library cooperation and in attaining effectiveness and efficiency in the cooperation process. Some of the conditions are as follows :

- (a) growing dissatisfaction prevail among the librarians and the library users with the inadequacy of existing facilities and services ;
- (b) A group of libraries have shown increasing concerns for sharing each others resources and facilities, and strong feelings and pressures for closer cooperation and resource-sharing have emerged ;
- (c) A growing awareness of the need to husband each others facilities and resources prevails for mutual benefit ;
- (d) A strong need exists for the coordination of resources and services and services based on a memorandum of understanding through a central information centre.

5. RESOURCE-SHARING PROCESS :

A fundamental step toward resource-sharing in libraries is to understand a basic resource that a library has to share. Before considering what can be shared, however, it may be instructive to consider what cannot be shared. A book owned by a library that is needed frequently by users of that library is not fair game for sharing, since it would not be available locally when it is needed. It is only those materials that are not needed frequently can be considered for sharing.

This raises two questions : How frequently needed ? and why acquire those materials locally which are not likely to be needed frequently ?

The answer to the first question needs to be negotiated, starting with some limiting parameters. It is probable that most librarians, clients and administrators would agree that a book used locally, say, daily should not be shared; likewise, a book that is used once in 5 years could be shared, specially if the mechanisms are assured for retrieving the book from elsewhere when it is needed locally.

The second question is more difficult to answer, specially for research libraries which in the past generally aimed to acquire local holdings, typically, regardless of frequency of need. Given this type of acquisition policy, it becomes possible to share holdings if some advantages of sharing can be perceived by the library which holds the wanted materials. These advantages can be payment in kind (reciprocity) or payment in fact, which helps provide the financial wherewithal for the library to continue pursuing its acquisition policy.

It is threatening to consider that resource-sharing entails movement of owned materials to another location, making them unavailable locally during the period of use elsewhere. It is also threatening from another point of view in that effective sharing entails consideration of , and measurement of use (and non-use) of materials for which local funds have been expended. Libraries may feel exposed to criticism

for using criteria other than traditional economics (i.e. the extent of use as the only criterion) in making purchase decisions.

It would be less threatening to consider another important aspect of resource-sharing, that involving bibliographic access to local holdings. In this case, we are dealing with services and processes, and materials need not necessarily be moved physically from the local environment. So sharing in this sense entails providing the right to utilize the bibliographic tools (e.g. catalogue) thus permitting them to locate that which is held locally. Reciprocity that is, bidirectional movement, is again needed if resource-sharing is to be meaningful.

Once material of interest has been located elsewhere, it becomes necessary to determine whether it is indeed available, or is in use by others. Resource-sharing requires access to circulation information to avoid disappointment and to accelerate the process of locating the required material at still another library.

A next basic step entails transfer of the desired physical material to the point of need. Resource-sharing, therefore, involves establishing positive procedures for delivering materials and for ensuring their return in a timely manner.

If resource-sharing is to be deemed successful, all procedures must occur with sufficient speed so that the client has the desired material in hand before the need has evaporated. The cooperative use of technology may become interesting here.

There are other aspects of sharing to be considered, including agreements for implementing cooperation and the establishment of facilities for storing little-used materials.

6. RESOURCE-SHARING AGREEMENT :

Some basic agreements among libraries must be developed if a resource sharing system is to be achieved.

First, obviously, is the agreement to share currently owned materials (that is, to permit access to the holdings among partners) with protocols, limitations, and priorities carefully spelled out. The agreement should provide for an independent administration of resource-sharing.

Second, there should be agreement on acquisitions policies, both to ensure consistent development of holdings and to avoid redundancy when this is judged jointly to be unproductive.

Third, there should be agreement on bibliographic control. Best is standardization, so that the users of each cooperating library have a consistent means of accessing the catalogue of others.

Other necessary agreements include definition of loan periods and renewals, procedures for early return of materials if needed, payment for lost materials and other 'house keeping' chores.

7. TECHNOLOGY:

Given the need to share data about acquisitions, holdings, inter-library loan requests and completed transactions, and to share these data over distances, the digital computers and modern telecommunication technology have provided opportunities for effective design and operation of resource-sharing systems. The primary records containing such data can be recorded in machine-readable form to permit cost-effective transactions to be concluded, to permit ready analysis, and to support decision processes at various geographic locations.

There is a whole spectrum of computers which can be considered for resource-sharing systems. Small inexpensive computers lie at one end of the spectrum with much more expensive, large-scale computer facilities at the other end. Libraries participating in a resource-sharing system may wish to consider introducing low-cost computers to support local library automation requirements. On the other hand, a larger computer may be attractive for the support of consortium requirements, with costs shared among the members. Careful analysis is needed to ensure that equipment choices for local and /or consortium requirement are reviewed carefully to assure compatibility.

8. SCHEMA OF A RESOURCE-SHARING SYSTEM :

It is possible to draw a simple schema of a resource-sharing system (Fig-1). In this drawing, limited for simplicity to two libraries, each has two 'terminals', one each for users and for librarians. The user (1a, 1b) is able to access a 'Union database' (2), which provides the catalogue of the holdings of libraries A and B (with locations given for each item). If the desired material is not located in the union catalogue, the on-order/in process file (3) may then be accessed. If the desired item is located in a given library, the circulation file is consulted (6a, 6b) to determine whether it is indeed available immediately.

If it is available, a transaction is initiated to move the item to the point of need from the holdings of the other library (5a, 5b) with a record of the transaction maintained by the system (7).

An acquisitions librarian (8a, 8b) wishing to make a "buy/no-buy" decision would likewise consult the union data base (2) and the on-order/in-process file (3) to determine the decisions of other libraries in the system. A 'buy' decision would then lead to entering the transaction in the on-order/in-process file (3), to cataloguing the item when it arrived, and to entering the cataloguing (and location) information in

the local catalogue (4a, 4b) and in the union database (2). The material itself would then become part of the local holdings (5a, 5b), ready for access.

Use statistics (7) would lead to weeding decisions (9) and consideration for remote storage.

9. BENEFITS ON RESOURCE-SHARING :

The benefits of resource-sharing are to :

- (a) help libraries control costs and better serve their patrons ;
- (b) increase availability of library resources to library patrons ;
- (c) lower the rate of rise of library per unit cost ;
- (d) furnish patrons and library staff with information when and where it is needed ;
- (e) facilitate personalised services to library patrons.

10. STATUS OF RESOURCE SHARING IN BANGLADESH

Bangladesh has not yet been able to formalise the information acquisition-processing-dissemination cycle. However, some efforts were made to proceed to that direction through inter-library loan and other means.

Currently, several networks (mostly non-formalized), such as, BANSLINK, HeLLIS, NAIS/AGRIS, POPIN, APPINESS, HRD, etc., have been functioning in the country. The process of networking has rather taken place in other forms, such as inter-library loans, document-delivery, exchange of publications, advisory services, sharing of facilities, etc. The present efforts are discussed below.

Although informal inter-library loan system was operational in the country in sporadic ways even before 1971 when the country was liberated, the system was formalised by the initiatives of the former Cholera Research Library (now International Centre for Diarrhoeal Disease Research, Bangladesh) and the National Health Library and Documentation Centre (Ministry of Health, Government of Bangladesh). These two organizations signed in 1976 an agreement to facilitate library cooperation through inter-library loan system. Subsequently, BIDS (1977), BIRDEM (1978), and USAID, Dhaka (1992), joined this programme by signing inter-library loan agreements. The arrangement has been working well without any problem.

In addition to this effort, NHLDC and ICDDR,B informally agreed strongly to cooperate with each other to avoid duplication in journal subscriptions. This

RESOURCE SHARING IN LIBRARIES

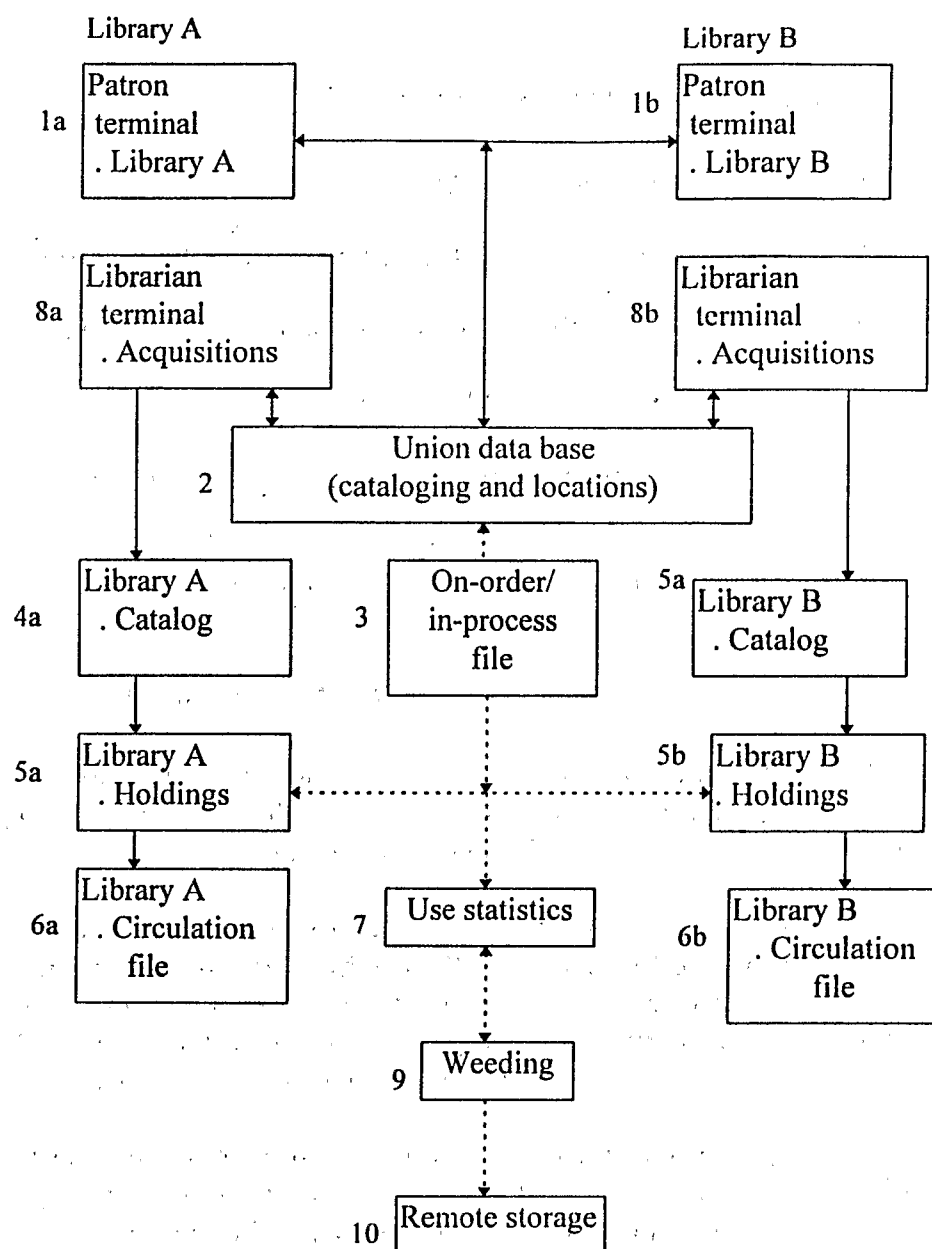


FIGURE 1. Resource-sharing system

approach has been successfully operating for the last one decade, and this has resulted in supplementing each others collection and in procuring additional journals. Also while subscribing to new periodicals, both BIDS and ICDDR,B check each others collection to avoid unnecessary duplication in journal subscriptions. Similar approach can be taken by other major libraries in the country.

The resource-sharing concept has never been formalised except whatever written under the caption "inter-library loans". The UNESCO consultant to Bangladesh urged in mid-1970s to develop a system under the guidance and leadership of BANSDOC where the participating organizations and libraries will be able to use the resources and reading materials of each others organizations. Several efforts (by universities, BANSDOC, NHLDC, BARD, CIRDAP, AIC, NIPOIT, etc.) were made in the past to organize library cooperation, start resource-sharing process and materialize recommendations of meetings and conferences. Suggestions were also put forward by the country's library specialists. For example, during the preparation of a National Scientific and Technological Information Policy (NASTIP), the question of resource-sharing was heavily discussed, and the NASTIP committee members agreed to find out means to promote the idea. Two seminars were held to promote the NASTIP, and another LAB seminar was held in 1992 to popularise the resource-sharing concept and to implement the ideas in practice. BIDS organized a "Seminar on Information System in Bangladesh" on 13-14 February 1993 aiming at developing appropriate recommendations for the development of "development information network for Bangladesh".

Some of the efforts taken in the past in sharing of resources are briefly described below:

- a. Agricultural Information Centre (AIC) has taken initiative to launch a network of agricultural institutions to make available information and literature for the agricultural scientists. The network is known as NAIS. Some eleven agricultural organizations have been participating in this network programme.
- b. Social Science Research Council (SSRC) has also taken an initiative to organize social science information network in Bangladesh. Forty-three organizations have been brought under this network. This network has also been functioning as a national focal point for APPINESS.
- c. HeLLIS is organized by the WHO and SEARO and the NHLDC, Dhaka is the national focal point for the health information network. All the health libraries in Bangladesh have been brought under this network. A HeLLIS newsletter has been published by the NHLDC to promote this network in Bangladesh.
- d. BARD in Comilla has taken an initiative to launch a network of rural development institutions in Bangladesh. This network has been termed as the Bangladesh Development Support Information and Communication (BDSIC) Network. Some 14 organizations will participate in this network programme. The BARD management has officially approved this network.

e. CIRDAP has initiated to develop a regional network on rural development. This has also got the mandate from the management of CIRDAP. The network has been termed as INRRD, and the scope of this network has been expanded to cover national institutions engaged in rural development. Under this network, the CIRDAP has been producing a newsletter under the name and title "CIRDAP Newsletter"

f. NASTIP - no network could yet been developed covering the science and technology, but Science and Technology Information Policy (NASTIP) has already been drafted and the draft was submitted to the Government for review and approval. Under this policy, a four-tier science and technology information networking system has been recommended. The national Science and Technology Policy has, however, a provision to develop a 3-tier networking system covering the science and technology aspects.

g. Population Information Network - The National Institute of Population Research and Training (NIPORT) has taken an initiative to establish an information network system in the field of health, population, family planning and MCH in collaboration and cooperation with the government and non-government organizations, autonomous bodies, voluntary organizations, and international organizations.

h. The Association of Management Development Institutes in South Asia (AMDISA) has launched a network on management development which is called the Libraries Network for Resource-sharing (AMDISA Library Network). The headquarter of this network is located at the Administrative Staff College of India, Hyderabad. One institute in each SAARC countries has been selected as a focal point. The Institute of Business Administration Library (Dhaka University) has been selected as the national focal point for this network.

11. ROLE OF BANSDOC IN RESOURCE-SHARING :

With a view to ensuring rapid collection, processing, storage and dissemination of information, BANSDOC, as the apex organisation of the S&T information system in the country, has now been implementing a project entitled "Automation and Networking of Science and Technology Libraries in Bangladesh".

11.1 Objectives of the Project :

The objectives of the Project are :

- (a) To significantly improve resource utilization and service levels to users at the individual libraries by providing automation facilities for all house-keeping functions and user services such as :

- acquisition and fund control
 - serials control
 - cataloguing
 - circulation
 - user services
 - creation and maintenance of bibliographic databases, etc.
- (b) To operationally enhance and promote resource-sharing by providing individual libraries access to composite databases (held by the Network Service Centre) such as :
- Union Catalogue
 - Current Awareness Service and SDI
 - Partial STIS Databases
 - Authority Data
 - Subject profile, etc.
- (c) To provide efficient and reliable means of :
- Inter-library user services
 - Document Copy and Transfer Facilities
 - Access to National and International STIS Databases, etc.

11.2 Implementation Plan :

The Network Project will be implemented in three phases :

11.2.1 First Phase : In this phase, the following libraries and documentation/information centres at Dhaka city will be automated :

- BANSDOC (Central Host)
- Dhaka University Library
- Bangladesh University of Engineering and Technology (BUET) Library
- Bangladesh Atomic Energy Commission (BAEC) Library
- Bangladesh Council of Scientific and Industrial Research (BCSIR) Library
- Agricultural Information Centre (AIC)
- Institute of Post-Graduate Medicine and Research (IPGMR) Library
- National Health Library and Documentation Centre (NHLDC)
- Planning Commission Library.
- Ministry of Science and Technology Library.

The following functions are being accomplished in this phase :

- (a) Introduction of computer culture in the libraries
- (b) Setting up of Central Host
- (c) Creation of Union Catalogue
- (d) Procurement of equipment for the participating libraries
- (e) Setting up of communication software
- (f) Networking of Central Host and participating libraries for off-line query and
- (g) Establishment of E-mail system at the Central Host.

11.2.2 Second Phase : In this phase, the following six libraries outside Dhaka City will be automated :

- Jahangirnagar University Library, Savar, Dhaka.
- Rajshahi University Library, Rajshahi
- Chittagong University Library, Chittagong
- Bangladesh Agricultural University (BAU) Library, Mymensingh
- Khulna University Library, Khulna and
- Shahjalal Science and Technology University (SSTU) Library, Sylhet.

The following functions will be undertaken in this phase :

- (a) Procurement of equipment for the participating libraries outside Dhaka City
- (b) Creation of local databases and
- (c) Updation and maintenance of Union Catalogue.

Each participating library and information/documentation centre will be provided with a custom configured multi-user host server, terminals and associated network equipment.

11.2.3 Third Phase : In this phase, the following functions will be undertaken :

- (a) Conversion of off-line query to on-line query for the users of the libraries which have already installed necessary equipment and connected to the Network.
- (b) linking of the Network Service Centre (NSC) to INTERNET to provide centralised services such as : on-line search of international databases, CAS and SDI services.

The Network has been named as Bangladesh National Scientific and Library Information Network (BANSLINK).

11.3 Benefits of Networking :

(a) The expected direct and tangible benefits of the Network will be as follows :

- Increase in utilization of library holdings
- Increase in quality of databases
- Reduced investment in multiple subscriptions
- Increased pool of information of available resources
- Introduction of comprehensive and prompt user services such as SDI and CAS
- Improved user services in circulation control
- Up-to-date resource availability through serials control
- Facility for inter-city and intra-city document transfer, etc.

(b) The indirect and intangible benefits are likely to be :

- Improved utilization of management time for planning, organization and control due to timely availability of data and information
- Closer control over investment in holdings
- Ability to handle increased workload with lesser cost
- Extensive reporting on pending activities
- Generation of appropriate skill to handle information, etc.

12. CONCLUSION

The success of any resource-sharing programme largely depends on the mutual understanding and cooperation of various component organizations. The combined information resources of different libraries are of enormous value to economic and social growth, but their effective use requires the development of an adequate resource sharing system among various libraries and information centres. Besides, for effective coordination of the resource-sharing process in respect of collection development, information services, manpower development, etc., an appropriate organization with adequate infrastructural facilities is essentially needed.

Status Report on the National Information Infrastructure in China

Paper for 11th ASTINFO Consultative Meeting

Tehran, Iran, May 2-9, 1997

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Since the publication of **the National Information Infrastructure: Agenda for Action** by US Government in 1993, more and more countries in the world come to join the game of competition, not for fun but for catching up with the industrial countries in the most prosperous field of high technology. Information infrastructure is so important that with achieving this goal, a country will be ignored in the coming century.

Taking the Internet as an example, it has exploding at an annual growth rate of 180% in the world. No strange that many people nowadays call it a prototype of information highway, through which about 180 countries are interconnected together for transmitting all kinds of information in a way well accepted by ordinary people. Human being has created the second United Nations in moving towards the direction of information society, an important milestone in human history.

Based on the recognition of the importance of information infrastructure in the coming century, Chinese government pays great attention to the implementation of national information infrastructure. Tremendous progresses have been made in policy-making, legislation, telecommunication facilities, hardware and software, information resources and information network deployment.

1. Establishment of the **Leading Committee for National Information Infrastructure** under the State Council

The Leading Committee for National Information Infrastructure (LCNII), established under the State Council in 1996, is the top-level leading organ for China's national information infrastructure. With Mr. Zhou Jiahua, vice-premier of China's State Council, as the chairman, LCNII consists of about twenty members of minister-level from relevant departments and commissions, including State Planning Commission, State Science and Technology Commission, State Educational Commission, Ministry of Posts and Telecommunication, Ministry of Electronic Industries, Ministry of Public Security, Chinese Academy of Sciences, etc.

The LCNII members will meet irregularly when any important decisions need to be made or any important issues need to be addressed. Working in this way means that the LCNII has to delegate the day-to-day work to a standing organ. In response to this need, the LCNII established a permanent office which is responsible for daily work. The LCNII permanent office consists four divisions:

A. Administrative Division: dealing with miscellaneous work, including documentation, meeting preparation, liaison and internal administration.

B. Major Project Division: dealing with planning, coordinating, financing and managing key projects and programs in information infrastructure.

C. Legislation and Regulation Division: dealing with legislative and regulative work.

D. Network Division: dealing with planning, coordinating, financing and managing information networks throughout China.

Director general of the LCNII office is Mr. Lu Xinkui, vice-minister of the Ministry of Electronic Industries.

2. Publication of the Provisional Regulation on the Information Networks in China

This is the first law governing the information networks with international communication links. The management of standalone information networks without international connections is not specified in this document.

Information networks with international connections in China falls into two categories: those with direct international connections and those with indirect international connections. According to this regulation, only four information networks are allowed to have direct international connections, that is,

A. **ChinaNet**, the public information network established and operated by the Ministry of Posts and Telecommunication (MPT). This network was established on the basis of existing telecommunication facilities owned by MPT, such as ChinaPAC (public packet switching network of China) and ChinaDDN (public digital network of China). Due to the favorable prices falling on end-users resulted from favorite position of MPT, this network seems to be the most competitive one in China.

B. **CERNET (China Educational and Research Network)** established and operated by the State Educational Commission on the basis of leased lines provided by MPT. CERNET is mainly oriented to teaching staff and students in universities and colleges, not to the public users. Network Information Center (NIC) and Network Operation Center (NOC) of CERNET are within the Tsinghua University, the most famous engineering university in China. In the first phase of this project, completed by the end of last year, about 100 universities and colleges are interconnected by CERNET. With some high-level experts educated

in industrial countries like USA as key specialists for CERNET, this network marks the national level of information networks in China.

C. **NCFC**, an information network called **Networking and Computing Facility of China** established by the Chinese Academy of Sciences (CAS) with funds from the World Bank and the State Planning Commission in early 1990's. It is planned that in the first phase of this project, about 100 research institutes will be interconnected by the NCFC. This network is mainly oriented to the researchers and engineers in all the institutes under CAS.

What I should mention here is that the Institute of High Energy Physics (IHEP), CAS, was the owner of the first network in China getting connected to the Internet backbone NSFNET via SLAC (Stanford Linear Accelerator Center) and ESNET in 1993. Dr. Xu Rongsheng, a research professor in IHEP is considered the father of the Internet in China.

D. **GBNET (Golden Bridge Network)**, established and operated by the Jitong Company under the Ministry of Electronic Industries. Jitong was created under the auspices of the State Council in order to break the hegemony of MPT in China's telecommunication market. The original purpose to set up GBNET is to provide a nationwide backbone network for the public. GBNET was established by making use of satellite communication technologies, including VSAT. In addition to the above-mentioned networks with direct international connections, there are dozens of information networks with indirect international connections.

Information services in China must be provided in the manner that does not violate relevant laws and regulation in China. All the information networks must be registered to the authorities before providing services to the public. Those who provide illegal information to the public will be punished according to the relevant Chinese laws. Information networks in China should also take measures to ensure the security of data and network.

3. China National Plan for Informatization for the Ninth Five-Year Plan Period (1996-2000) and to the Year of 2010(Draft)

Late 1996, a drafting committee was formulated in order to draft the National Plan for Informatization for 1996-2000 period and to the Year of 2010. This document is designated to provide a guideline for the national informatization in every walks of life.

Chapters in this document are related to the following aspects:

- (1) Objectives for national informatization for 1996-2000 period and 2000-2010 period;
- (2) Current status of national informatization;
- (3) Policy to promote the implementation of national informatization;
- (4) Laws and Regulations governing the national informatization;

- (5) Human resources for implementing the national informatization;
- (6) Key engineering projects related to the national informatization;;
- (7) Exploration and utilization of information resources;
- (8) Electronic industries;
- (9) Information service industries;
- (10) Telecommunication infrastructure;
- (11) Public and dedicated information networks;
- (12) R&D projects.

National informatization is also called CNII (China National information Infrastructure) in some documents. However, some people argued that the phrase "national informatization" bears broader connotation than "national information infrastructure" because the former includes something achieved on the basis of the latter. Nevertheless, in general sense, there seems no big difference between the two.

4. Components of CNII

- **Information infrastructure:** telecommunication facilities for the public and private sectors, computer applications, information resources and related human resources. telecommunication facilities includes China PAC (X.25 packet switching network), ChinaDDN (digital Data Network), microwave networks, satellite networks like VSAT systems, CTV (cable television) networks, etc.

- **Information industries:** mainly computer and telecommunication hardware manufacturing industries

- **Information technologies:** R&D activities underlying information industries as well as information technology transfer.

- **Information expert, specialists and technicians:** all the human resources supporting CNII activities.

- **Information Legislation:** including policies, regulations and laws concerning the construction and utilization of CNII.

5. Guidelines and Goals for the CNII

The mid-term plan for CNII can be divided into two stages

Goals for the first stage (1996-2000):

- To set up a comprehensive nation-wide information network by connecting existing discrete computer networks by means of existing public telecommunication facilities;

- Concentrate on the "Three golden Projects", that is, Golden Bridge Project, Golden Custom Project and Golden Card Project;

- Making abundant information resources accessible via information networks, including traditional databases and new kinds of information resources such as Web pages;

- Promote information services through up-to-date measures like information networks;

- By the year 2000, the information equipment manufacturing industries will contribute 4% of GNP to the economic growth;

- The contribution of the information industries to the economy will increase from 25% (for 1995) to 35% for 2000.

Goals for the second stage (2001-2010):

- To realize an information infrastructure in major areas of the economy, including education, science and technology, main sectors of industries, agriculture and social life;

- Make essential progress in information distribution in throughout the country;

- Expand telecommunication facilities established in the first stage of CNII project, such as optical fiber cables and satellite networks.

Goals for the third stage (2010- 2050):

To be decided after 2005 on the basis of evaluation on the implemented projects.

6. Brief Introduction to Three Golden Projects

(1) Golden Bridge Project:

It's also called the National Economic Information Network, aiming at:

- Serving key state projects, such as Three Gorge Project and Dayawan Nuclear Power Station;

- Connecting 1200 (for the first stage) large and medium-scaled enterprises for information exchange;

- Making use of satellite communication technologies with connection to ground telecommunication facilities like PSTN (Public Service Telephone Network) , ChinaPAC, ChinaDDN and ChinaEDI;

- Serving other public and private information networks as the nation-wide backbone network;

(2) The Golden Customs Project

A dedicated nation-wide information network for foreign trade. This network will connect all the foreign trade related organizations together for information exchange and processing, including the Ministry of Foreign Trade and Economic Co-operation, the Customs Administration, the Commodity Inspection Agency, the State Statistics Bureau, the State Administration of Exchange Control, major banks , and importing and exporting enterprises.

When the project is completed, foreign trade related paper documents will be replaced by EDI (Electronic Data Interchange) so that the processing cycle for foreign trade transactions will be greatly reduced.

(3) The Golden Card Project

This project is designated to modernize China's financial systems. The People's Bank of China will be responsible for establishing of three-level management system for credit card transactions. The Ministry of Domestic Trade will be responsible for the establishment of POS systems in department stores, hotels and restaurants

7. Issues and Solutions

(1) Telecommunication cost is too high

Compared with most countries in the world, telecommunication cost is too high. Take the long distance call for example, a call from China to USA will cost about 3.5 US\$ per minute while a call from USA to China will cost less than 1 US\$ per minute, some times the cost will be as low as 0.39 US\$ per minute.

This situation results from the lack of competition in China's telecom market. The central government has been trying to introduce competition by setting up another state-owned telecom company called Unicom. Another action to solve this problem is to make adjustment to the formulation of pricing policy. In the past, the telecom prices were totally determined by the Ministry of Posts and Telecommunication (MPT). It has been decided that new prices will be determined by **the Leading Committee for National Information Infrastructure** consisting of dozens of ministries and commissions under the central government.

In order to avoid the high cost for establishing and operating an information network, some ISPs also make use of less expensive telecommunication facilities such as VSAT.

There is a strong indication showing the possible decreasing of telecom costs in the near future, probably in this year.

(2) Insufficient Information Resources on Information networks

Just as mentioned above, the Internet became available only a few years ago. Many organizations operating information networks have spent most of their money, time and efforts only on the hardware, software and telecommunication facilities. Now they become gradually aware of the importance of information resources on their networks. Take the ChinaInfo project as an example, SSTCC and ISTIC will spend 5-8 years to set up a comprehensive on-line information service to the public by joint efforts from dozens of ISPs.

The State Science and Technology Commission of China will soon issue an official document in order to stress the importance of information resources and give guidelines for activities in this field. The draft document has been passed to relevant organizations for review and comments.

(3) Policy to stimulate the development of information industries

From the social advance point of view, the important contribution of the Internet is to serve as a propellant to the development of information industries

which bring about much wealth to the society. In order to achieve this, the policy makers must take measures to encourage organizations and individuals to become ISPs. Meanwhile, favorable environment must be created in order to insure that ISPs could make enough profits by providing information services to the public.

There are some signals showing that the strictly controlled telecom market and value-added information service market in China will be gradually deregulated in the near future just like what is happening to the banking system in China.

(4). Legislation on the protection of intellectual property rights in the environment of information networks

This is a common problem confronting both developed and developing countries. My personal feeling is that this problem can only be solved by combining the legislative measures and the common sense of information sharing. Only when the people are willing to share their information with others and their information can be protected by legislative system at the same time, people can draw the greatest benefits from the information society.

China has made great progress in the protection of intellectual property right in the past few years. The central government has established an office of intellectual property right protection within the State Science and Technology Commission of China in order to coordinate activities in this field.

(5) Insufficient bandwidth of telecommunication links

The present telecommunication links in China are far from enough in terms of bandwidth. This situation becomes worse because of the fast increase in the number of end-users. Due to the high costs in telecommunication, ISPs are reluctant to use expensive high speed telecom links. Fortunately, the international link of STINET has recently been upgraded from 64 Kbps to 256 Kbps.

Along with the decrease of telecom costs, more and more information networks will use high speed links so that the bottle neck could be removed.

(May 25, 1997)

DESIGN OF NATIONAL INFORMATION SYSTEMS IN DEVELOPING COUNTRIES — CONCEPTS AND CONSIDERATIONS

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INTRODUCTION

The universality of knowledge implies that information support required in the pursuit of knowledge is similar in the developed and developing countries. Unfortunately, knowledge workers in developing countries do not get such support which adversely affects their output.

It is imperative that a National Information System (NIS) is designed such that the gaps in the support services could be bridged to the extent feasible. This would in turn enable knowledge workers in developing countries to produce results comparable to their counterparts in the developed world.

In the developing countries, even today, a vast network of universities and R&D institutions contribute a great deal to the knowledge base. The more significant contributions are however, published in books and journals of foreign origin. With such scenario, the task of the NIS would be:

- to facilitate the use of the global knowledge base among the knowledge workers
- to specifically collect and collate knowledge generated within the country, and published in national literature and disseminate to the national and international community of users.
- to gain access to the national contributions to the world of knowledge recorded in foreign publications.

In the tasks set out above, one cannot construct a scenario in which the entire spectrum of knowledge is captured. Neither it is feasible by any stretch of imagination. For the economically backward countries, even the access may have to be arranged on a collective basis.

The developed nations usually may not have a "national information system". The information activities are independently carried out by individual institutions in the public and private sectors on a competitive basis. This approach is not tenable in the case of developing countries as the required entrepreneurial capabilities, and investment capacities are not available. Further, since the market is small and uncertain for an intangible product/service like information, entrepreneurs usually shy away from taking risks. Therefore, government has to bear the brunt of providing financial resources to the information sector. Given the small inputs, the problem is one of maximization of benefits. This situation calls for strong co-ordinated efforts. A lot of new inter-institutional activities need to be promoted. Radical decisions that best serve the community of information users as a whole, and that match with the interests of the market players as well, need to be taken. The leadership for all these can come only from an well-orchestrated NIS.

The article deals with few examples of basic principles on which the NIS could be built in the context of developing countries.

TECHNOLOGY CHANGE

A prescription of centralized development of information resources base and centralized generation of services are usually advocated right from the word 'go' for the design of a National Information System. Perhaps the centralized approach to information management was felt appropriate in the yesteryears when the users had only few computing machines to share. And a centralized approach may even appear to be more economical because the overheads get shared; however, stretched beyond a limit, the disincentives over-ride.

The PCs of ever increasing power ushered in the era of decentralization. Though the applications developed were small, it was perhaps easier to manage these well. The ownership of information was distinctly identifiable, and since it was so, the owners in turn were forced to closely control the quality of their products and services. Information managers could exercise a greater control on the quality because :

- a) they were not governed by specifications laid down by a centralized host,
- b) they could interact directly with the users. In fact, most of the commercial hosts keep the identity of end-users confidential. Besides, the involvement of a third party (host) and at times a fourth party (gateway) for marketing and distribution of products increases the costs and therefore the price payable by the end-user. On the other hand, some of the decentralized operations could be too small to handle. In marketing terms, pooling of the demands (users) from different corners of the market may make an operation viable.

Instead of promoting a totally centralized system at one end, and a totally decentralized system at the other end of the spectrum, the design should incorporate few centralized systems with "planned" decentralization. The design of the national information systems, therefore, ought to use both the concepts in parallel.

Even while developing a centralized system, one could resort to the concept of "Decentralized" collection - "Centralized Processing" - "Decentralized" dissemination at the national level also, as practiced by the UN promoted global systems like the INIS/IAEA, ARGRIIS/FAO or INFOTERRA/UNEP. In such a scheme, the dissemination outlet is closer to the consumers and therefore, monitoring of the ever-changing demand pattern is possible. Further, as the parties or functionaries involved in the dissemination process are in a way linked to those who are responsible for information collection, the possible demand-supply gap may get reduced.

The technology of information management has progressed further. Since the early 90's, the world has witnessed another revolution which is an outcome of the symbiosis of the computer and communication technologies. Earlier, the decentralized systems were more or less working on stand-alone basis and one could access the information resources in remote log-on mode. The situation necessitated establishment of a point-to-point circuit. Accessing information from a decentralized source was often a frustrating experience. Networks alleviated the problems to a great deal. However, if the user was not a part of the network in which the information source was resident, the user once again gets pushed back to square one.

Fortunately, in close succession came the technology of networking of networks which solved most of the problems of working in a decentralized environment. So long as the user and the information source are a part of a network, may not be the same network, and provided there is a gateway between them, accessing information is not a problem. The software industry has also responded to the market needs, and removed the need to work in a homogenous hardware software platform. All these are possible at the macro international and national levels and also at an institutional level. In today's context, this technology is the most appropriate for building a NIS. But has the last word been spoken???

While all such technological break-throughs have revolutionized the world, the impact is less felt in the developing countries. These countries still live with archaic telecom systems-unreliable and noisy. The "last mile" problems remain and perhaps, the problems have intensified as more users are multiplexed to share a physical line. On the top of this, many information centres in the developing countries do not even have a direct telephone connection. In all likelihood, many of the developing countries would miss the information revolution bus. How such an unfortunate state could be avoided, needs a great deal of attention. Surely the problems cannot be solved by/for an individual information centre. A well-coordinated effort for the development of a "national information infrastructure" to host a "national information system" is the call of the day.

URBAN-RURAL DIVIDE

The reach of conventional library and information services usually does not extend beyond the urban boundaries, the two major reasons being that

- the rural population and their economic activities do not have much use for the conventional information support coming in the form of books and journals; and
- the rural telecom system especially in developing countries is not adequately developed in terms of the number of lines and switching systems.

Any NIS, in order to justify itself, ought to serve the rural areas where more than three-fourths of the population live. However, it is easier to preach than to perform. Their economic activities are limited to agriculture and rural industries. But agriculture and rural industries are usually low information intensive sectors. Even if they want to, they cannot utilize the conventional information products and services because of widespread illiteracy. The computer literacy is also next to nil.

Given the ground realities, it would require a great deal of innovation to make a NIS useful to the rural population. The first task is to understand the users' information requirements. The information packages are to be designed with more pictorials, video and audio such that largely illiterate population could make use of these.

The task is not as formidable as it appears. A great deal of commonality in users requirements is expected. The task may entail development of few general packages and not personalized custom solutions. In order to increase the reach, the broadcasting facilities of TV & Radio ought to be used. The dependence on extension workers for information dissemination would continue. However, much of the information services would have to be bundled to serve the interests of a "community" rather than those of its individual members. In spite, an information system should be prepared to meet sudden demands such as delivery of health care information in the event of the outbreak of an epidemic. Some degree of centralized information consolidation and delivery through wire, cannot be excluded.

POOLING OF INFORMATION RESOURCES & SERVICES

Librarians often find it difficult to take a realistic view of the demand. Since high sensitivity and impatience characterize the user community, a lot of acquisitions is made in anticipation of the demand to take care of the exigencies. The problems are acute at the institution level where the information manager tries to satisfy the clientele with a budget that is steadily eroding in real terms. He may reduce the extent of redundancy provided he could be assured of supplies when needed. The pursuit of the goal of individual (institutional) self-reliance would invariably end up in naught. The self-reliance should be a collective goal. If so, how this is to be approached?

At the very fundamental level, individual information centres should be able to articulate the core requirements and differentiate between the core and peripheral interests. If the core collections could be networked suitably across a large number of institutions much of the peripheral interests may also get automatically satisfied as the "core" of one institution

might be the "peripheral" of another.

The question still remains as to how the duplications among-"cores" could be avoided. First of all, managers of the information centres could set up a consultative mechanism to coordinate (among institutions) their acquisitions programme. If it is not supported and driven by the spirit of resource sharing, the mechanism may not bear fruit. Further, it may be worthwhile to centralize few common expensive items. For example, one could obtain network licenses for databases like Chem Abs, and BIOSIS or full-text delivery systems like the ADONIS and the IEEE+IEE and run a common service for all institutions.

Going further, it is possible to conceive of an even cheaper solution in which databases like Current Contents and Inside Information are used and supported with a robust full-text document delivery mechanism. In such a case, the user need not pay for the full journal on annual subscription basis - he pays for the items only when he needs.

Another long shot alternative would be to pool a part of the financial resources through a consortium, and collectively subscribe to the more expensive items. The other would be to evolve a mechanism by which a user could use libraries other than the one located in his institution without going through the usual procedural hassles.

The practice of hardcopy acquisitions is too historically and emotionally entrenched to break away from. It is however, imperative that the information centres and services coordinate their actions while dealing with other forms of information delivery such as online and stand-alone products on CD-ROM. Multiple imports should be discouraged to the extent feasible. Further, in every decision, the trade off between acquiring information products in hard copies vis-a-vis the cost of accessing the same materials through alternative means and media may be analysed. For example, databases in low demand may be accessed online whereas the oftused ones could be procured in stand alone mode or for installation on a host to generate local online services. Similarly, if the number of SDI profiles is small, instead of subscribing to the full database, one could use the SDI facilities available on online services.

ORGANISATION OF SERVICES IN BUREAU

In developing countries, the infrastructure is not as developed as to facilitate end-user access to all sources of information. The end-users are usually not knowledgeable enough about the sources of their interest. They need skilled intermediaries to assist them in their information seeking. When information is priced in terms of time involved in the search process, and the volume of output (hits), optimization through the assistance of skilled intermediaries is essential. Further, the state of infrastructure is so poor in a developing country that a combination of a mere PC plus a modem plus a telephone line (one that works), is also not affordable by all institutions. Whereas in a developed world such a configuration is common even at the individual homes.

In other words, the situation implies that some of the information search services are to be organized on bureau basis. The users can utilize the bureau facilities and pay on "on use" basis. A bureau may also provide the services of trained intermediaries to assist the users.

Online search is one area for which the bureau facilities could be organised. While larger institutions can have their own, low volume users like small institutions, businesses and industries can use the bureau facilities much in the same way as people use on the street facilities like Fax-PCO-ISD-Email. In developing countries, cybersurfing may also be organised in bureau mode as only a few could afford Internet access facilities at homes. The access points are usually limited even in corporates, schools, colleges and universities. If properly organised and priced, enthusiasts are expected to flock to the Bureau Internet facilities.

PROMOTION OF INFORMATION BROKING

End users who do not have adequate assistance of professional intermediaries, small to

medium institutions without information support staff, individual professionals like medical practitioners and free lance journalists, and a large proportion of corporate houses who lack adequate information support outfit, have no alternative but to utilize the services of information brokers. These information brokers could be individual entrepreneurs or companies equipped with appropriate facilities and skills in information handling.

In the overall scheme of NIS, the information brokers could mop up small dispersed demands through their entrepreneurial skills, and also take up large contractual jobs for their sustenance. The characteristic of "intangibility" make information marketing a difficult task. On the other hand, the high capital and operating cost intensity are often dampers to having a library in the first place. Even if an institution is prepared to make such investments, the set of "permanent" library staff may not be as "responsive". Further, being usually handicapped with mobility and communications support, the search for information begins and ends in the institutional library. It is also well known that the industries do not have any appetite for raw information in the form of bibliographies, listing of reports or a full-text outputs. They need well-digested, consolidated or analysed information - a kind of service which is little closer to consultancy. In the final analysis, if properly promoted, the information brokers could have a field day by maintaining a line of supply from passive sources of supply to potentially information hungry customers, and therefore, have a definite role to play in the NIS.

DEVELOPING THE INTERNAL STRENGTH OF INFORMATION MARKET

It is well to recognize at the outset that the information market in developing countries lacks an internal strength. The reasons are well-known but a recapitulation may not be out of place. Briefly :

- The readership habits have declined with the advent of TV and video.
- Use of libraries, which has already been low, has further declined.
- The library acquisitions have declined under various kinds of pressures,
- The flow of financial support from government can no longer be depended upon.
- The private sector is hesitant to make investments in the information ventures because of the uncertain profitability.

The first two problems can be taken care of, though not completely, through a well-coordinated user education programme. Besides, the traditional libraries can no longer rest complacent about the useful role they supposedly play in knowledge development. It is, therefore, better that the real world situation of new media of "infotainment" and cybernet is taken due note of, and appropriately adopted in the library environment as has been done in the public library system in Singapore.

There is another change in the scenario that needs to be recognized. Increasingly, the end-users are collecting information all by themselves bypassing the intermediaries such as librarians. In due course, no doubt, the trend may put the library profession in jeopardy. Keeping in view, the principle "What can not be cured must be endured", librarians should take a forward step and educate the end-users in using the Internet and thereby develop a new niche for themselves.

Internationally, bibliographic information STI constitutes only a tiny fraction of the total electronic information market. The market is dominated by credit, financial, marketing, legal, travel information etc., the use of which accrues direct tangible benefits. The consumption of bibliographic information does not show immediate visible returns and, therefore, the related activities are usually the easy targets in the event of a budget squeeze. The bibliographic market players can ill-afford to remain as passive observers of the international market trend. A stunted growth of the business and financial information sector would not be in the long-term interests of the market of which the bibliographic information is also a part. Taking due note of the international trends, the bibliographic information operators should lend their expertise in developing other components of the market as well by

promoting generation of a whole new set of databases and services that the business people would require. The ultimate aim should be to evolve a mechanism whereby revenue surpluses from the business and financial sector would be ploughed back to partially support the bibliographic information activities.

It is also worthwhile for the bibliographic information sector to take an active interest in generating, organizing and disseminating information of general public interest such as those on employment and educational opportunities, purposeful living of the senior citizens, disability early detection, crisis management, education and rehabilitation etc. This would help them to get closer to the general public.

GOVERNMENT INITIATIVES

Private investment is an index to a real demand, while public expenditure is aimed at social well-being. With stable interests like profitability, expansion and diversification, private investments tend to be efficient. With changing societal goals, public interests may result in varied success.

While government efforts or public funding would be welcome to develop the market, it must be realised that there is a limit up to which this can go. Perhaps, government investments on information (at constant prices) will never be more than that in the past. The following courses of action may be explored:

- All information products and services whether generated through public funding or otherwise may be priced to offset the costs in part or full.
- All information centres may optimize their information resources or infrastructural build-up individually and collectively.
- Actions may be taken to attract private investments on information industry. If book publishing is excluded, such investments have so far been of low order. The most essential measures in this direction would include:
 - Recognition of information as an industry
 - Provision of liberalised credit venture or risk capital financing to entrepreneurs by financial institutions
 - Granting of liberal tax benefits in the initial years of information industry operations
 - The private enterprises may be allowed also to use information resources and infrastructure of government and government supported institutions on reasonable terms.
 - The responsibility of repackaging and dissemination of government information may also be given to the private enterprises. In this context, the initiatives taken by the Department of Trade and Industries, UK, on tradeable government information might be recalled.

CONTRIBUTION TO KNOWLEDGE BASE

The developing countries today depend largely on information imported - be it books, journals databases and the like. Whereas, for a healthy market environment a two-way flow is deemed essential. This aspect is crucial in the design of the NIS.

The developing countries seem to suffer from an inferiority syndrome. They tend to feel that all kinds of information in demand are available with the developed countries and the developing countries have nothing extra to contribute to. Whereas, there could be a lot many subjects of database development for which their contribution would be most welcome. Inter alia, actions on three lines would be beneficial:

a) Improvement in primary publications

Today, authors from developing countries prefer to publish their research findings through foreign publishers or contribute papers to foreign journals because it gives them and their work more visibility in the global scene. Another plausible reason is that the local publishers are poor in standard and timeliness. However, improvement in primary publications alone could bring a long multiplier effect:

- Local materials could be found from sources within the country as more writers would be inclined to publish in the country. It may attract foreign writers also. As a result the local materials would be a viable quantity to deal with.
- More local publications will get included in the global databases which would attract higher number of local and foreign contributors and users.
- The local publications will be a good instrument of exchange for foreign publications.

b) Generation of databases

The idea is not to promote development of the likes of massive databases - Chem Abs and BIOSIS. Such ventures would be eventually undertaken as the database industry matures. To start with, following development initiatives would be worthwhile.

- Databases on one's own subject areas of strength, problems that are endemic or areas of economic interest
- Databases for which an indepth treatment is lacking in global databases
- Value added databases in multi-disciplinary areas
- Value added products in which the addition of national inputs might be of significant interest
- The databases on national information, or information of national interest. This is mandatory.

c) Product development & delivery

The information products from the developing countries are likely to face serious marketing problems abroad and also within the country. While the national users may find it difficult to locate their own information, a foreign user may look at databases from the developing countries as too small a segment of knowledge to warrant specific attention. Both set of information seekers would like to use local information if it were accessible through a single search. Such a facility would demand that the national database segments are suitably merged with the global databases. In this context one would be tempted to refer to the successful endeavors the developing countries are involved in the databases promoted by UN organisations like AGRIS & INFOTERRA. Such arrangements are beneficial to both the national and international database producers. It is also likely that in future many database producers, commercial and non-commercial, may opt for decentralized input arrangements which could work on the basis of payments in kind or may even involve cash payments on commercial terms.

SETTING UP THE NIS

The strategies recommended earlier in this paper call for a phase shift from what is being done now. The scenario in developing countries is peculiar. Several facilities may exist but these are underutilized. Computer communications facilities remain idle for want of software, and software when available, does not find databases to handle. The potential users are seemingly satisfied with what they are given; either they don't know or worry about what

they are missing. The bane of the problem is that the concept of "marketing" which includes a wide range of activities such as the understanding of users needs, design of products and services, design of pricing, distribution and promotion systems all finally geared towards satisfying the user needs, is not taken in proper spirit.

The situation demands a major rethinking and a change in the approach to the subject. The market deserves a jolt in order

- to bring all the players in the market - the producers, distributors, communicators and the consumers, and goad them to act together;
- to sensitize and educate the users and at the same time motivate them to pay the real price of the products and services they utilize;
- to critically review the present practice of building information resources entirely on anticipated demand and introduce a system of actions based on continuing assessment and monitoring of ever-changing demand pattern;
- to catalyse activities in hitherto neglected business and financial information areas and bring about an all-round development of the information market in keeping with the international trend;
- to introduce the state of art technology and modern concept of production and generation of database services; and
- to get away from the established trend of looking at information as a social welfare activity for which the production-consumption is to be funded or grossly subsidized by the government
- and to bring in a new set of investors to contribute to the market development.

Need for one-window service

Presently users have to shop around for different pieces of information. Many may not even know where to go. In this process they spend a lot of time and money besides undergoing severe inconveniences. In a situation where the basic awareness to the value of information use is significantly low, disappointments could bring down the demand still further. The situation calls for a one-window service thereby reducing the uncertainties to the extent feasible.

Given this broad principle, it is essential that all market transactions are watched closely, and the feedback is used for tuning of activities. In order that such control mechanisms function properly, the interface points between information suppliers and information consumers where retailing goes on, should not be dispersed.

While centralization could help coordinating the market communication activities, adoption of such a policy would invariably provoke counter arguments especially, those on logistics. It is recommended that only the transactions between information suppliers and consumers are needed to be centralised. Here also, the customers are not to move physically to collect information; they may carry on with their activities over telecom lines only. In this way, the demands may add up to a viable quantity to deal with.

How far the principle of centralisation could be stretched? Should database production and handling facilities also be centralised? There are no straightforward answers to such questions. The scheme recommended here is that the users are given two options :

- they can go directly to the datahost if they so desire,
or
- they can go to a gateway server which switches them to the appropriate datahost.

The technologies for both the options to co-exist are available today.

Overall, it may be judicious to leave the production mechanism for existing databases where primary information sources exist. It also costs much less to nurture an activity around an existing nucleus. New database ventures are also to be located where the information base, required facilities and more importantly, interests exist. In effect a distributed approach to database production arrangements is necessary.

The hosting arrangement of indigenous and international databases could be conceived of in two ways:

- Establishment of a set of national hosts
- Loading of indigenous databases at respective producers level.

A suitable mix of the two may be adopted. If producers host the respective indigenous databases, the updating and database maintenance is easy. The producer-hosts also become accountable. On the other hand, spread of hosting arrangements at too many centres may lead to management and usual telecommunication problems. The alternative of clustering of databases on fewer hosts on subject basis or geographic convenience is to be explored.

CONCLUSION

In sum, a scheme of "Limited Centralization with Planned Decentralization" has been advocated. The NIS's today may adopt the concept of INTRANET while applying this principle.

Acknowledgement

The author gratefully acknowledges the expert assistance received from Mr.B.G.Sunder Singh and Ms. S. Ravindran in reviewing and editing the paper.

IN THE NAME OF GOD

DEVELOPMENT OF LIBRARY SERVICES :

LIBRARIES' NATIONWIDE

MEMBERSHIP

(LNM)

SIROUS ALIDOUSTI

IRANIAN INFORMATION AND DOCUMENTATION CENTRE
IRANDOC

4 MAY 1997

11th ASTINFO CONSULTATIVE MEETING

TEHRAN - IRAN

The highest number of scientific and technical primary documents in any country is collected and maintained by its Academic and Special Libraries.

Therefore, undoubtedly every researcher and student would need to avail himself/herself directly or indirectly, to the facilities and services provided by these Libraries.

- **Factors such as:**

- Changes in the world of learning and research
- The information explosion
- Inflation and lack of sufficient financial resources
- Increase in information needs and requests
- Increase in users

- **Are the causes of:**

libraries' inability in responding to their members' needs in aspects such as:

- Materials
- Functions
- Services
- Specialists
- Other resources

- **So, Resource Sharing is increasingly, deemed as a necessity.**

- **Resource sharing**

A cooperative plan through which the reliance on other libraries' resources to serve a library's own user's needs would be formulated. Resource Sharing is based on the assumption of equivalency: libraries receive as much as they give. A library can rely on another's resources to help meet some of its own needs, but it should also help provide for the other's needs with its own resources.

● The Need to Share Resources

It is probably almost as old as libraries themselves. We do have some evidence to indicate that the library at Alexandria loaned books to the library at Pergamum around 200 B.C.

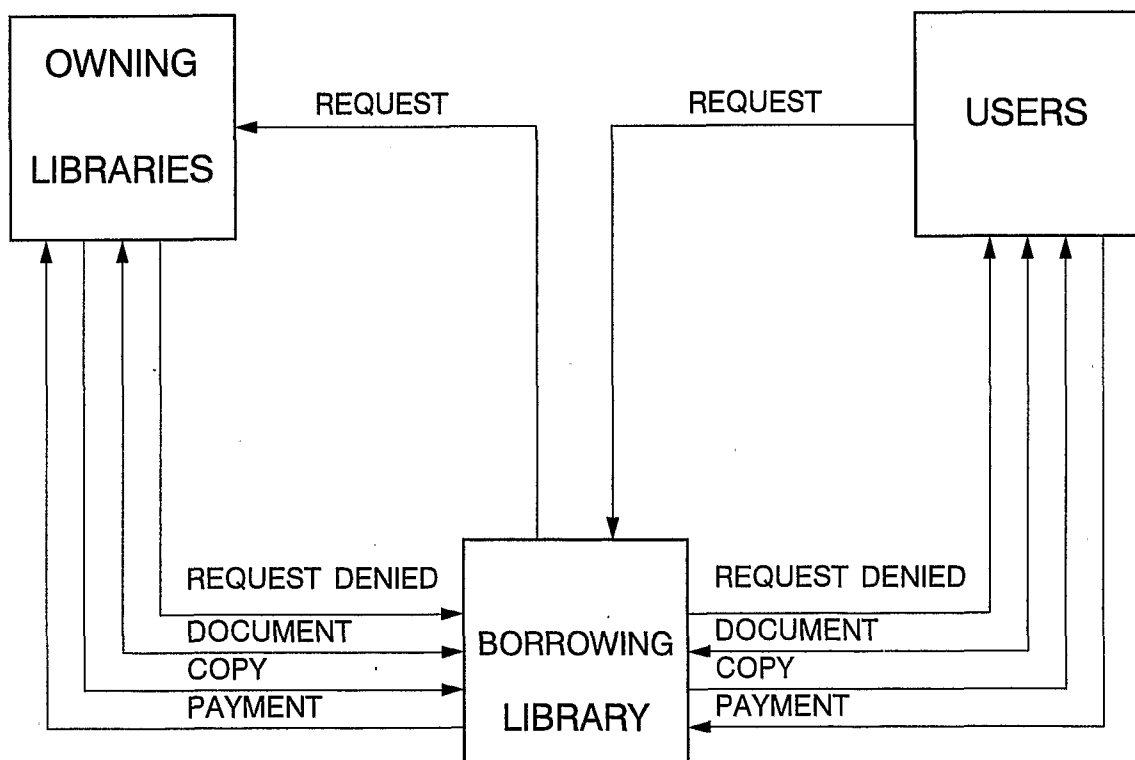
Historical perspective is interesting but our problem is very contemporary and very practical.

According to Joseph A. Boisse' in recent years, it has been fashionable in USA, especially in academic and research libraries, to use the phrase "access vs. ownership". The principle in question is also expressed in the phrase "just in time instead of just in case". Up until recent years, our goal has been to try to acquire every item which they thought their faculty members and students might possibly need to do their work. That is the "ownership" or the "just in case" philosophy. Because of the financial constraints, they are trying to move on to the "access" or "just in time" philosophy. In other words, they concede up front that they will not be able to acquire all the items that their clientele will need.

● Interlibrary Loan

The most common Resource Sharing mechanism which has been developed to share in collections scope.

● The Context Diagram of Interlibrary Loan:



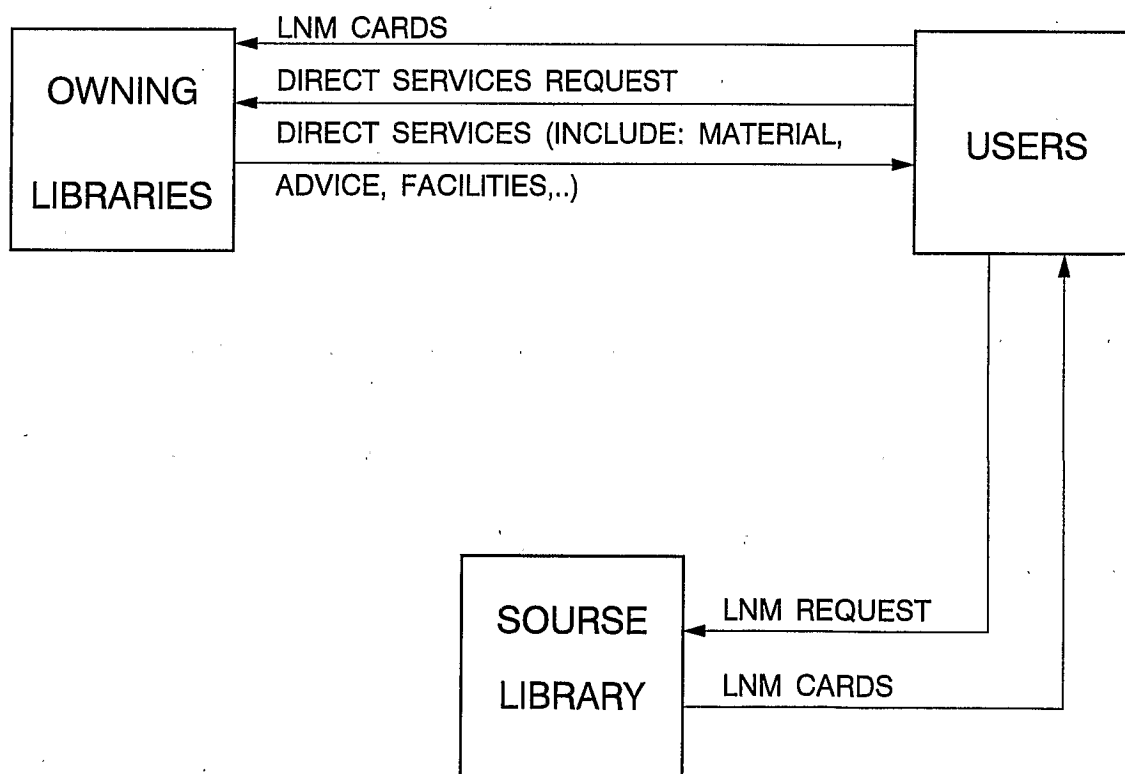
The Natural Limitations of Interlibrary Loan Are:

- It covers part of the need for documents and services available in each library indirectly and with the help of another centre (usually a library).
- It does not cover documents that can't be loaned and copied.
- Special equipments are required to copy documents that are not on loan.
- In cases where the researcher is trying to find documents without knowing their precise bibliographic data these services are not useful.
- It is not useful for those that don't have the access to libraries connected to the Interlibrary Loan network.
- In addition to the borrowing library, it is dependent also on communication systems (such as post, telecommunication, etc.)
- In cases where the owning library is nearby, the amount of time and money that must be spent is not justified.
- When connections between users of a borrowing library become limited or temporarily disrupted, it is not useful.

● Libraries Nationwide Membership (LNM)

A new mechanism -not akin to the interlibrary loan alternative- for Sharing Resources which has been developed to share in materials, services, specialists, facilities, and space scope that would be possible by developing "direct services" of libraries to those who are not their members -exactly like the members- at the libraries.

○ The Context Diagram of LNM



•Success of LNM Design

It requires planning a set of implementable methods, based on the following criteria:

- National coordination should be guaranteed by standardization of the process of the operational procedures.
- It should be centralized with respect to direct and control and decentralized in regard to implementation.
- It should create the minimum amount of formalities for users.
- It should provide the maximum guarantee for preventing damage to the target libraries with minimal regulations.
- It should guarantee compensation to target libraries, of probable damages in the fastest time possible.

● Success of LNM Implementation

It depends on pursuing the following policies:

- Provision of required manpower, physical and financial resources for operating libraries.
- Sufficient training of the manpower enforcing the system.
- The system facilities shouldn't destroy the motives of growth in collections.
- Regulations of each library should be respected as much as possible.
- For removing obstacles in establishing the system, strategic use of explanation and encouragement should be employed.
- Compensation of damages must be employed in a manner that the damaged library is directly compensated.

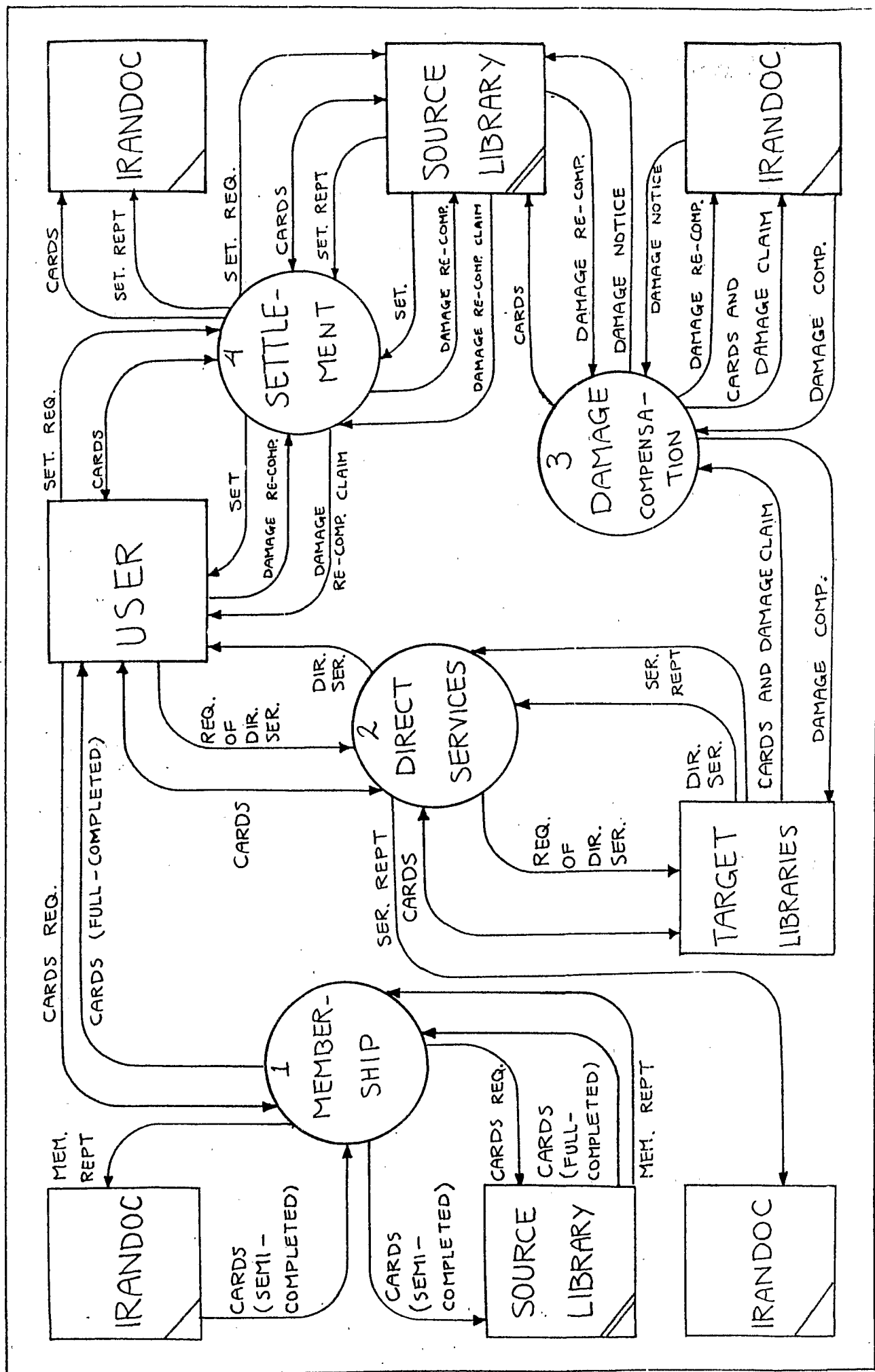
● Implementation of LNM Pilot Run

NLM pilot was started near the end of 1995 in Iran. It currently covers more than 200 university libraries affiliated with the Ministry of Culture and Higher Education and about 5,000 Masters and Ph.D students and 400 full-time Faculty Members. These amounts are 100% of libraries, 22% of students at that level and 3.5% of full-time faculty members.

The LNM program faculty and student members, respectively comprise 53% and 13% of the cards distributed among libraries.

It's considerable that till now there has almost been no damage to libraries' materials in through out the country .

● THE LOGICAL MODEL OF LNM



● **Conclusion**

- Special and Academic Libraries are counted among the most important parts of the National Information System.
- For a variety of reasons, Special and Academic Libraries could not fully respond to their patron demand.
- Resource Sharing is one of the best solutions for alleviating the existing shortages and limitations.
- Interlibrary Loan is the most common means of resource sharing. Although it is confined to materials and suffers innate constraints.
- LNM was designed as a new resource sharing mechanism for libraries' collections, services, specialists and facilities. LNM is currently under trial.
- LNM, enables a prospect to directly refer to any of the member Libraries, use their services in-situ and, if needed, barrow some of the document material.
- IRANDOC has instituted an insurance plan to completely cover any damages.

In the Name of God

Information Society and Development

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Abstract:

To harmonize the development process it's important to provide the information channels and information exchange. The information planning contains significant information exchange based on socio-cultural factors of development process.

In developing countries the National Information System have to supply Informational and professional needs of researchers, planners, executive managers, consultants and educational groups.

Introduction

Information or knowledge production and application is the process whereby information is formulated and then used to some advantage. It can be research, theory building, strategic testing, conceptualization, observation, professional practice etc., which is translated into useful forms.

"Information literate people are those, who have learned how to learn. They know how to learn, because they know how information is organized, how to find information and how to use information in such away that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand. Information literacy is a survival skill in the information age and should help keep one from drowning in the abundance of information that floods our life. It is just as important in the context of the workplace as it is in one's personal life." (Breivik, & Gee, 1989)

"Critical thinking is a key objective of information literacy. That is the ability of an individual to examine all sides of an issue and dissect objectively the relevant arguments noting the expertise level and bases of the proponents of the different arguments and then to logically synthesize the information to meet that individual's needs." (Bodi, 1990)

Information society is a society with information serving and consensus set the tone rather than raw power and materialism. In a society where telecommunications has become the true catalyst for change everyone will have access to virtually unlimited information and universal telephone service will be replaced by universal information society, in which the production of information values become the formative force for the development of society.

"In the *Information Society* the living standards patterns of work and

leisure, the education system and the marketplace are all influenced markedly by advances in information and Knowledge.

This is evidenced by an increasing array of information-intensive products and services, communicated through a wide range of media, many of them electronic in nature." (Martin, 1995)

background

The major information-related change in the West had been occurring in certain advanced societies since 1970s. By 1980,s people were beginning to use computers at home as well as at work, most advanced economies had an information sector and realtime, 24 hour global trading on high speed communications networks, was a fact of life.

"By the 1990s people were working longer rather than shorter hours and the paperless office, like the so called electronic cottage is little more than a myth." (Forester, 1992)

A new group known as the *information poor* was being added, while the plight of the emerging world was aggravated by a new form of outside interference, dubbed electronic colonialism. There seem to be the dawning of a new age, an information age.

In this age, there would have to be evidence not only of increase in the volume of information or information- related activity within society , but also of the kind of changes involved in the transition from first agricultural to industrial society and then from industrial to information society.

Although the definition of the information society does not specifically mention the mode of production, it is implicitly couched in relation to western, capitalist societies. Socialist states with in the old totalitarian model would not have commended themselves as candidates for information society status. Indeed, it has been argued elsewhere that it was

the very presence of information and its dissemination by means of communication technologies that served to break up the former Soviet and Eastern European monolith. In this age the danger is that information distribution and processing is controlled to a large extent by a small number of dominating countries and a potential hazard of loss of the freedom of thought and decision making by all remaining countries is apparent . Thus, international information relationships there exist a differentiation into dominating countries, which are exporting more information than are importing, and peripheral countries- mainly developing ones and Central and Eastern European countries. Inside each national society we may find a subdivision into *information rich* and *information poor*.

In a society when the flow of information increases, those enjoying a higher social and economic statues tend to sieze of this additional information quicker than those with a lower statues. The information gap between the political, economic and scientific elite, and social strata lower is constantly growing.

Mindful of the dangers of unbridled late 20 th. century capitalism, Lyon focused on the locus of power within information societies . He was aware of the fact that control of the new technologies could prove crucial.

Lyon was skeptical about claims for the development of an information sector within modern economies. Not only the designation of many such occupations as informational was a highly contentious affair, but also all manner of activities were clearly becoming much more information-intensive and, in the process rendering the break down of occupations into *information* and *non-information* categories both difficult and suspect.(Lyon, 1988)

Criteria of Information Societies:

Certain criteria were suggested to assist in identifying the information society status:

1- Economic criteria:

The information sector regarded primarily as a device for progress towards the information society which has been taken account of social and economic change since the 1960s, is the information economy. The research carried by *Machlup* and *Porat* has resulted in new perspectives on the role of information in both developed and developing economies. The concept of a new information sector presented a transition economy from the original basis in agricultural to industrial moving then towards information economy. This led to the depiction of every component of the economy in information related terms. Words like: information industry, information market and information worker have now entered into the language. There were also changes in the structure of employment, with increased employment in the fields of personal and business services , in education and health , communication and financial services.

According to Joenscher, the major factor in *informatization* was the growth of bureaucracy and a non-productive , support labour force , a reflection of technical progress to increase the complexity of the economic system, emphasizing specialization and hence the need for information workers.

2- Technological criteria:

At time what appears like whole societies with tax, social security vehicle registration, credit card and medical information etc. are all held in digital form and with national and international security linked to computerization, from satellite-based defence and early warning systems, to

weather and navigation systems. However, technological sophistication is not in itself a sufficient condition for the attainment of information society status, although it may be a necessary prerequisite. The key to such developments lies in the extent to which these technologies have become an integral part of the everyday life of the citizen and the uses to which they are put.

Research undertaken by Halal (1993) indicated that soon after the year 2000 there would be widespread use of very sophisticated technology including optical computers, very advanced expert and knowledge-based systems and those providing access to computerized libraries. Those information services of sensitive social consequences are likely to be adopted, such as electronic education, teleconferencing, electronic shopping and telework.

3- Social criteria

The Information-led social change includes the impact of Freedom of information legislation, where networking and electronic communication could lead to a resurgence of family and community life. There is the danger of alienation of an underclass of *information poor* from the general electronic community, or the re-emergence of a form of sweated labour in so-called telecottages, exploited by employers and denied the benefits of employee protection and full time contracts.

Masuda (1985) envisaged an information society of which the axis would comprise information values rather than material values, and an economy in which knowledge capital would predominate over material capital.

4-Political criteria

Much of the focus on the political impact of information-generated change has traditionally been on the possibility and potential benefits of

electronic polling. There is clear evidence of major political changes consequent upon global television coverage of events in the former Soviet Union and the Eastern Bloc. If we view the sectors of broadcasting and highly specialized electronic media into *information rich* and *information poor*, the following consequences of society's informatisation become passive recipients of entertainment supplied through the mass media, while a small number of dominating countries, as well as national elites, become active producers and users of electronic information.

5- Cultural criteria

Many observers would turn for evidence of a change in cultural values consequent upon the advance of the information society.

It should be remembered, however, that different societies show a propensity to respond differently to the presence of advanced technologies and that even the emerging global electronic culture is susceptible to local and national influences. It is likely, in fact, that what is happening is the development and interaction of a wide range of cultures, not least the so-called youth culture which involves the exchange of lifestyle images right around the world.

There is always the danger, of the dominance of one culture, a culture heavily redolent of western materialist values, replacing indigenous cultures and thus leaving the world impoverished by the loss. Although the same report may evoke different responses in different countries, it would be dangerous to underestimate the potentially deleterious effects of global information flows on cultural diversity and identity.

This may result in cultures, which place greater emphasis on immediacy and openness and on increasingly information-mediated at least information-intensive exchanges in social, political, economic and cultural

life:

1- The brain drain of engineers and scholars from the developing to the industrially- developed countries. The best qualified professionals in science and technology will move to the rich West. The Donor countries will lose vast stores of knowledge. Their technological level will fall.

2- The modernization strategies in countries of the Third world show this leads most often to an increase in foreign debts and brings, first an improvement of international telecommunications connections, instead of the development of the domestic national telecommunications market.

3- Western telecommunications enterprises compete in their eastern business only for local "raisins". In so doing, they stimulate socially non-uniform developement in the telecommunications sphere.

4- The informatization of the developing societies will be determined by the ever sharper contrast between *information rich* and *information poor*.

"The quantity of required relevant pieces of information for planning and management, received on the basis of the statistical information system, was too high for being centrally evaluated and applied correspondingly. Consequently, though the dominating countries are surely *information rich*, it is an absolutely different question as to whether they are *knowledge rich*. On the contrary people from small and dominated countries could turn to be knowledge rich, since their knowledge has long since been saturated with the experience of scarcity, poverty, pain, dependence and oppression. This knowledge is deep, lasting and incredible. If the above-mentioned difference between *information* and *knowledge* is accepted, then it may follow that it seems unreasonable for any country to enlarge its information systems quantitatively; the objective should be rather to improve them qualitatively. Informatization presently also means

internationalization, and this process will always be accompanied by the world wide homogenization of cultures."(Becker, 1993).

By its nature, culture is usually local and regional . It embodies the collective knowledge accumulated over generations, reflects the properties and specifics of one group in comparison to another, manifests itself in language and dialect, the feelings of belonging native land and identity. It is precisely in this sense, however, that culture is not amenable to instrumentalization, privatization or commercialization.

Goals of Information planning

"The real essence of culture, all of us believe, lies in what we think and do , our attitudes, our social form, and our religious beliefs"(Goetze, 1976). There are two different opinions about the influence of mass media in the society. The critics believe that mass media are responsible for rising criminalities and public demoralisation on one hand and decreasing of creativity and political consciousness on the other one.

Mass media supporters believe the revealing of corruption and disclosure of political changes, preserve the information- and idea interchange.

Beyond this inconclusive debate, we can be sure that the mass media contribute to a raising of information capacity of the society. The span of time in which traditional society needs to adapt to the cultural changes and realize the economic and social development process, had to be calculated.

The system of the mass communication, because of its high information capacity contributed towards the content programming in the society.

To harmonize the development process it's important to provide the information channels and information exchange. The process of modernization might not change the cultural values and dehumanizing of

traditional cultures as effects or to block the developing process.

An information plan analyzes the development process and -goals. It provides the socio-cultural factors of development and also the capacity of innovation and modernization of a developing society. Such plan can show any information gaps caused by the innovation process. An information planning can be divided into programming detailed activities, which enable the procedure of a significant information exchange based on socio-cultural knowledge of modernizing process. Programming an information planning we should divided it to several steps.

While the development planning in their first steps merely determined governmental strategies to take the necessary precaution to eliminate the problems and satisfy the regional needs, the goals of the information exchange remarks to the social strategy and communicative problems of developing process.

The decision about the political, social and economic conditions of the developing country precedes the relevant government or the general governmental decision -making in that developing country.

The planing organizations and institutions or the planner have to arrange this decisions. But it's not avoidable that the planner has extremely influences on coordinating goal systems, arranging of operational goals and the type of delivering information for decision -making in the functional decision centers.

The goal of the information planning, and policies of using information technologies to accomplish projects and planned activities, is for special addressed group towards the goals of developing process and identified tendency to insert the information-technologies.

In addition the information exchange activities nurturing the native

social and cultural environment as identification factor and including them in the communication process, so we not only prevent cultural eradication, but also give a useful information service processing.

The existing regional and sub-regional communication services can turn out development information and accomplish users' requests and satisfy their information needs of developing process. Development communication is the art and science of human communication applied to the speedy transformation of a country from poverty to a dynamic state economic growth that makes possible greater economic-social equality and the larger fulfillment of the human potential.

To produce necessary objective information material for development process, the following should be consider:

- 1-Testing the regional communicative potentials and determine which technologies are used in the regional information process.
- 2-Analyzing information which are to be exchange and how this information can be formulated and which pre-supposition make the addressants ready for dissemination of innovation information.
- 3-Harmonizing information content in conformity to the traditional communication symbols of the addressant to facilitate the information flood and prevent informative innovation problems.
- 4-Raising the management and importance of innovation information.

When the objective information exchange did succeed, so the addressant is able to process the information towards the development goals, and connected his own experiences with the new information. The information exchange goals should be insightful and useful for the addressant to be alternative for his own experiences.

Organizations of the development politics and -aids should be

harmonized with the information exchange process to direct the innovation information towards better integration and indigenization. This harmonization enable us to reach direct and indirect addressants and full information gaps.

Formulating decision-criteria means to have a time table for development planning and activities. This depends on social and economic constraints on one hand and correct utilization of resources, budget and *know-how* on the other. The information activities, which are built on socio-economic factors, can have an effective contribution to the innovative activities, if the point of time is prefixed, so the activities could be coordinated and can set off in the correct time. The activities in a development plan should be actualized during the informative activities, therefore it's necessary to coordinate the information and development planner to be active in a time- scheduled planning. The financing of development projects and use of information services for development process are not the same in different developing countries. The existing information centers and their distribution are different as well. Some of them, which enjoy incomes such as oil revenue, has no problem in financing of information activities.

In practice most of the problems in supply do not arise from absolute high finance requirement, but the correct form of financing and its administrative process.

Here one needs to mention the competence problems, which prevent frequently the coordination between various government agencies, so that financing of a supplementary project can be refused.

When the budget for a development program is being finalized it must be based on an information plan, so the financing of it is not problematic and

complex. Ideal situation is when a budget plan is submitting to have its information gradients in place.

To have a significant use of the existing information services in a developing country, the competent ministries such as those of Higher Education have to cooperate with the Ministries of responsible for "*Agriculture*" and "*Industry*" etc. and care for bearing and financing the costs of the regional information services.

Conclusion

In Iran, where the vast amount of capitals are invested in economic areas (agriculture, industry, health services, education and researches), the national system provides for the information needs of researchers, planners, executive managers, consultants, educators and educational groups. In fact for development economic- social, cultural, educational, research areas a national system embedded within the national infrastructures is needed. This includes information centers, libraries, archives, as well as the information networks. The function of national system of information dissemination is as follows:

- 1-To contain informational policies and procedures, which determine the relation between economic, social, cultural parts and also their subcategories
- 2-To provide specific programs for conducting, collecting, preparing and disseminating information in all areas of activity. in country in order to utilize all educational and professional institute from the information of all constitutions, institutes and information disseminating centers.
- 3-To establish the evaluating and controlling system for strengthening informational centers, so that the relevant units always attempt to improve

their work.

4-To study the appropriate educational programs and provide the needed human sources by coordinating with public and private organizations for dynamics of the informational centers.

5-To raise necessary attempts to compile a comprehensive program for technology and informational equipments with cooperation of other relevant organizations.

6-To conduct bibliographic central plan es for fulfilment of administrative relations between all organizations and institutions of the country.

7-To establish an information network and informational collections in governmental and non governmental organizations and institutes.

8-To cooperate internationally with organisations such as UNESCO, UNISIST, FID, IFLA, UNIDO and other simillar centers and institutes and also databases and information networks.

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In The Name of God

**Design and Implementation Model for National
Information System**

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4 May 1997

***11th ASTINFO CONSULTATIVE MEETING
TEHRAN-IRAN***

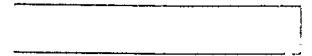
Design and Implementation Model for National Information System

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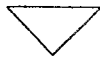
Sub-set



Actual Stage



Referral (Back Loop)



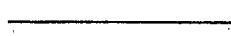
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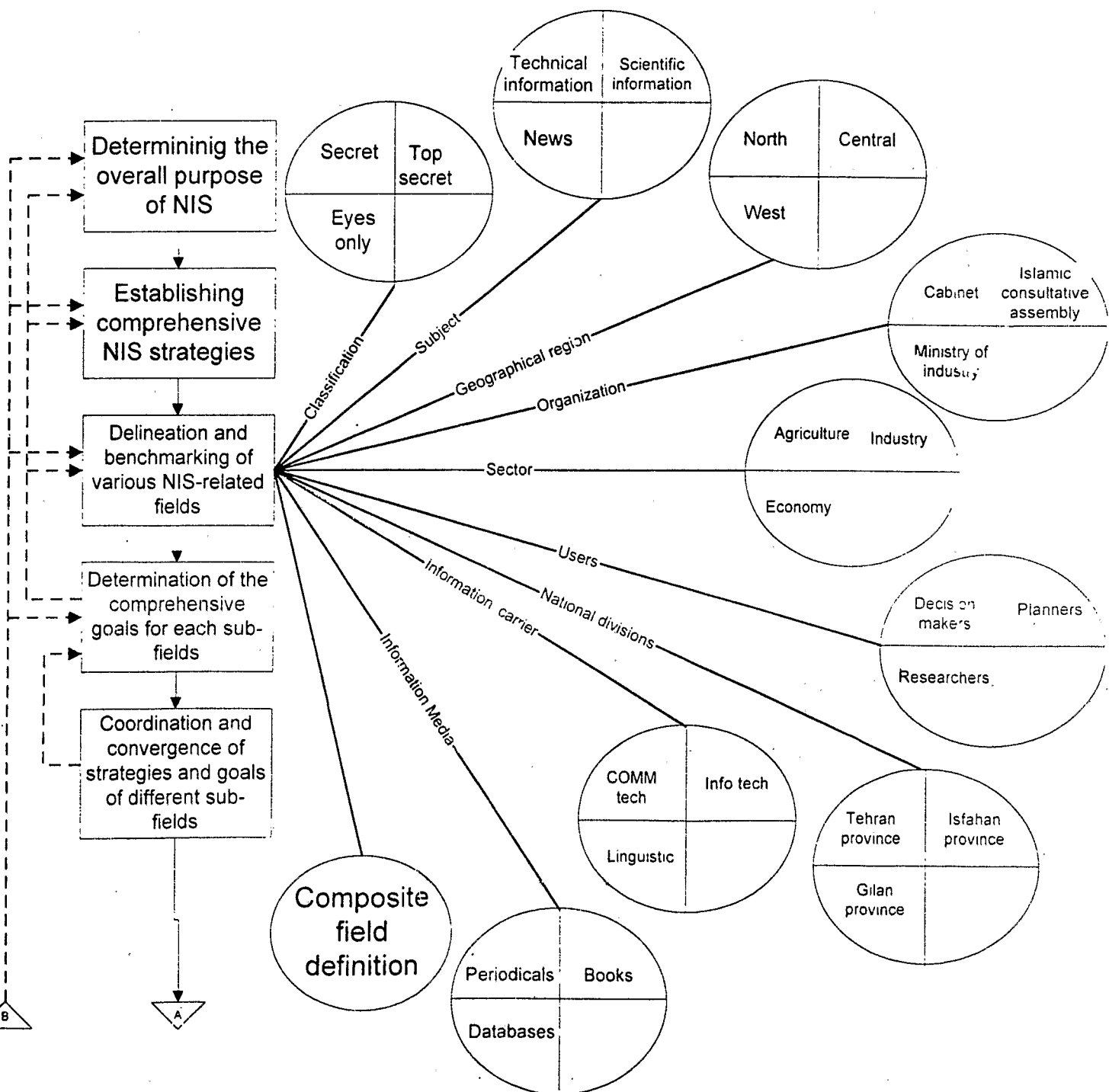
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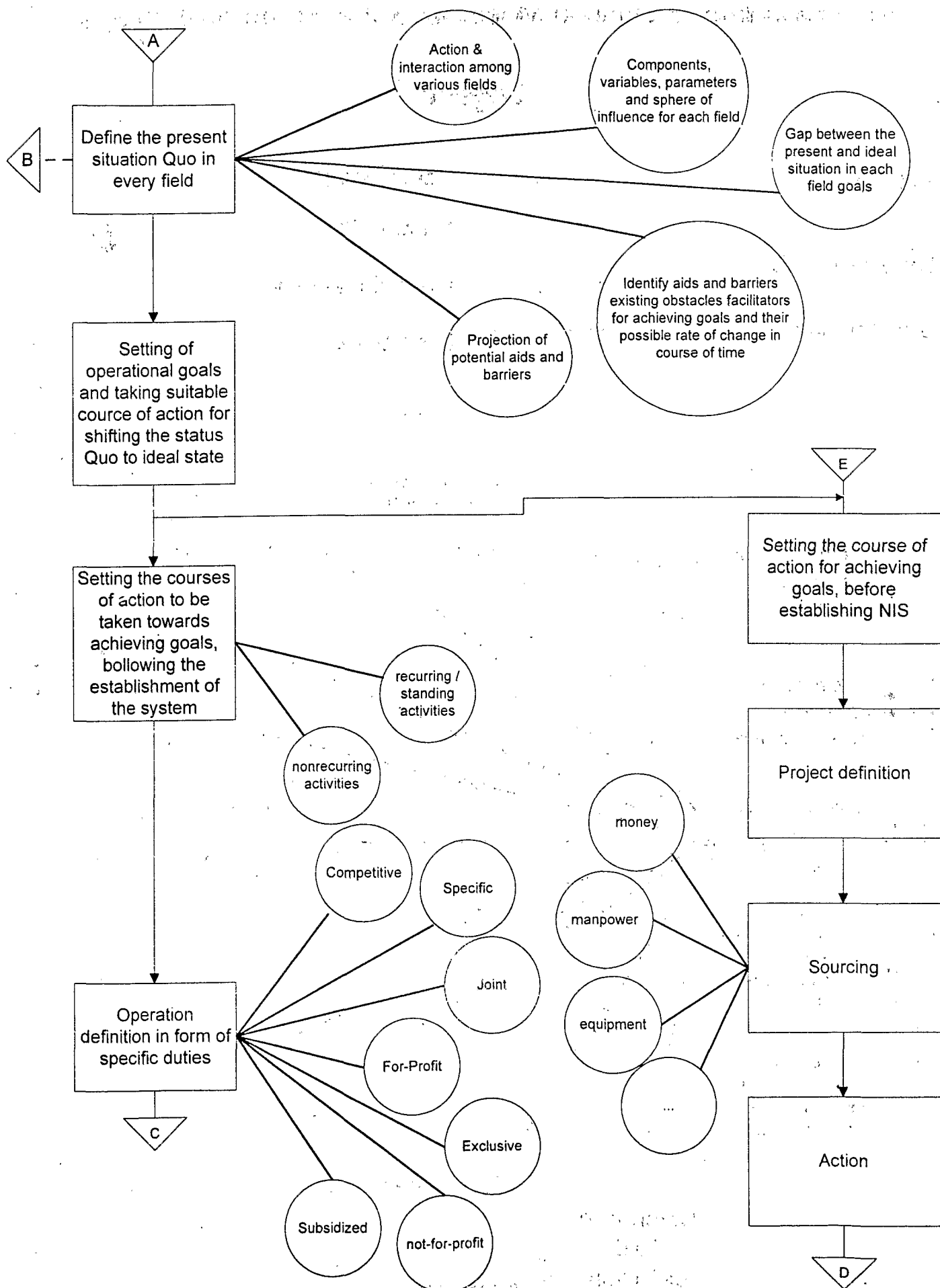


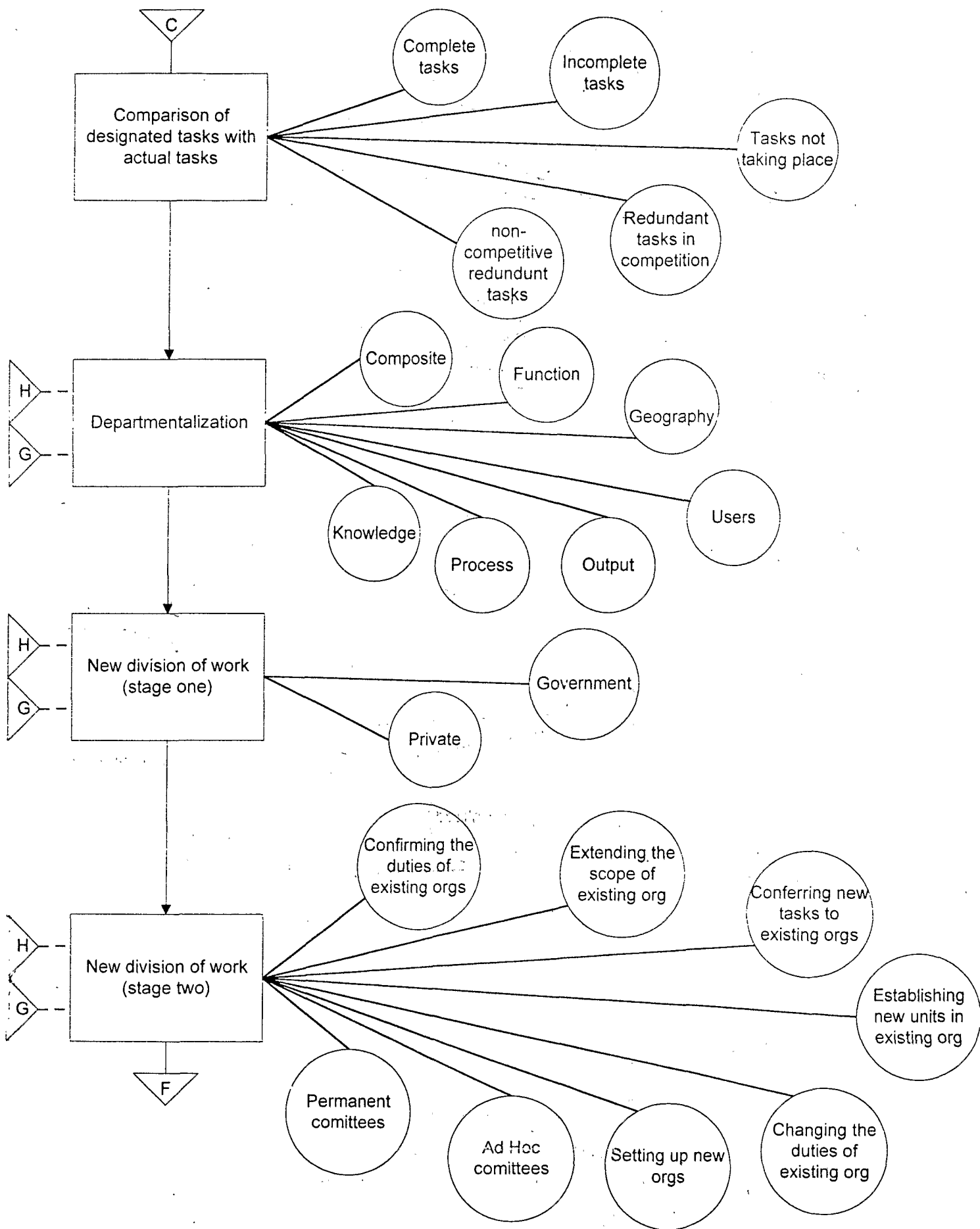
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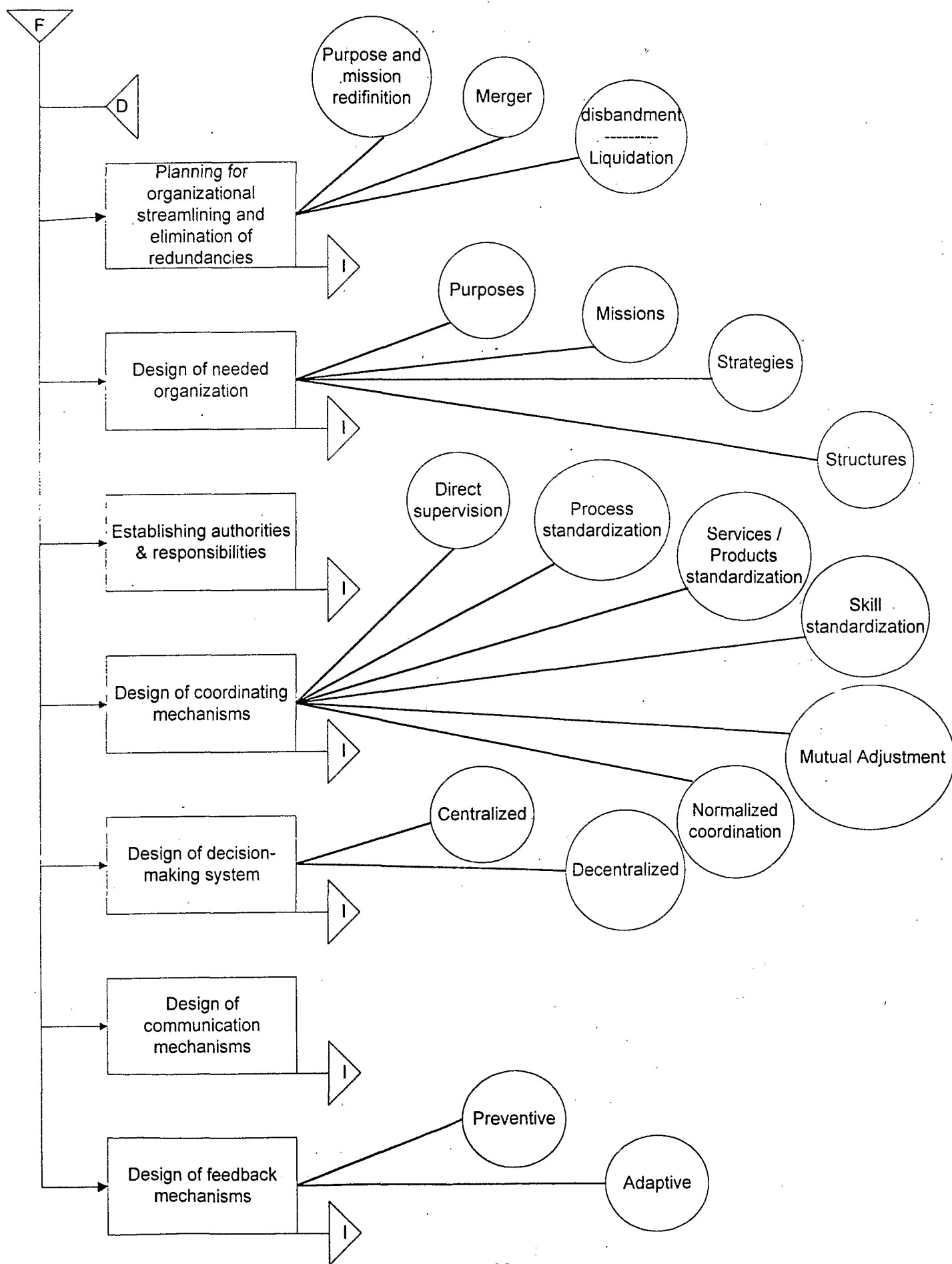


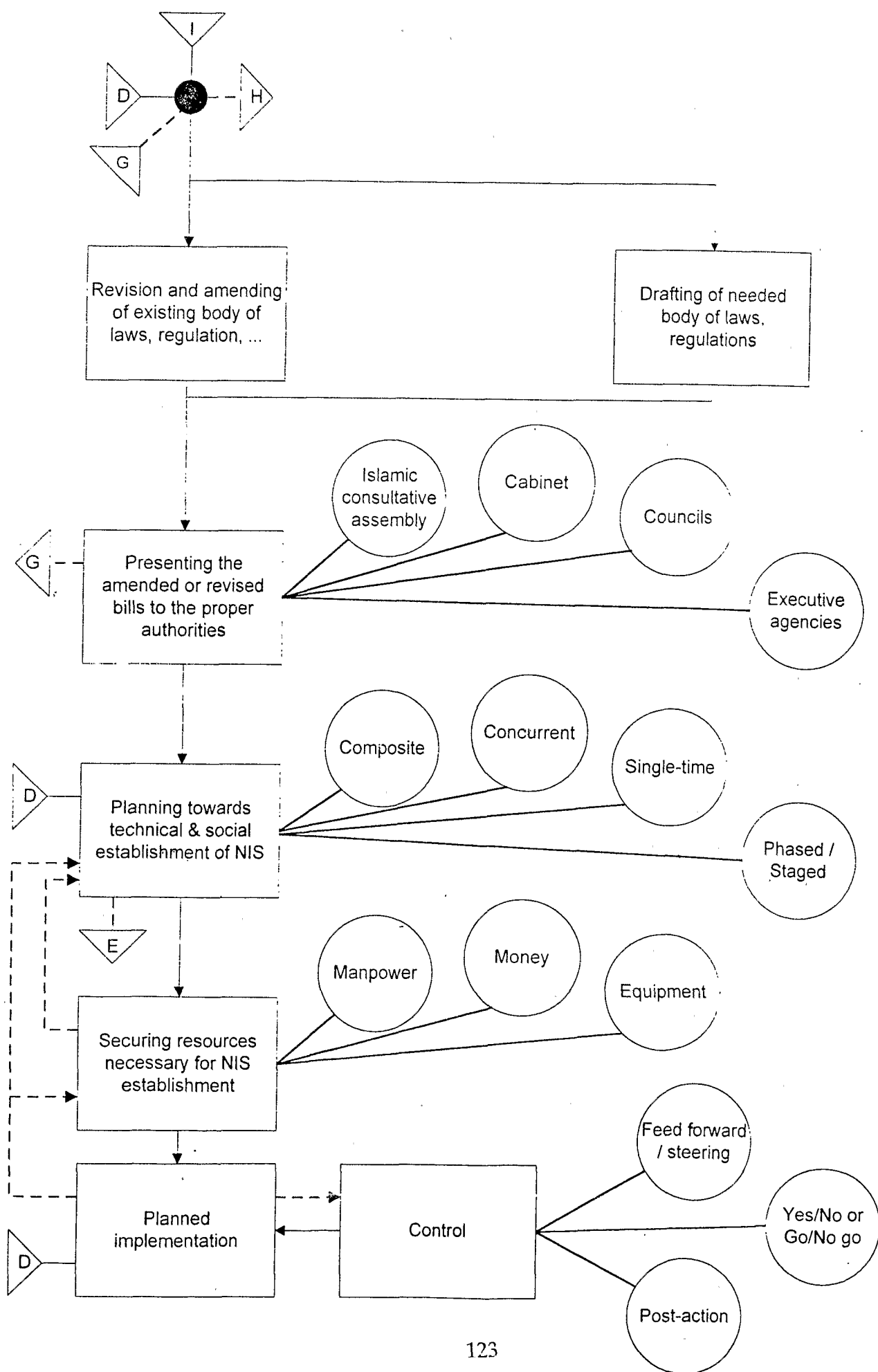
Feed Back











In The Name Of God

"Flexible Telecom Research & Support of Domestic Information Services"

Introduction

In 1990 Data Communication Center was established in Ministry of PTT of IRAN. In that time there were more than 200 big computers as well as numerous Local Area Networks (LAN) working in universities, governmental organization and private divisions. Both mainframes and LANs were working individually and they could not communicate with each other. In 1992 the first nodes of Public Data Network (PDN) which is called IRANPAC became to operational in the few cities of Iran. These were to be quickly followed, a few month later, by IRAN Videotex and Audiotex (IVTX and SABA) respectively.

Information services in DCI

Like most countries in the world Iran has the variety of information services available to the users in area of information technology. DCI has the responsibility of handling national Data Communication networks and services. Its services are available around the clock. In the following some of these information services will be explained briefly.

IRANPAC service

As already mentioned IRANPAC was the first Public Data Network that established in Iran. The protocol of this PDN is X.25 protocol and it can support other protocol as well. More than 158 nodes were installed in the major cities of IRAN. The backbone of the nodes can support 2M bit Frame Relay and the speed of access for dedicated subscribers is 9.6kbps, 19.2kbps and 64kbps and for dial-up users which can be connected through the Public Switch Telephone Network (PSTN) is 9.6kbps. Data Network Identity Code(DNIC) for IRANPAC is 4321 which 4 is for Asia and 32 for country of Iran.

Through the direct X.75 gateway or transit of other PDN networks, IRANPAC network is connected to PDN of almost all countries of the world.

IRANPAC network has an information service which is called Sharee. It is a menu driven service and most data bases which are connected to IRANPAC network are reachable by Sharee menu according to the one stop shopping manner. some of these data bases are loaded in bulletin board service(BBS) and some of them are UNIX based environment constructed on LAN networks or main frame computers of the private company and governmental organization.

IRAN Videotex (IVTX)

This information service was established by data communication of IRAN in 1993 and the standard of this service is ANSI standard. This service is bilingual and user can choose English or Farsi language. This service is a menu driven service and it has electronic mail and capability of E-Mail to Fax service. It has also news service and there is various kinds of news such as weather, sports, religion, economy, politic, culture, science and etc. Every day these news will be uploaded to the IVTX from the places which they are supplied by information providers. Telephone directory is another service which is offered to the users of IVTX and there is more than five million records in this data base. Another section in IVTX is teleconferencing service and users in the different part of country can make a teleconference between themselves. IVTX also has forums and the users who are interested in a special subject can be a member of these forums. Finally there is a software bank in IVTX and users can download the software which they need from this software bank to their computers. Every one who wants to be connected to IVTX besides of the computers should have a modem and a terminal emulator which is recommended to use CCM software.

IRAN Minitel Information service

Minitel has been operational since 1994. The subscribers of this service can get all services which offered by Minitel service in Iran. The user also can be connected to internet through this service.

IRAN Audiotex (SABA)

This service has been operational by Data Communication of IRAN since 1993, to use this service the people only need have a telephone hand set. Users can choose Holy Quran service and hear the Sura of Quran or they can choose news service which will be update four times per day. This service is in Farsi language. Another section in Audiotex is Voice Mail service. Every body can put the message for users of this service and the owners of Voice Mail box can hear the messages whenever and where ever they want.

IRAN Net

This network was established in 1995. The protocol of this network is TCP/IP and the subscribers can be connected to this network with the speed of 28.8kbps through the PSTN and with the speed of 64kbps as a dedicated leased line. The

users of this network can be connected to internet information services in all around the world. The subscribers of IRANPAC can also be connected to this network.

The internet is a world-wide packet-switching network that connects well over millions of computers in over hundred countries for the purpose of information sharing. All the internet communication is done using the TCP/IP protocol to exchange blocks of data in packets, simply by putting envelopes called headers around the packet. As it was mentioned DCI is the service provider for internet in Iran and offers the many services in Farsi and English.

The World Wide Web is an information retrieval system on the Internet with an estimated 30 million individual users. It has created the first true global hypermedia network, with more than 3000 multimedia databases of hyperlinked documents. IRAN web is WWW of IRAN Net. It has a choice of two language, Farsi and English, and it contains various sections such as News and Newspapers, Audio programs, Holy Quran, Religious places and About IRAN plus link to many other web sites. The IP address of iranweb is (194.126.32.20) and the name is (iranweb.dci.co.ir).

Telnet service is used to login to the hosts on the internet in the terminal mode. The telnet service is provided for various systems connected to the internet such as the IBM main frames, UNIX hosts or super computers such Cray computers. Domain name server service has been used on the internet so as to get the IP address of a particular hosts. The name server service is usually provided by systems located in a particular domain that's why it is called a domain name server service.

No longer the LANs needs to be separated from each other. With the advent of the intranet the LANs using the TCP/IP protocols can now be connected through out the world . Network File Server(NFS) service allows the file system of any computer on the network to be accessible by any other network users.

Now, any document could be printed on any accessible printers on the internet (intranet). Instead of using the traditional fax through the telephone lines, the internet could be used to print or fax a document through out the world by just specifying the name or the IP address of the printer or the fax machine on the network.

Usenet News Feeder is a world-wide distributed discussion system. It consists of a set of "newsgroups" with names that are classified hierarchically by subject. "Articles" or "messages" are "posted" to these newsgroups by people on computers with the appropriate software. These articles are then broadcasted to other interconnected computer systems via a wide variety of networks.

E-mail is the replacement for paper. Sending e-mail is easy. You type the message using whatever facility you are familiar with & then submit it to the mail system. then a series of automatic systems will sort & carry it to the destination.

FTP operates at the level of machine - machine communication & is used by more modern client programs just as a way of getting something from a server. When data is going to move, the client & server opens a data connection. The data connection can keep going whilst the user issues further commands.

Whois allows you to look up someone's e-mail address, and other information that a user may be happy to give away, simply by knowing their names. The server looks up the command line & responds with a match or multiple matches. A finger server expects either a null string, in which case a list of all people using the system returned, or, if a string is given, provides information available concerning that person.

Gopher is a service that responds to trivial string requests from clients with answers proceeded by a single character identifying the type, a name & a selector. the client then choose what to do & how to display any actual data returned.

Research Project in DCI

Data Communication of IRAN is currently working a number of projects which will be operational in this year. One of these projects is IRAN400 network. This network in the first step is capable to service something about 20000 subscribers and in the next step the number of users will increase to 50000 subscriber. The protocol of this service is X.400 and the network is constructed from equipments which are called Message Transfer Agent(MTA). They are placed in private company or governmental organization and through the IRANPAC network can be connected to Private Management Domain(PRMD) and finally to Administration Management Domain(ADMD). Each country has at least one ADMD which is registered in ITU. For IRAN this is registered as IRAN400 which is replaced for IRAN in the international mailing services. All the ADMDs in the world through the PDNs will be connected to each other and make an international network for electronic mailing which is called Message Handling System(MHS) that it works with the protocol of X.400 the users by a computer and a software called User Agent(UA) are able to be connected to X.400 network and send or receive their message in Farsi or English.

DCI current research activities are :

- 1- Standardization of graphic user interface for Farsi and English languages (mixed) in multimedia network.**
- 2- Standardization of user terminal (intelligent and dumb terminal). including keyboard monitoring(presentation)in Farsi data bases.**
- 3- Standardization of Farsi code set for development of on-line data bases in Farsi language.**
- 4- Network management center for monitoring, control, remote management and diagnostics.**
- 5- Voice recognition & pattern generation system for audiotex network.**
- 6- Fault tolerant PDN network.**
- 7- Pulse to tone converter for audiotex system in a nation wide bases.**
- 8- Optimization of PDN network utilization.**
- 9- Traffic management in PDN network.**
- 10- Hybrid data network (SNA/SDL - X.25 - Fram Relay - TCP/IP - ATM).**
- 11- Standardization of internet browsers for bilingual (Farsi & English) application.**
- 12- Standardization of web server in internet for presentation of bilingual.**
- 13- Typical interanet & extranet in conjunction with internet.**
- 14- Control & security system on X.400 message handling system.**
- 15- Multimedia services.**

ATM Network

Another research project which DCI are working on it is Asynchronous Transfer Mode(ATM) network. This network can be the backbone of Frame Relay and X.25 networks. It can support the services like video conferencing, distance learning, video telephony, video on demand, medical imaging, multimedia services and etc. The advantages of ATM is in capability of offering switched services at up to several gigabits per second and at the same time, it is very flexible and it can assign only as much band width as is required. In ATM network each physical link has several Virtual Path(VP) and each path may be included one or several Virtual Channels(VC). Each virtual channel provides variable capacity. Connection over an ATM network identified by a Virtual Path Identifier(VPI) and Virtual Channel Identifier(VCI) and the switching can be done over virtual path only or virtual path and virtual channel together. In ATM network there is fixed length packet which is called cell. Each cell has been constructed from two part, the header and the payload. The length of header is 5 bytes and the length of payload is 48 bytes. The header has VPI and VCI information and connection over ATM network will be done by that and the payload has the information of user that should be transfer from end to end. ATM allows any free cell slot to be occupied by any type of information. Cells with different information can be combined easily. Therefore the network resources are shared efficiently among users. Because ATM technique uses high quality transmission systems, there is no error control on information payload and this reason and the use of fixed packet length together allow much higher operating speeds. This network can meet all the needs of the new telecommunications environment by combining the sheer power (in term of bit rate) to run any existing or new application with the flexibility of all these services. This network is also flexible to carry all kinds of information such as voice, text, graphics, still and moving pictures and in this network there is an independence between type of information and transport network.

Flexibility in Data Communication

There are various type of flexibility in data communication networks and services. This flexibility allows different client with different protocol or different communication software to be interconnected as it was mentioned the flexibility in dedicating requirement bandwidth for a service. The flexibility for use of various type of information. There is also flexibility in charging the services which is related to the time. For example the charging should be lower during the

night or holidays when the network is not too busy. There is flexibility also in service providers.

Conclusion

Information services and networks are flexible and intelligent most of them have rerouting systems and they can choose different path according to the traffic and in the case of existing problem in the physical connection, so that end to end communication will exist in spite of the problems that may be occurred in the network. In DCI for each service there are one or several back-up systems which they will be operational whenever needed. Therefore effort of a service to the subscribers will be uninterruptable and continuous and there is enough experience to solve the problems that may be happened now or in the future and this is due to research projects which are done in DCI. With the X.25, Frame Relay and ATM networks it is possible for private company and governmental organization to exchange information inside the country and with the other places in the world through the gateways with the flexible bit rate and suitable quality and security.

In the Name of Allah

Information Services For the Handicapped
Using Common Technologies

BY: Nader Naghshineh MMI, Ing.
IRANDOC
TEHRAN

Dear ASTINFO participants

Like all countries the question of handicapped persons enjoyed the same level of attention as with other developing countries. A unit or two was set up to look after their welfare, some employment amendments of little or no impact was passed, and these people were delegated to the dark, little-visited corners of our memory. For in the turn of fate, we had been more fortunate. Winners are less concerned about the plight of those less fortunate.

Then came along the Iraqi-imposed war. The number of invalids increased and nearly strained the available official support system. The government had been quick to respond, and set up a special foundation to look after them. Also the notorious Iranian sense of individuality coupled with traditional family obligations was able to keep the disaster from attaining catastrophic proportions.

I believed that we needed to devise a mean, any mean, to increase their self-respect. Restoring these in some had been relatively easy using various forms of electronic and mechanical prosthetics. Also the Iranian language lacks the words such as "invalid" or "handicapped". Instead, it has words such as "Tavanjoo" or "tavankhah", literally those who seek empowerment.

While my colleagues focused on those damaged in their mechanical functions; I along with a group of my colleagues

decided to focus on the most serious of these empowerment seekers. We decided to see whether we could devise a mean or means to provide the possibility for those people with impaired personal information collection and processing faculties.

We - and I use that, I mean a group of 60 engineers from four different corporations- decided from the onset that we need to work something out without using the government help. Early on our focus was repackaging of available technology at home.

As the senior advisor I identified several potential empowerment seekers for whom we could devise the supplantive services:

- Those with impaired or no visual preception
- Those with impaired or no visual preceptions
- those with impaired processing.

As a standard procedure we needed to get first hand fact on the problems. Certain techniques were employed to correctly assess these using various physiometric techniques available. One engineer went in as far as being blind for a week.

Fortunately Iran has a rich history of the people who by the sheer force of their commitment had laid the foundation for increasing the information sources for the empowerment seekers. One example shines brighter. Prof. Khazaeli, who is the father of the Iranian braille alphabet as well as the the whole organization that trains and look after the blinds.

Khazaeli profile was intensely studied. For being born blind, in an era when Iran had little or no support structure for the blind, he attained the coveted rank of academican at the Tehran University. His approach to problem-solving had to be emulated.

We employed a built-as-we-go approach by setting up a test-bed. When some one is blind or visually impaired it is not very easy to reroute the information collection. We gather nearly 95% of our Sensory data through our eyes. In the past decades every means of human sensory extension implements had

been augmented by a visual display.

The problem becomes more manifest when you are also faced with the problem of those people who were deprived of sight through accidents and war. According to psychological studies repatterning of their information collection and processing was not an easy task. The empowerment seeker should have been forced to drastically change his/her basic body-image concept.

Our technological approach was two-pronged. The easiest was to make whatever information materials available for this group, more accessible. Fortunately we had the legacy of Prof. Khazaeli in form of Roudaki Cultural Center for the blind. Roudaki was a blind 12th century Iranian poet, whose poems are still rousing. The Cultural center named after him, holds the largest collection of audio books in the region. There are some 65,000 titles. The roudaki center is also linked with other counterparts through out the world.

As the first step, there was a need to expedite the access to this collection. An Iranian Software Company, called Pars Azarakhs was called to take care of this. Interestingly enough another private corporation called Paktus, began to seriously work on the enabling hardwares such as braille printers, braille script trainers and voice actuated information system.

At this point the engineering team at Mavara company, advised me of the possibility of adapting the Dialogic voice circuitry for online information service. The problem I had was how to adapt this hardware to the average technological prowess available among our target group. I had insurmountable problems with signal processing and pattern recognition. In the meantime, Neda Rayaneh, the only private internet access provider in Iran, agreed to contribute its Voice Text System for our researches.

It was from this point that we entered the proof of concept stage. In fact, we were able to adopt a line of research with a maximized spin-off rate in ancillary products. The voice-mail system could be persianized, but more importantly, we could simplify the service definition to address the

information supply question.

Designing a computer based information service is quite a challenge when your information input unit is merely the ordinary dial keys. The problem had more to do with the extraction process.

Presently while the research is still continuing, there had been a number of spin-offs that in an indirect way could improve the quality of life for the blind. These are as follows:

- Bank credit account control
- Voice mail facilities (For functionally illiterate)
- Cultural/educational and religious Prestel services
- Student Help lines
- Dial-a-Tune

By using off-shelf technologies and software, the system has a low installation fee. The question of content is of course lies within the purview of service providers.

But what lies in the future? I believe that we need to address the question of voice pattern recognition and conversion. Having decided not to look for government support, the progress is not as we wish for. The satisfaction and the sheer joy we derive from the small role we come to play to improve the quality of life for our information-constrained brethren and sisters, more than ever compensates for any frustrations though. □

In The Name of God

**11TH ASTINFO CONSULTATIVE MEETING & REGIONAL
SEMINAR/WORKSHOP
IRANDOC, TEHRAN, ISLAMIC REP. OF IRAN
MAY 3-8, 1997**

**RESOURCE SHARING: DATA COLLECTION
EFFICIENT & PRACTICAL METHODS**

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INTRODUCTION

When I was asked to talk about the methods of improving data collection in ASTINFO countries, my first scenario was explaining some advanced methods of data collection, but after a few minutes I decided to change my scenario to one that could be a practical method for improving data collection situation in ASTINFO countries. Because I believe that we have same problems, and nearly same solutions may be applied for us.

Our problems are different from developed countries. Developed countries, before appearance of new technologies, such as computer, communication facilities, satellites, ... used correct manual methods. They actually had a system. So today, technology is at their service to speed up their previous systematic manual methods. It is obvious that they can be more developed from time to time. But developing and non-developed countries, before appearance of new technologies, had not had a suitable manual system for data collection. So, today, technology can not do anything for them and they are faced with some basic problems. Somebody told me that during the world war II, had been in Germany for his Ph.D. and in one of agricultural libraries, there were more than 10,000 fiches about a kind of tree. You know that in that time there was no computer. He told that he was so surprised of existing such an integrated set of information in one place. So we see that our main problem is not technology, but it is the infrastructures. It is the correct system.

IRANDOC'S EXPERIENCE

In order to open my talk, I would like to explain Irandoc's experience. Before entering to this discussion, let's have a look at those Irandoc's activities which are related to our discussion.

Irandoc is the most important information center in Iran, that collects different scientific information such as dissertations, papers, books, journals, etc. from libraries and research centers, and after processing, disseminates them in different ways. In Irandoc, we are faced with two common types of documents. Some of them are electronic data and the rest are in other forms. Examples of non electronic information, are dissertations, published papers, ... These types of material, after collection, are sent to indexing department. Then the information of these materials are sent to computer department to be entered in computers. After this step, data should be controlled and edited to ensure that they are correct. Then these data are appended to the corresponding databases and also are published.

The large amount of information that entered to Irandoc, created new issues for us. One of our issues was indexing process.

We could not carry out the indexing process for that large amount of data. Our data entry and editing section were also faced with a considerable data, that should be entered or edited. So there were two bottlenecks in our center. The indexing and data entry/editing processes.

In case of electronic data, we had less problems. Because these type of information did not need to be entered and edited. So one of our bottlenecks was omitted. These types of information were useful, and in some cases nothing should be carried out for them except for adding them to our databases.

Electronic data were divided into two types. The first type were structured information stored based on standards. We used them without any problem. Examples of standard electronic information are: the information on OCLC network, CDMARC Bibliographics, Ulrich, Books in Print CDROMs, and so on. OCLC, as you know, is an international bibliographical network, from which you can get cataloged information of books and other bibliographical materials. In this way you can save your time and decrease the cost and time of cataloging process in libraries. CD-ROMs such as CDMARC-Bibliographics also offer you the same services in cataloging. Books in Print, Ulrich, and other CDROMs that contains standardized electronic information can make the data collection, more comfortable and simple. You know that in this way, thousands of these records can be accessed in less than 24 hours and be added to your databases without having to catalogue, enter and edit the information. Why are you able to do so? Because they are standardized electronic information.

The second type of electronic information were non-standardized. These type of information had been stored, using different software applications and different methods and therefore were not so useful.

There was a question. Is an information center like Irandoc, able to collect all of the bibliographical information of a country by traditional methods? It was not possible. Because, we had some problems in indexing and editing sections. What should we do? Where must we started from?

We thought that the load of this duty should be divided into all information centers of

the country, like libraries. Never one organization could afford it. In order to overcome this problem, we should change our libraries to information centers. These information centers would act the mentioned activities of Irandoc, in a small scale and this was not difficult for them, because of small amount of information in those libraries. If the libraries that entered their data into computer, stored their information, in a standardized form, we did not have to do anything for data collection except for getting information and appending them to our databases. A network like OCLC, with tens of million records, could not be conformed if only one organization wanted to do so. The information of this network are collected by all of its members. But the information of all members are standardized.

Were our libraries able to be information centers by themselves? Of course, no. This was our duty to help them in this approach.

We knew that if our libraries were changed to information centers, data collection would be an easy approach, so some activities started in Irandoc to satisfy this need. Let's have a look at those activities.

IRANDOC'S NEW APPROACH

1. DESIGNING THESAURUSES

One of our works, was designing thesauruses. Using thesauruses, makes some sort of coordination between information centers in assigning subjects to materials. There are concepts that can be expressed by different words. This may cause an unwanted results. Thesauruses are formal references for assigning subjects to records. In Persian language, as in some of developing countries we are faced with the lack of enough professional thesauruses. So, Irandoc started to design such thesauruses. The first thesaurus, accomplished last year. It was nearly the translation of SPINES thesaurus. Although it took a lot of time, but it was a good experience for us. Because the result satisfied our needs, we began providing three other ones by the end of this year to make them accessible to our indexers and cataloguers in the libraries and information centers of the country.

2. AUTOMATION OF INDEXING

As I mentioned earlier, one of our bottlenecks was indexing. A great deal of documents were in the indexing queue and were waiting for indexing. So we should design some methods of automatic indexing. There were some theories in this field which after some

corrections, could be used for this purpose. We have began this approach and we hope to get nearly good results.

3. ADOPTION A STANDARD FOR DATA STORAGE

If we didn't not suggest a standard to our libraries, we would not be able to make some sort of coordination between them. Using standards is a serious necessity for those who would like to share their resources with each other. Data collection would not be accomplished as we expect, if we don't use standards and if don't suggest standards to our information centers. For example, I'd like to point on one of our databases called "Union List of Serials held in Iranian Libraries". This database contains the information of holdings of more than 300 of most important Iranian libraries.

There are 19,000 titles of journals in this database. So, for updating this database we have to use automated procedures. In this case the presence of ISSN in each record is necessary. Some libraries that send their information in electronic forms, and don't obey standards, make some problems for us. One of them does not insert ISSN in its records. Another library in the HOLDING field has inserted "1985- " indicating that it has a typical journal from 1985 until NOW. When has latest transaction carried out on this field? We don't know. Because they don't have "lastest time and date of transaction" field. When we ask them "why didn't you insert these fields in your records?" the answer is "We didn't need to these fields and now it takes a lot of time and some expenses to insert them into our databases" . They are right. Because at the time that they started to store data, there was not any standard available for them. Of course the role of standards is not limited to that I mentioned as an example, but you can see in this simple example that what can be happened for non standard data.

Non standardized data, even in electronic form, sometimes are useless. You know that at the time that I am talking about using standards, there are information centers that are entering data in non-standard form and unfortunately a large amount of investments in this field would be lost. So make them aware as soon as possible.

Irاندو has started the designing of IranMARC as a standard for storage of bibliographical information since 1994, based on USMARC Bibliographic format. We chose USMARC, due to

the complete set of its documents

and a good logic for field numbering in that format

and as a tested and experienced format in the library of congress and finally, because of the available information products which are based on this format in the market, such as CDMARC Bibliographics and ULRICH.

National standards are well, but international standards are better.

If the ASTINFO members would like to share their information, they should obey a certain international format. Therefore, in adoption of standards, it is recommended to use international formats where possible.

4. DESIGNING SOFTWARE

Designing a software that satisfies our needs to standards was a essential work. Standards would stay on papers if we don't use them practically. Implementing standards such as MARC formats, needs a computer application to make these standards available for those who would like to use them. In other words, the presence of a software which is designed based on standards, ensures the use of the standards. At the same time, we recommended to the private sector to use standards in designing their softwares and encouraged them by different ways. Of course some government rules is needed in this case. In this way, those who buy these types of softwares, automatically would store their data in standard form.

Irandoc has a good experience in this field. For example, in order to collect the information of the "Union List of Serials ...", we designed a software and distributed it. The result was satisfiable. It caused to collect a considerable amount of data in a short time. As another example, the Library software that in previous meeting of ASTINFO members held in China, presented by Dr. Gharibi, had been designed based on USMARC to satisfy this need. Although there was some bugs in it, many of our libraries still prefer to use it.

Designing our softwares, was based on Micro-CDS/ISIS and you know that its DOS version was not so user-friendly, in addition we had some problems in persianizing it. After comming the Windows version of CDS/ISIS, we hope to Improve our softwares.

5. EDUCATION

Education was also an essential basis for information collection and production. Electronic information is produced by expert humans. Changing the libraries to information centers, could not be accomplished unless they had enough experts and

educated persons. We should train them, support them and design educational courses in formal or informal ways. Currently, most of our librarians are not familiar with information technology and its tools. So even good software and hardwares can not be used by most of them.

6. DESIGNING DATA CONVERTORS

There were some centers that didn't obey standards. In other words, they couldn't switch on a standard system, because of their great investment on their systems.

A good solution was converting their system to a standard one by helping them in different ways from which we can point to writing some data convertors to convert their data.

Also, for those organizations that could not convert their system to a standard one, writing data convertors was the only solution.

7. ADOPTING THE BEST METHOD FOR DATA TRANSFER

We should adopt a method to transfer electronic data. Depending on different conditions, different prescriptions may be issued. So there is not a total practical solution for all conditions. One method could be an online network. If it is not possible, an off-line network. Maybe using diskettes is the best solution for example or even paper.

I would like to tell you an interesting story. Five years ago, one of our universities in a city other than Tehran, wanted to use the information of an information center in Tehran. This university, after spending a lot of expences, and time, finally managed to establish a mainframe site, a leased line and other requirements to connect to the mentioned information center in Tehran. But they never could connect to that information center, more than 2 minutes in each session. After many efforts that took one year, they became disappointed because the line was not suitable and had some noise in itself. Head of the computer center of that university came to our center and asked me to solve their problem. He told me that the head of the university was very angry and thaught that he could not work with the system. He was very sad. I told him, "The database of that information center, has not updated for three years and I am sure that will not be updated until three next years. So, simply, get a copy of that information and put it on your machine." and in this way the problem was solved. He thanked me so much and left our center while he was very happy.

So, imitating the others without study may cause such interesting stories. In cases that

reliable lines does not exist, you can use diskettes or other media. Remember that the most important thing for data collection is using standards of data storage. So don't worry about other problems. They will be solved soon or late.

A SUCCESS STORY OF IRANDOC

- PROMOTING THE RATE OF DATA COLLECTION

The collected information in Irandoc are published quarterly in form of nine journals with some useful indices in the end of each one. Before publishing these journals, the cooperation of libraries and research centers was not as we expected. Maybe they thought that data collection was a formal work that Irandoc should achieve, and it was not a necessity from their point of view. The considerable amount of data that are sent to Irandoc is a good reason for this success. So disseminating and especially publishing the information, is a good policy to encourage the data producers to improve their cooperations.

Selling the collected information on diskettes or CDs, and consider some discounts for those who cooperate in the data collection project, has also been a good policy.

WHAT IRANDOC HAS GAINED SINCE 1991

Using the aforesaid methods we have managed to collect a considerable amount of data, and of course some valuable experiences in data collection and dissemination, in only 6 years. As you saw, some parts of the aforesaid activities have not been completed yet. We hope after completion of this project, data collection be a simple process. The following databases are parts of our works:

1. Iranian dissertation abstracts 50,000 rec.s
2. The abstracts of scientific-technical papers of conferences/magazines 50,000 rec.s
3. Researches in Iranian universities and research centers 27,000 rec.s
4. Union list of latin serials held in Iranian Universities and research centers 19,000 titles
5. Iranian government reports 6,000 rec.s
6. Education information (books, diss., papers,...) 9,000 rec.s
7. Khazar (Caspian) information 12,000 rec.s
8. Persian professional medical books 5,000 rec.s
9. Iranian scholars and experts (Ph.D, MSc.) 6,000 rec.s
10. Dissertation abstracts of Iranian graduates abroad 8,000 rec.s

CONCLUSION

Improving the culture of production and dissemination of electronic data, especially for developing countries is a vital necessity. But in data storage, using standards is the most important note that should be considered. Only in this way we can take part in international tradition of information. Encouraging the data producers to know and use standards is one of the most important duties of organizations that are responsible for improving IT systems. Only through this way, an efficient data collection and data processing is practical. Developing and non-developed countries, should care to infrastructures like standards more than they do, and avoid spending their investments on the ways that has no end except for filling the pockets of universal companies. If we teach our nations, the right culture of data storage, data collection would be one of the simplest processes, and can be carried out with minimum requirements.

**RESOURCE SHARING: DEVELOPMENT
OF LIBRARY SERVICES**

by

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Kuala Lumpur

1997

Resource sharing : development of library services

Introduction

It is an accepted fact that no one library is self sufficient in its resources be it in library materials, functions and services. It is the combination of people, processes, ideas, experience, materials and money which constitute to be the resources of a library. The increase in the volume of library materials and information, the increasing costs of acquiring and processing them, the need for trained personnel, storage space and the increasing demands by users are main motivating factors for libraries to share resources.

Resource sharing entails cooperation and coordination. It brings about greater interaction between libraries and librarians which will in turn bring about greater awareness of common issues/problems and finding appropriate solutions. New ideas will eventually be generated for better service, better programs and better budgeting.

In Malaysia a number of resource sharing activities are going on either at national level coordinated by Perpustakaan Negara Malaysia (National Library of Malaysia) and/or Persatuan Perpustakaan Malaysia (Library Association of Malaysia) and at various types of libraries. This paper will highlight major resource sharing and cooperative activities among Malaysian libraries and information centres.

1) **PERPUN**

PERPUN (Persidangan Perpustakaan Universiti dan Negara) is a committee comprising of chief librarians of all the 9 university libraries, MARA Institute of Technology Library and the Director-General of Perpustakaan Negara Malaysia. The committee meets on a regular basis to discuss common problems, share information and establish cooperative projects. One of the major projects of PERPUN was the Malaysian MARC Project (MALMARC), a shared cataloguing project which created

in National Union Catalogue of 480,000 records of National Library and 5 university libraries. It was the biggest bibliographical database in the country. However the project which started in 1978, was discontinued at the end of 1990 when those participating libraries began to have their own integrated library systems.

Other PERPUN projects include the study on the price of books and CD-ROM, group purchase of CD-ROM, CD-ROM Networking, Union list of CD-ROM which can be referred at Perpustakaan Negara Malaysia homepage, study on indexing service by libraries and institutions in Malaysia and National Union List for serials. The Union List for serials was started in July 1995 and about 30,000 records will be input into CDS ISIS and mounted on to the Universiti Kebangsaan Malaysia Homepage. It is a union list of serials of Perpustakaan Negara Malaysia and Malaysian universities excluding Universiti Malaysia Sarawak (UNIMAS) and Universiti Malaysia Sabah (UMS).

2) SCOM (Sub-Committee on Microforms)

Sub-committee on Microforms or SCOM had its beginning in May 1968 as a cooperative effort between Persatuan Perpustakaan Malaysia (Library Association of Malaysia) and Library Association of Singapore. However, since 1980 it exists as a subcommittee of Persatuan Perpustakaan Malaysia which coordinate microfilming works among member institutions. University libraries, Perpustakaan Negara Malaysia, National Archives, Sabah State Archives, Sarawak Museum, Dewan Bahasa dan Pustaka and Pusat Sumber Maklumat Sarawak are represented in this sub-committee. Currently 26 Malaysian newspapers are being microfilmed by 8 institutions. Perpustakaan Negara Malaysia undertakes to microfilm 8 titles of newspapers. This cooperative project not only share out the microfilming work which would otherwise never been able to be handled by any one particular institution.

SCOM operates its activities within the following scope of work :

- responsible in identifying issues and problems related to microforms.
- study on the present status of microfilming activities and micrographics
- establish contacts and cooperate with those institutions involved in microfilming work at national and international level
- disseminate information on micrographics
- study on conversion format

The committee is currently studying on standards on microfilming which include its processes and methods, raw materials used, its equipment and storage and compiling a Masterlist of Malaysian Microform. Talks and seminars are held to create awareness among librarians and archivists on the importance of preservation of library materials. In 1994 a *National Seminar on Preservation of Library Materials in Tropical Environment* was held and in 1996 a talk was held on *Preservation and Conservation : issues and challenges* by Dr. Margaret S. Child, an American Consultant under the Fulbright Programme. She was in Malaysia for 3 months to study on current conditions and practices of preservation and conservation works in Malaysia and to provide appropriate recommendations to the National Library of Malaysia. Following this a national policy on preservation of library materials is being drawn up.

3. National Committee on Cataloguing and Classification

This committee was set up by the Perpustakaan Negara Malaysia in its efforts to establish standardisation in cataloguing and classification particularly for Malaysian publications. The committee comprises of chief cataloguers of Perpustakaan Negara Malaysia, university libraries and selected public library and special libraries.

The following projects have been undertaken, published and adopted by Malaysian Cataloguers:-

- (1) Rules for Malay Names
- (2) Translation of Library of Congress Subject Headings into Bahasa Malaysia
- (3) Local Subject Headings
- (4) Standard Headings for Malaysian Government and Statutory Bodies
- (5) List of Malay titles
- (6) Guideline for Romanisation of Jawi
- (7) Geographical and Historical Expansion Tables for Malaysia
- (8) Standard Headings for Government and Statutory Bodies for Sabah & Sarawak
- (9) Subject Authorities for Sabah & Sarawak Ethnic Groups
- (10) Sabah & Sarawak Ethnic Authors Authority File

Several other projects are currently being studied includes:

- (1) Malaysian Acronyms
- (2) Abbreviation for Libraries
- (3) Expansion for DDC Class 297
- (4) Authority for Malay Names
- (5) Transliteration table for Cataloguing of Tamil Materials and Indian authors authority file.

Workshops are also held to help cataloguers understand the cataloguing standards and rules passed by this committee. In 1996, a workshop on Library of Congress Subject Headings was held for a week for Malaysian cataloguers, documentation officers and lecturers from library schools. A resource person from Library of Congress was invited to conduct the workshop.

4) BILCO (Committee on Bibliographic and Library Cooperation)

BILCO (Committee on Bibliographic and Library Cooperation) is a committee established by the Persatuan Perpustakaan Malaysia (Library Association of Malaysia)

which among others acts as the clearing house for bibliographic projects in the country. It started as a joint committee of Persatuan Perpustakaan Malaysia and the Library Association of Singapore but has evolved into independent committees. However BILCO (Malaysia) and BILCO (Singapore) meet annually and discuss common projects of benefit to both countries. Of late BILCO has concentrated more on library cooperation by conducting seminars/workshops in areas of current interest. BILCO (M) and BILCO (S) are currently compiling a *Directory of Librarians in Malaysia and Singapore* and making it available on Internet.

5) **Publication Delivery System**

Publication Delivery System (PDS) is a formalised interlibrary lending system launched on 2 June 1988 with Perpustakaan Negara Malaysia as a national coordinating centre.

Its objective is to improve the provision and supply of publications in their original form or photocopies from national and international sources to intending users within the country for purposes of study and research.

Libraries/institutions have to sign a Memorandum of Understanding to be a member of PDS and registered member are allowed to borrow or obtain copies of the required materials. To date there are 287 registered members who are willing to share their library materials under this system. Since October 1993, PDS is operated on-line i.e. requests can be made through PDS electronic form. However with e-mail facilities the PDS on-line requests have declined and they are coming up with an improved electronic form. In 1996 National Library of Malaysia received 1,145 requests through PDS.

6) **JARINGAN ILMU (Knowledge network)**

With the advent of INTERNET Malaysian libraries formed a computer network called JARINGAN ILMU. This was established on 26 January 1994 when Perpustakaan Negara Malaysia and MIMOS signed a memorandum of understanding to develop a library and information network in Malaysia. MIMOS is the coordinator of JARING which provides telecommunication backbone facilities for Internet subscribers in Malaysia.

The main objectives of JARINGAN ILMU are:

- 1) for MIMOS and Perpustakaan Negara Malaysia to jointly undertake research and development programmes to established linkages between libraries in Malaysia using the latest information technology.
- 2) to facilitate the sharing of resources among libraries
- 3) to enable librarians and library users to access library resources from remote locations.
- 4) to encourage libraries to become information provider by creating public domain databases and to allow members of the public to access such databases.
- 5) to facilitate technology transfer in the use of computer network and developing databases through training, workshops, seminars etc.

Being the coordinator of JARINGAN ILMU and to facilitate Malaysian libraries to access to Internet, Perpustakaan Negara Malaysia have provided assistance to 45 state libraries, and government department libraries by installing computer systems with Internet network facilities. A series of workshops on Internet, Internet utilities, Web design and development and web server management were held for local libraries not only to upgrade their skills in using the internet but also creating their hompages and

mounting their information sources according to their core competencies on to the net.

7. Development of Public Libraries

One of the functions of Perpustakaan Negara Malaysia as provided under the *National Library Act, 1972* and *National Library (Amendment) Act, 1987 Part II Section 4 (h)* is "to promote and facilitate the establishment of nation-wide systems of public libraries in keeping with national standards of provision".

Public libraries in Malaysia are run by State Library Corporations except for the state of Sabah (under State Department) and Sarawak (under State Ministry) and Wilayah Persekutuan (under City Council). The Director-General of Perpustakaan Negara Malaysia sits in each Library Board as an advisor. In addition, 2 meetings, chaired by Perpustakaan Negara Malaysia are held in a year to monitor the development of the libraries and discuss issues and problems related to their development.

The funding of the state libraries come from two sources i.e the individual State governments and the Federal government. Since 1992 the Federal government through Perpustakaan Negara Malaysia contributes on a 50 : 50 basis of their operational budget. This fund is to be spent on collection development, wages for recruitment of temporary and contract staff and reading campaign activities. In addition funds are also given under the 5 year development budget for the construction and renovation of state library buildings and branch libraries, mobiles and initial stock of library materials. Financial assistance provided are closely monitored by Perpustakaan Negara Malaysia to ensure a balance distribution and development of public libraries in every state in Malaysia.

To date Malaysia has its own network of public libraries comprising of 14 state libraries, 4 regional libraries, 97 branches, 204 rural libraries and 90 mobiles (1,813 stops) distributed throughout the country.

8) Council of State Libraries Directors

It was formed in 1987 comprising of all the Directors of public libraries in Malaysia. Its objectives are to establish closer relationship among state libraries and librarians, discuss common issues/problems and finding appropriate solutions and to standardise public library services.

Among projects studied and recommended by the Council includes service norms, standards for rural libraries and floor areas for public libraries, and model Enactment for Public Libraries. The council is also studying on appropriate standards for the interior and finishes for a public library.

Workshops, seminars and forums are held to address specific issues related to the development and services of public libraries. In 1996 a *Conference on Rural Library Services in ASEAN Countries : a new perspective* was organised by the Council, where 20 papers were presented covering areas ranging from information technology, library cooperation, standards, marketing of services and services to the disadvantage. Courses, visits and attachment of staff are also part of the council's programme.

Each state library in Malaysia is building up its state collection i.e any materials published in the state or about the state. It has been mutually agreed that each state would inform each other about titles pertaining to each state. The state libraries are also studying on the development of subject specialization for each state.

9) School Resource Centres

School Resource Centres were set up in every government school to facilitate teaching and learning. There are over 8,000 School Resource Centres in the country and they are under the Ministry of Education and their development is being coordinated by the Education Technology Division.

Resource Sharing activities among school resource centres are seen in a number of projects including Bina Minda (Mind Development), Pusat Sumber Electronic (*Electronic resource centres*) and the training aspect.

Bina Minda was started in 1993 to upgrade the skills of using of information sources for teaching and learning, skills for creative and critical thinking and promote reading habits. A sum of RM12 million was allocated for 5 years to purchase selected quality books for secondary and primary rural schools. Books are purchased centrally by Education Technology Division and distributed to the schools. In addition each resource centre has its own book budget based on the number of student population.

Electronic Resource Centre project was started in 1995 and officially launched in March 1996. 14 secondary schools from each state were selected to participate in this project. Telekom Malaysia Bhd. sponsored this project by providing leased line, hardware and software and its installation. Under this project each school was given 14 computers and a server. Initially they are working on a union catalogue of the 14 schools to facilitate resource sharing and cataloguing. With the given computers, students are taught to use and have access to Internet. If this project proved successful, it would be extended to other schools in Malaysia.

In service training for teachers who run the school resource centres are coordinated/organised periodically by Education Technology Division, Pusat Sumber Pendidikan Negeri (*State Education Resource Centres*) at state level (14 states) and at district level (352 districts) by Pusat Kegiatan Guru (*Teachers Activity Centres*).

10) **Malaysian Technical Cooperation Program**

The Malaysian Technical Cooperation Programme (MTCP) was launched by the Malaysian Government in 1980 to promote and facilitate technical cooperation amongst developing countries based on the concept of self-reliance. The programme

encourages the exchange of relevant experience, pooling and sharing of resources and development of complementary activities. Perpustakaan Negara Malaysia is one the government department who been chosen to participate in this programme. Since 1985, under Malaysian Technical Cooperation Program training assistance has been extended to 49 developing countries and 247 library personnel have been following either 'the Basic Course for Library Assistants' or 'Library Visits/Attachments' for the professional librarians under this programme.

11) Malaysian Resource Centres

Two Malaysian Resource Centres i.e at the University of Ohio, USA in 1988 and at Royal Institute of Linguistics and Anthropology (KITLV), Leiden on 9 May 1995 have been set up to support the study of Malay language and on Malaysia. The third centre would be set up at the University of Victoria, Wellington, New Zealand. An annual budget has been allocated for the purchase of library materials related to Malay language, literature, culture and on Malaysia to these centres as part of the Malaysian government effort to promote Malay studies and study on Malaysia among European, American and Pacific areas community.

12) Exchange of Publications

Exchange of publications programme have been going on as part of resource sharing between libraries. Perpustakaan Negara Malaysia has exchanged her publications with 43 overseas libraries.

In addition recent plan is underway to contribute Malaysian publications to overseas institutions through the Malaysian embassies particularly those countries which Malaysia has diplomatic and trade relations as part of promoting Malaysia and its publications and to reciprocate book donations received by Perpustakaan Negara Malaysia through their embassies.

13) Cooperation with the private sector

The private sector in Malaysia is also playing its social role in contributing towards the development of library services in the country. They have contributed either to/through Perpustakaan Negara Malaysia or directly to individual state libraries. Their contribution has led to the setting up of Community Trust Fund and Malay Manuscript Trust Fund of Perpustakaan Negara Malaysia, donation of mobile units, setting up rural libraries i.e. construction of rural libraries, and purchase of furniture and library collection, reading campaign activities, setting up of Hypermedia Centres for children, publication of nursery rhymes in Multimedia CD-ROM and publication of talking books for the visually impaired readers. Such companies include Esso (M) Bhd., PETRONAS, Syarikat Mobil (M) Bhd., Singer Malaysia, Yayasan Kuok, Yayasan Fazlan, Syarikat Hitachi (M) Bhd., Telekom Malaysia Bhd., Syarikat Fujitsu Ltd., Syarikat Power Tech Sdn. Bhd., Syarikat Harfa Sdn. Bhd., Syarikat United Happy Store, British American Insurance, Syarikat Park Properties Sdn. Bhd. and Golden Arches Restaurants (M) Sdn Bhd.

Conclusion

Resource Sharing among libraries in Malaysia has definitely contributed towards the improvement and development of library services in the country. Their willingness to cooperate have brought about better understanding, closer relationship, mutual benefits and above all has improved the provision of library and information services to all sectors of the Malaysian community both in urban and rural areas.

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Information Society and Development*

1. Introduction

I would like to start by asking a few questions to situate this topic.

Why do we need to discuss this topic?

Because in many countries, information has never been systematically and logically linked to development programmes.

For development programmes, governments ensure that the required infrastructure is established with the requisite funding.

In the case of information, however, no comprehensive systematic infrastructure development programme exists, rather they are piece-meal, sketchy approaches, and even so, it invariably requires so much hassle to get the information programme approved. Just see how various government departments get their library/information center budgets approved.

Is information a true resource for development? Is it necessary to build/establish an effective information support mechanism for development? Yes to both questions, but the actual situation is not like that.

While this may be the scenario some years ago, the advent of and fascination with internet and information superhighway has dramatically changed the world situation. The situation has changed and continues to change presenting challenges and opportunities, which when wisely used could bring about dramatic improvement to the information situation in many countries. In fact, it should be the justification for taking the initiative to ensure the country's transition to an information society.

Why is it necessary to transform into an **information society**? Why shift from an agriculture-based or industry-based society into an information society?

Because the world development has moved from developing the primary sector (agriculture, forestry, mining), to the secondary sector (manufacturing industries) which are measured in terms of GDP and exports, to the Tertiary Sector - composed of commercial and services sector. The Service Sector has increased considerably, 43% even for LDCs, 37% agricultural and 20% industry. This service sector is increasingly concerned with processing information in different forms.

The world economy has shifted and we must also do the same, if we do not wish to be left behind and be completely marginalized. The global information sector grew by 5% compared to less than 3% growth of the world economy.

*Presented by Miss D.E. Torrijos, UNESCO Regional Adviser for Asia/Pacific, at the ASTINFO Regional Seminar/Workshop held in Tehran, Iran on 3-5 May 1997.

2. Information Society

An information society recognizes information as a vital national resource for the continuing development of its economic, social, cultural and political life. And because it is a resource, it needs to be managed and maximally used. And for that to happen, we need to plan the sound development of NII, which must be based on National Information Policy or Policies.

The whole world is moving towards creating a global information society and every country needs to be part of that emerging GIS. To effectively and meaningfully participate and be part of GIS, each country needs to transform its society to an information society, because if you don't - a new form of exclusion is creeping its ugly head - stratifying the world into: information-poor and information-rich countries.

This is not just a fashionable trend - it is a necessity for development

Let us look at the basic characteristics of an information society as Prof. Nick Moore, of PSI, London has expounded in one of his articles on the subject and which I shall summarize here:

* Information is used as **economic resource** to:

- increase efficiency
- stimulate innovation
- increase effectiveness and competitive position through improvements of goods and services they produce

* Greater use of information among the general public

as **consumers**:

- to improve their choices between different products
- to explore their entitlements to public services
- to take greater control of their lives

as **citizens**:

- use information to exercise their civil rights and responsibilities

Information systems are being developed that will greatly extend public access to educational and cultural provision.

Development of an information sector within the economy whose function is to satisfy the general demand for information facilities and services.

The significant part of this information industry sector is the technological infrastructure: networks of telecommunications and computers.

An information society also needs to increasingly recognize that it is necessary to develop the industry that generates information that flows around the networks - the content providers - not just to set up the telecommunication infrastructures or information carriers.

The world's attention to ICT (Information and Communication Technologies) has given the library and information field a whole range of challenges and opportunities that could dramatically improve the situation.

Challenges

ICT has set in motion a dramatic, dizzying phase of development that affects each one, poor and rich, developed and developing. Each one wants to be part of the information revolution. The challenge is how to transform agricultural or industrial societies that are basically very traditional in accessing and using information into information societies.

And for those, who have started, how can they cope with fast developments at costs they can afford? How do they avoid pitfalls that can be exorbitantly costly? How do they integrate ethical, social, economic and legal issues in their information infrastructure development programmes.

More importantly, ICT has brought about the blurring of boundaries in different areas, e.g. communication, media, computers, telecommunications, pushing them to converge. This means that **convergence** would require us to seriously look at a new approach, i.e. **working together as teams**, not independently of one another.

Opportunities

ICT has changed the whole information scenario in many countries. If one can ride in the bandwagon of information highways and corridors and use ICT as the centerpiece of an information programme, the attention and support of policy- and decision makers can probably come more easily.

New products and services can be developed that are more attractive and pleasing to users and can be had at cheaper means, provided the right technologies are used. But how will developing countries be able to choose the right ICT for the kind of applications they need?

Clearly these are not easy questions to answer. And hence organizing forum for discussions of such issues such as what UNESCO provides is a must, so that countries can learn from each other.

3. National Information Infrastructure (NII) & Services

What are these? When analyzing NII, we should also look at the people dimension- the quality of a country's population as to their capacity to produce, absorb, transmit, store, manage and use information. This means taking the general literacy level of the population and their education. Should we also look at the share of the information in the total economy and the proportion of the information workers in the total labour force?

If infrastructure is to cover the facilities, equipment (hardware), human resources and their capacities (software), institutional mechanisms and policy-framework (governing regulations and legal basis), then we have to analyze them in terms of their adequacy or inadequacy to support the major processes in the entire **information chain**, e.g. information creation/generation (writers, researchers, academicians, scientists, etc.) information processing (computer specialists, ICT specialists, subject specialists from different professions), information dissemination and communication (mass media, TV, radio and print), publishers (books and periodical), libraries of all types and information centers and other information institutions, information transfer (telecommunications and networking services), information institutions of all types as gateways to and depositories of information.

But the bigger question is in a given country, who will or which institution(s) has the mandate to study the NII and plan for its development? Who should coordinate the different information programmes and activities in a country, given that information cuts across all sectors and is in fact everybody's business? Is it practical to think of one superbody or should it be a collegial body? Is it practical to think of one national information policy or should it be a set of policies? Whatever route is taken, it is important that information policies cover the healthy development of all the three distinct segments of the information sector:

- one concerned with the **creation** of the information in the content sector;
- one concerned with the **delivery** of the information;
- and the other concerned with information **processing**.

Once we know what sort of NII and information products and services exist and are available, and who are responsible for them, then we are ready to look at the next topic.

4. Development Programmes

Development programme can be limited to the goal of the parent institution or to the broader goal of development of the whole country. However, I shall focus this discussion to the latter, because we are particularly interested in the development of NII in your respective countries.

The best guide for having a good overview of the country's national development programme is the **national development plan**, which is usually done in a 5 or 6 year cycle. That plan usually covers different aspects of a national life addressing concerns of its population in education, its economic (micro- & macro- levels), social and cultural development.

If we then analyze the kinds of information support required by each and every activity/project in the national development programme, and match them against the existing NII and services, it will then be possible to assess the adequacy or inadequacy of the existing ones, identify their strengths and weaknesses, and the gaps that exist.

Information programmes must clearly be seen to contribute significantly to the development process, otherwise it will be difficult to mainstream information in the country's national development programme.

Information products and services must support projects and activities in key priority areas identified in the national development programmes. Information support mechanism must also be able to improve the collection of reliable information and data for planning, monitoring and review of government programmes.

5. Conclusion

In all these important developments over a span of five decades, UNESCO has played a significant role in laying the foundations for the development of libraries, archives, documentation and information centers - the whole range of information institutions and processes to support national development. Some countries have been quick to adapt and use them to their countries' advantage, others have not. I am tempted to say that those who have are now well ahead and better off. As we move towards the 21st century, UNESCO's Communication Sector will be with you to walk you through the process, as countries shift towards information societies, allow their citizens to gain advantage and benefit from the emerging truly global information society.

Thank you.

11TH ASTINFO CONSULTATIVE MEETING AND REGIONAL SEMINAR

TEHRAN, MAY 1997

AUSTRALIAN COUNTRY REPORT AND STATUS REPORT ON NATIONAL INFORMATION INFRASTRUCTURE

1. INTRODUCTION

The National Library of Australia has operated as the ASTINFO Coordinating Unit for Australia since July 1984, when it was so designated by the Australian Government.

2. ASTINFO-UNESCO ACTIVITIES, 1995-97

a) ASTINFO Document Delivery Project

The National Library of Australia continued to provide a UNESCO-subsidised document supply service to ASTINFO member countries. As foreshadowed at the previous ASTINFO Consultative Meeting, the NLA managed the orderly cessation of the project during late 1996/early 1997 in order to have the project concluded on schedule by June 1997. The determination of this schedule of cessation was made on the basis of an estimate of when the UNESCO/PGI funds for the project would be exhausted. Due to a late increase in the levels of usage experienced by the scheme, the UNESCO funds ran out earlier than expected. As a result the project experienced a cost over-run of approximately \$US11,000. The National Library of Australia has decided to absorb these additional costs.

A full report on the operation and cessation of this project is provided separately.

b) Document Delivery and Resource Sharing Activities

The ASTINFO Work Plan 1996-1997 lists a variety of activities which were expected to involve the NLA:

- The NLA is a participating library in the IFLA Interlibrary loan voucher scheme. In tandem with the cessation of the ASTINFO document delivery project the NLA distributed information to participating libraries on the use and operation of the IFLA voucher scheme. The NLA would like to commend to the consideration of this Consultative Meeting a proposal that Coordinating Units in each ASTINFO member country similarly become participants in the IFLA voucher scheme. In this capacity ASTINFO Coordinating Units could procure bulk supplies of IFLA vouchers and on-sell them to libraries in their own country in their local currency, together with information on how the scheme operates. The advantage of such an approach would be that it would act as a replacement international interlending voucher scheme for those libraries that had become familiar with using the ASTINFO vouchers. It would also avoid the necessity for individual libraries to negotiate foreign currency exchange transactions whenever the wish to use international document supply services.

- The proposal in the 1996-97 Work Plan that the NLA run a 3-day workshop on document delivery services at ISTIC in China was discussed when ISTIC representatives visited Canberra in 1996. Although the NLA indicated an in-principle willingness to run such a workshop, providing ISTIC covered in-country costs and providing funding for an airfare could be found, the matter has not been pursued by ISTIC. The NLA takes this opportunity to reiterate its in-principle willingness to run such a workshop providing the above conditions are met.
- The Work Plan proposal that the NLA provide a resource person to run a workshop in Indonesia on the development of information technology in the Asia Pacific did not eventuate. PDII-LIPI is listed in the work plan as the responsible organisation for this project, with funding to come from the Indonesian national budget. The NLA assumes that, because it has not been approached on this matter by PDII-LIPI, the proposal is not considered to be a priority by the Indonesian Government.
- The Work Plan proposal that the NLA provide a computer programme on its document delivery service which could provide direct access to that service by the Library of the Bank of Thailand has been overtaken by other developments. The NLA now offers speedy international networked access to its document supply facilities through its Internet-based SUPPLY 1 service. The Bank of Thailand Library and all other libraries in the region are encouraged to make use of SUPPLY 1. SUPPLY 1 brochures have been distributed to libraries which participated in the ASTINFO Document Delivery Project and are available upon request from the NLA.

c) Memory of the World Programme

The NLA has since 1994 been actively involved in the UNESCO Memory of the World programme. Dr Jan Lyall, Director of the NLA's National Preservation Office, coordinated the preparation of guidelines for this important and ambitious programme. These guidelines were accepted by the UNESCO General Congress in October 1995 and subsequently published. Jan Lyall also coordinated, under the umbrella of Memory of the World, a world wide survey to examine current preservation activities and to identify significant documentary heritage. The results of this survey were made available by UNESCO in early 1997. Jan Lyall was Keynote Speaker at the First Memory of the World Conference held in Oslo, Norway in June 1996. More than 150 participants from 65 countries, including several Asian countries, attended this Conference, the proceedings of which are available free of charge from UNESCO PGI in Paris and also electronically (http://www.unesco.org/cii/mdm/en/index_mdm.html).

The Memory of the World programme will operate in a manner similar to the World Heritage Convention. Documentary heritage is to be nominated to an international committee for listing on a World Register. Strict selection criteria are to be applied and only material deemed to be of international significance will be placed on the Register. Once on the Register projects aimed at preserving and providing access to this internationally significant documentary heritage can be undertaken. In many cases these projects will involve digital reformatting of the original material. Funds to carry out the projects may come from UNESCO or from other sources. It is anticipated that preservation projects for documentary heritage materials on the UNESCO World Register will have an increased chance of gaining access to both commercial and

government funding. This is because listing on the Register will confirm international recognition of the significance of the documentary heritage in question.

3. INTERNATIONAL COOPERATION

The National Library of Australia is currently reviewing its international collaboration and cooperation activities with a view to developing a new conceptual and strategic framework for these activities. A draft mission statement for these activities states that the NLA will:

By engaging and collaborating with international stakeholders, play a leading role in developing and continuously improving national, regional and international cooperative library infrastructures which deliver quality short and long term access to information.

Major activities for 1996-97 have included:

- continuation of the Library's Regional Cooperation Program, including the provision of assistance to regional libraries in the form of book gifts, sponsorship to BISA training courses at the University of New South Wales, etc
- continuation of support for the core programs of IFLA, including maintenance of the IFLA Preservation and Conservation (PAC) Centre for South East Asia and the Pacific and active involvement in the IFLA Regional Standing Committee for Asia and Oceania;
- continued participation in the feasibility analysis stage of the Australian Library and Information International Services (ALIIS), a joint venture with IDP Education Australia aimed at promoting and facilitating the commercial involvement of Australia in the development of library and information services in the Asian region;
- continued participation, with the Australian National University, in a cooperative venture to prepare Vietnam for access to the Internet;
- commencement of a project to provide the Papua New Guinea Office of Libraries and Archives with facilities and training to gain access to the Internet;
- provision of the Secretariat for the Conference of Directors of National Libraries of Asia and Oceania (CDNLAO);
- compilation of a directory of libraries and archives in the Pacific Islands to be published in hardcopy and made available over the Internet during 1997 with the cooperation of the Asia-Pacific Special Interest Group of the Australian Library and Information Association;
- hosting in March 1997 the 4th international meeting of experts to consider the further development and implementation of the 'Dublin Core' set of standard metadata elements for the description and discovery of networked electronic documents; and
- continued operation of the Library's regional liaison office in Jakarta. In late 1996 the Library appointed Oliver Mann to head the regional office for the next three years, following the completion by Amelia McKenzie of her three year appointment to the position.

4. STATUS REPORT ON NATIONAL INFORMATION INFRASTRUCTURE

a) Governmental Structure and National Policy Regime

At the present time Australia does not have a National Information Policy, nor does it have a nationally coordinated government level approach to the development of national information infrastructure such as is currently being pursued in the United States, Canada, Singapore and the European Community. Despite this lack of overall national coordination, there has nevertheless been a lot of activity in field in recent years. A variety of reports have been produced by a number of government agencies and Councils charged with partial responsibility for the development of national information infrastructure. Some recent reports of relevance include:

- *The Networked Nation*; Australian Science and Technology Council, 1994
- *Networking Australia's Future*; Broadband Services Expert Group, 1994
- *Clients First – the Challenge for Government Information Technology*; Information Technology Review Group, 1995
- *Australia's Science and Engineering Base for Information and Communications Services and Technologies*; Australian Science and Technology Council, 1995
- *Rural Australia Online*; Roger Buckeridge, 1996
- *2020 Vision: Towards the Libraries of the Future: a strategic agenda and policy frame work for Australia's State and public libraries*; Cultural Ministers' Council Libraries Working Group, 1996
- *Management of Government Information as a National Strategic Resource*; Information Management Steering Committee of the Office of Government Information Technology, 1997.

[N.B. Most of these reports are available electronically through the NLA's World Wide Web site at <http://www.nla.gov.au/lis/govii.html#oz>]

Each of these reports made recommendations regarding further development and improvement of elements of the national information infrastructure. Some of these recommendations have been adopted, while others have either been shelved or overtaken by events. A complex variety of government or semi-government instrumentalities have responsibility for the development of components of the national information infrastructure and the policy framework which informs the process. These include:

- The Office of Government Information Technology (OGIT) – has responsibility for guiding the management of Commonwealth Government information technology and information resources, including the provision of advice on policy and infrastructure regarding public access to government information.
- The Information Policy Advisory Council (IPAC) – a high-level Commonwealth Government advisory body on online information and communications services and technologies. Managed by the Department of Communications and the Arts, IPAC provides advice on the full range of social, technological and regulatory issues related to the development and use of online services, particularly the Internet.
- The Online Government Council – a Commonwealth/State Ministerial body charged with responsibility for ensuring a nationally coordinated government policy regime for online communications and electronic information service delivery.

- Department of Communications and the Arts – Information and Communication Services Branch
- Australian Telecommunications Authority (AUSTEL) – regulatory body
- Libraries Working Group of the Cultural Ministers' Council
- The National Library of Australia
- The Australian Research Council (ARC)
- The Australian Science Technology and Engineering Council (ASTEC)
- The Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Standards Australia
- Australian Bureau of Statistics
- Australian Government Publishing Service (AGPS)
- Office of Government Information and Advertising (OGIA)
- The Australian Archives
- The Australian Vice-Chancellors Committee (AVCC)

In addition, a number of Non-Government Organisations have a close interest in the development of the national information infrastructure. These include:

- The Australian Council for Libraries and Information Services (ACLIS)
- The Australian Library and Information Association (ALIA)
- The Council of Australian University Librarians (CAUL)
- The Council of Australian State Librarians (CASL)
- The Australian Academy for the Sciences
- The Australian Academy of Technological Sciences and Engineering
- The Australian Academy for the Social Sciences
- The Australian Academy for the Humanities
- The Australian Publishers Association
- Australian Council of Archives
- Australian Society of Archivists

Examples of key Commonwealth Government legislation which govern the operation of the national information infrastructure include:

- Freedom of Information Act, 1982
- Archives Act, 1983
- National Library of Australia Act, 1960
- Copyright Act, 1968
- Privacy Act, 1988
- Telecommunications Act, 1991

b) Technical Infrastructure Supporting Networked Communications and Electronic Information Systems

The telecommunications infrastructure for data transmission in Australia currently operates at two tiers. The capital cities enjoy access to good quality technical infrastructure with high bandwidth voice, fax and data transmission services via satellite, optical fibre cable and cellular networks. At a minimum this consists of ISDN links of 64,000 bits per second. In comparison, rural and regional areas of Australia are disadvantaged in that, for the most part, they have access only to lower bandwidth data communications facilities. This issue is currently being addressed by some of the government agencies listed above.

Access to the Internet in Australia was initially managed by the AARNet consortium which was owned by the Australian Vice-Chancellors Committee (AVCC). Recently, however, AARNet was sold to Telstra, the major telecommunications carrier. In international terms Australia enjoys one of the highest per-capita levels of connectivity to the Internet. Most medium to large organisations and enterprises maintain World Wide Web sites and provide their staff with Internet Access facilities. A high proportion of private individuals also have access to the Internet from their homes through a network of commercial Internet Service Providers. A rapidly growing proportion of public libraries are providing free public access facilities to the Internet.

c) Library Services Infrastructure

Australians are well served with access to library services. There exist some 460 public library systems operated at local government level, with a total of 1400 service points offering lending and reference facilities. In addition there are a large number of school, technical college, university, special and State libraries. There are currently 4,500 professional members of the Australian Library and Information Association (ALIA), most of whom are graduates of one of Australia's 12 professionally accredited library training schools. Most of these schools also offer continuing education options for librarians who are already qualified. In addition to the 4,500 professional members of ALIA, there would also be a large number of working professional librarians who are not members of ALIA, and thousands of library technicians and other library para-professional staff.

Probably the major technological component of Australia's national cooperative library infrastructure is the Australian Bibliographic Network (ABN). ABN was launched in 1981 as the national bibliographic utility to provide copy cataloguing products for member libraries and to provide a national online location/union catalogue. ABN also has an interlibrary loans sub-system. The database contains over 12 million bibliographic records and over 25 million holdings records. A network of international bibliographic exchange agreements enables ABN to regularly load cataloguing records from bibliographic agencies in the US, Canada, the UK and elsewhere. Since 1991 users have been able to access ABN via the Internet.

Australia has a well developed decentralised system of document supply and interlibrary loan. The existence of ABN greatly assists in the operation of this system by providing a national union list of library holdings. Nevertheless, the Australian document supply system, which is based on a redeemable voucher system of recompense, is far from perfect. There are few incentives in the system for the provision of documents and there is some evidence that the system as a whole does not perform to optimum capacity. This is reflected in the popularity of international rapid document supply services such as CARL Uncover.

While the National Library of Australia has a statutory mandate to exercise national leadership and coordination responsibilities on behalf of the Australian library industry, there is no central authority with overall responsibility for planning and directing library services. A factor that mitigates against coherent national planning in Australia is the power of the State governments *vis a vis* the Commonwealth

government and the consequent need to operate cumbersome Federal/State consultative mechanisms in pursuit of national consistency in policy and practice.

The NLA has recently released a draft operational plan for its national coordination activities. This plan states that the NLA's mission for national coordination is:

By collaborating with Australian and international stakeholders, and by participating in the development of government policies, play a leading role in developing and continuously improving a national cooperative library infrastructure which delivers quality short and long term access to information and Australian cultural heritage resources.

Major strategies identified in the national coordination plan are:

1. Participate in the development of those government policies which will strengthen the national cooperative library infrastructure.
2. Collaborate on the development, promotion and implementation of standards required to support an effective national cooperative library infrastructure.
3. Collaborate with the international library community to support and enhance both national and regional information infrastructures.
4. Collaborate with libraries, museums and archives on the management of access to and preservation of Australian information in digital form.
5. Collaborate to improve network access to information in library collections and to integrate this with access to information in electronic formats.
6. Improve the mechanisms for consultation with stakeholders and promotion of the Library's national coordination activities.

To assist in the pursuit of these strategies the NLA has recently established a new National Initiatives and Collaboration (NIAC) Branch within its Services to Libraries Division. Under the umbrella of the above strategies the NIAC Branch will continue to give a high priority to the pursuit of a national preservation strategy and continuous improvement in the efficiency of the 'Distributed National Collection'. A major coordination activity pursued as a part of the 'Distributed National Collection' is the maintenance and development of the Australian Conspectus Project as a means of promoting cooperative collection building and access to information.

Other technologically-based initiatives aimed at improving the national information infrastructure which are currently being pursued by the NLA include:

Support for national networked services

In December 1996, the Library terminated its National Document and Information Service (NDIS) project, which it had been managing jointly with the National Library of New Zealand. The NDIS project, which was the subject of a Request for Tender in October 1993, was a major task involving considerable systems development.

The Library has decided to base its future computer-based information services, in support of its strategic directions, on products and services which are available in the marketplace. The redevelopment of the Library's networked services is aimed to minimise future systems development and operations costs, based on a development path which is sufficiently flexible to take advantage of marketplace developments.

Through its Networked Services Project (NSP), announced in January 1997, the Library intends to redevelop its networked services in specific modules in the short to medium term, within an overall architecture and functionality set consistent with its business directions. Stage 1 of NSP (<http://www.nla.gov.au/nsp/rft/>) seeks to replace the current functions supported by the Australian Bibliographic Network. Specifically, Stage 1 is tendering for:

- a National Bibliographic Utility system;
- a Cataloguing Client;
- a Gateway Server (HTTP/Z39.50 Gateway);
- a National Interlibrary Loan Utility system; and
- an Administrative Support System

in addition to an in-house Library Management System, if this can be associated with tenders for the National Bibliographic Utility.

The Stage 1 Request for Tender was issued on 24 March 1997, with a response deadline of 19 May 1997. The Library is aiming to complete the acquisition of a new system and to commence implementation by the end of 1997.

Stage 2 of NSP is intended to deal with services such as hosted database support, a metadata server, a digital object server, and indexing support. In addition, the Library is cooperating with the AVCC on a separate tender process in relation to the CILLA (Coordinated Interlibrary Loan Administration) Project. CILLA aims to automate as much as possible of the internal procedures relating to document delivery and interlibrary loan operations, and to place work flow management on an equal footing with application and useability.

The principal high level strategies relevant to the NSP in all its stages are to:

- Support Australian libraries and their users by providing infrastructure through which library and information resources in Australia can be identified, located and accessed;
- Support cooperative collection development in Australian libraries by maintaining a national union catalogue of resources held in Australian libraries;
- Take advantage of the increasing amount of information available in electronic form by facilitating electronic document access and delivery;

- Improve the infrastructure supporting interlibrary lending and document delivery to Australian libraries and their users; and
- Maximise access to the Library's own databases and collections, including those parts of the collections which are in digital form, including text, images, sound and multimedia objects.

Union Catalogue Profile

During the last year the Library has contributed to the development of an international Union Catalogue Profile based on the Z39.50 protocol. The idea behind this standard is that there need only be one client configured on a work station that is capable of updating both the local system and a union catalogue such as a national bibliographic database. Libraries contributing to a union catalogue would require a cataloguing system that could update both their own local catalogue and the union catalogue in one operation.

The initiative for this development came from Janifer Gatenby of Stowe Computing, a member of Standards Australia Committee IT/19, which is responsible for library automation standards. The profile was presented at an IT/19 meeting in July 1996. It was subsequently published on the Web for international comment, and presented to the international Z39.50 Implementors Group (ZIG) meeting in Brussels in October 1996, where it was well-received. A revised version of this standard (Version 2, March 1997) is available on the Web at <http://www.nla.gov.au/2/abn/ucpzdrtf.html>. The Library has sought compliance with this standard in relation to the Cataloguing Client within the Stage 1 NSP Request for Tender.

The Australian Bibliographic Network (ABN) and related developments

The age of the ABN software platform and its lack of a Z39.50 World Wide Web interface has prompted the NLA to examine options for a complete redevelopment of its various bibliographic facilities. The Network Services Project, which is described above, will incorporate a redevelopment of the Ozline suite of Australian content bibliographic databases which index aspects of Australian journal literature.

The Library continues to offer ABN and Ozline services (<http://www.nla.gov.au/2/abn>) to around 1400 Australian libraries. The Library has announced that the current leased line SNA network will come to a close at the end of 1997, and no new leased lines are being installed. All new full service users are using the Internet to access ABN/Ozline services.

Since March 1997, the Library has provided sales and technical support for the Ariel for Windows 2.0 software, developed by the JEDDS (Joint Electronic Document Delivery Software) project. This product supports the scanning and transmission of document images across the Internet using either electronic mail or Internet FTP standards.

The Library is now also supporting a product called TCP3270, which offers improved features over present access arrangements, such as session capture, support for the

ALA character set (replacing the need for Gravity terminals), and compatibility with CASPAR which captures, sorts and prints ILL requests. The Library is encouraging dial-up and leased line users to make use of this product in their change over to Internet access to ABN.

The National Bibliographic Database (NBD) continued to grow steadily, through the online activities of ABN users and through special file loads. In February 1997, the number of holdings on the NBD passed 25 million. Noteworthy contributed files included 700,000 MARC records from the University of Queensland, and 100,000 MARC records from the State Library of Queensland. The *Vietnamese National Bibliography* data is once again being loaded to the NBD, following a five year gap since BISA withdrew from its previous role in this project. The data is being converted directly to USMARC format, using a program specified jointly by the National Libraries of Australia and Vietnam.

The National Library's World Wide Web Site

The National Library maintains a content-rich Web site (<http://www.nla.gov.au>) which includes information about:

- the Library's collections – including overview information, images of items from the Pictorial collection, finding aids for hundreds of the Manuscript collections, and a link to the Library's online catalogue;
- links to Australian electronic journals;
- events and exhibitions, including electronic versions of two of the Library's recent exhibitions;
- services to the library community, including information about network services (ABN, Ozline, National CJK Service, Document Supply Service, etc.) and liaison and coordination activities;
- policies and plans, including the Library's strategic plan, operational plans, collection development policies, submissions and discussion papers;
- an entry point to the Web sites for other Australian libraries (state, public, university and special) and many other library related organisations;
- an entry point to the Web sites for Australian, State and Local Government agencies; and
- links to a large number of Web navigation aids and search tools.

The Library's Web site aims to be an excellent starting point for the discovery of information about Australia.

During 1996, the Library examined the future of its Web site, and has confirmed a plan for the development of the site. This plan addresses issues such as the development of access to the Pictorial, Oral History and Manuscript collections; the selection and

preparation of documents for mounting on the site; the possible establishment of a PURL resolver service for Australian library-related Web sites; and the trial of new technologies such as Java language development tools.

Digital projects

To add value to its Web site and to improve access to its Australiana collections, the Library is currently undertaking a number of digitisation activities. For example, it is:

- building on its recently introduced *IMAGES 1* service by routinely digitising all new pictorial acquisitions;
- digitising around 90% of the articles indexed by the Australian Public Affairs Information Service and Australian Medical Index;
- participating, with three other organisations, in a project (the Australian Cooperative Digitisation Project) to digitise materials in the Ferguson collection, published between 1840 and 1845; and
- converting its Oral History Collection from analogue to digital format.

Two of these activities are described in more detail below.

Images 1

The Images 1 database (<http://www2.nla.gov.au/imagecoll/>), launched in July 1996, contains more than 14,000 images of works of art, including watercolours, paintings, drawings, prints and photographs. It constitutes a sample of the images available in the National Library's Pictorial Collection.

The Images 1 database includes digitised versions of all the original portraits in the Pictorial Collection. In addition to these portraits (which include a large collection of caricatures), a selection of photographs by well known Australian photographers, portraits of all the Australian Prime Ministers and all the original works by Augustus Earle in the National Library's collection were scanned.

These original works of art were digitised using PhotoCD technology. The PhotoCD master was used to create low resolution copies for inclusion in Images 1. The images are available online in two formats: thumbnails (up to about 192 x 128 pixels) and default (up to about 762 X 512 pixels).

Australian Cooperative Digitisation Project, 1840-45

This collaborative project (<http://www.nla.gov.au/ferg/fergproj.html>) is aimed at enhancing literary and historical research through the digital conversion of significant nineteenth century Australian material. The project is being undertaken by the University of Sydney Library, the State Library of New South Wales, Monash University Library, and the National Library. The focus is on serial and fiction publication in the period 1840-45, a time marked by an emerging sense of Australian identity.

The project will:

- provide a unique resource infrastructure for research in nineteenth century Australian studies;
- support network access to material presently confined to a few major library collections;
- act as a benchmark technical project, which may provide the basis for future projects in Australia;
- function as an integrated technical process of preservation microfilming, digital scanning, network access (with CD-ROM contingency), and optical character recognition (OCR) conversion of selected texts; and
- provide full-searchable text for fiction published in the period.

Further digitisation

The Library has given some consideration to its priorities for further digitisation. In general, it will:

- give a high priority to digitising unique Australiana, including its "treasures";
- give a high priority to materials that have not yet been made accessible through publishing activities;
- for some material, routinely digitise at the point of acquisition;
- for retrospective digitisation projects, adopt a coherent approach which embodies whole collections or themes;
- take into account any preservation benefits that result from digitising particular categories of material;
- be influenced by the opportunities for collaboration with other institutions; and
- consult with current and potential user groups to assist in determining priorities.

More information on the Library's digitisation activities may be found on the Web at <http://www.nla.gov.au/nla/staffpaper/pgatenby1.html>

Australia's Cultural Network (ACN)

The project now known as "Australia's Cultural Network", the first stage of which was funded in the 1996 Commonwealth budget, will aim to improve access to the collections of Australia's major cultural institutions, and through them to the heritage, history and experience of Australians. More information on the ACN may be found at <http://www.dca.gov.au/responsi/acn.html>

It is envisaged that the ACN will be a vehicle for funding the digitisation of content, through the creation of exemplar databases containing text, still images, moving images and sound files, and representing key collections in the cultural institutions. It will also support access to the newly created (and existing) content, through provision of a single entry point and through development of a cross-sectoral indexing and search infrastructure. This will be a challenging task which will probably require the involvement of leading researchers in Internet resource discovery services.

In March 1997 the Library submitted bids for a number of ACN projects. These included bids for the development, in collaboration with other cultural institutions, of online interactive exhibitions covering the topics of Federation and Australia in the 1950s. The other bids were to improve the infrastructure for access to ACN resources, including access to Australian library information on the Internet, and to information about the preservation of digital information.

Electronic publications: policy issues

During 1996, the National Library drew attention to policy issues associated with Australian electronic publications, and especially on issues related to guaranteeing long term access to these resources. The National Preservation Office was a catalyst for the development of a *Draft statement of principles on the preservation of and long-term access to Australian digital objects* (<http://www.nla.gov.au/3/npo/natco/princip.html>). These principles were developed following consultation with organisations represented at the Preservation of Digital Objects workshop and the Preservation of Australian Digital Information Working Party.

The Library also released, in October 1996, a discussion paper on a *National strategy for provision of access to Australian electronic publications* (<http://www.nla.gov.au/policy/paep.html>). The purpose of the paper was to initiate debate on the issues raised by electronic publishing, particularly to the issue of guaranteeing current and longer-term access, and to invite comment which may lead to collaborative approaches to resolution of the many challenges presented by the new media

The Library, in collaboration with other institutions and with the support of the Australian Vice-Chancellors' Committee, has established the PADI (Preserving and Accessing Digital Information) Web site at <http://www.nla.gov.au/dnc/tf2001/padi/padi.html>. The goal is to ensure that digital information is managed with appropriate consideration for preservation and future access.

PANDORA – Preserving and Accessing Networked Documentary Resources

With the increasing amount of material being produced by online electronic publishing, issues concerning the long-term access and permanent archiving of such materials are creating great concern in academic and research communities throughout the world. In Australia, many of the parties with a stake in access to digital publications are attempting to understand the issues involved and to develop strategies to deal with them.

PANDORA is a project initiated by the National Library of Australia to investigate strategies for the storage, preservation and access to digital data in the context of the creation of an electronic archive of library materials. This study is being funded in part by the Australian Vice Chancellors' Committee (AVCC) Working Group on Electronic Publishing.

The Library is committed to preserving selected electronic publications of lasting cultural value for access by the Australian community now and in the future. For some months, the Selection Committee on Online Australian Publications (SCOAP) and

the Electronic Unit have been assessing online electronic materials to identify those that we think have national significance and should be preserved by the Library. Guidelines for Selection have been published

Some initial work has been done on experimenting with ways of cataloguing, organising and managing Australian online electronic publications so that their existence is visible to potential users. A listing of *Australian electronic journals* by the National Library is a result of this.

The PANDORA project will capitalise on staff skills and expertise that have been already developed in handling and understanding the complexities of managing electronic publications. We are interested in covering the full range of materials published online in Australia – including serials, newspapers and books, as well as unique online formats like 'home pages'.

The overall goal of the PANDORA project is to develop and implement procedures for the capture, archiving and provision of long term access to online electronic Australian publications selected for national preservation.

Strategies for achieving this goal are to:

- identify the functional requirements for a management and preservation system
- identify, test and evaluate a range of technical methods, standards and products involved in the preservation process, including capture, cataloguing and archiving
- estimate the financial, equipment and manpower resources required for the ongoing management of publications selected for national preservation
- develop recommendations and strategies for the long term preservation of and access to publications selected for national preservation, including considerations of data refreshment, reformatting and migration to counter obsolescence or loss
- develop a proposal for a national approach to the long-term preservation of these publications.

Metadata developments

The Library is keenly aware that improved access to electronic resources on the Internet will require consensus on an agreed international set of metadata elements, and widespread commitment to adopt such a standard and create metadata for these resources. The Library cooperated with OCLC and DSTC (Distributed Systems Technology Centre) to host the Fourth Dublin Core Workshop in Canberra in March 1997. Dublin Core is the metadata standard which appears to have the most widespread international support and commitment. The Canberra workshop dealt largely with the difficult issue of how to keep the standard reasonably simple and straightforward while also supporting the needs of users who require precise searching on certain elements. The Workshop made progress on the syntax of the elements (how to express them in HTML) and how to extend Dublin Core to provide for local or sectoral needs.

The Library also held a National Metadata Seminar in March 1996, to give the opportunity to a large Australian audience to hear first hand from the international experts who are working on Dublin Core and related standards. In April 1997, the Library was developing a plan of action to support and encourage the deployment of appropriate metadata by Australian Internet content creators.

5. CONCLUSION

Australia is fortunate in enjoying a well developed and relatively well funded national information infrastructure which has the capacity to tackle emerging issues in networked information provision. Nevertheless, the current situation regarding policy coordination of the infrastructure is far from perfect. Much more progress needs to be made towards the goal of a nationally coordinated strategy for national information infrastructure development.

11TH ASTINFO CONSULTATIVE MEETING
3-8 MAY, 1997
IRAN

COUNTRY REPORT : BANGLADESH

Dr. Md. Lutfur Rahman
Director, Bansdoc, Dhaka.

1. INTRODUCTION :

The Government of Bangladesh is committed to the promotion and application of science and technology for the socio-economic development of the country. This commitment is well-manifested in the recent creation of a separate Ministry of Science and Technology, enhanced allocation for R&D activities, undertaking S&T manpower development programmes and projects, initiation of development programmes and projects for strengthening scientific and technological capability of the country.

The National Science and Technology Policy, announced in 1986, envisages that a strong S&T information base is a prerequisite for attaining scientific and technological capability. The Policy provides for a 3-tier national S&T information system with Bangladesh National Scientific and Technical Documentation Centre (BANSDOC) as the apex organization (1st tier), 4 sectoral documentation centres at the 2nd tier (the sectors being Physical Sciences, Agricultural Sciences, Medical & Biological Sciences and Engineering & Technology) and all the institutional libraries and documentation centres at the 3rd tier.

A. The Central Documentation Centre : The Central Documentation Centre BANSDOC, will have, among others, the following facilities :

- (a) Centralised storage and cataloguing facility,
- (b) Central physical facility for online computer connections and documentation,
- (c) Liaison with various national, regional and international documentation agencies.

B. The Sectoral Documentation Centres : There will be four sectoral documentation centres to deal with the following subject areas :

- (a) Physical Sciences -to include documentation facilities for all physical, chemical, mathematical, statistical and nuclear subject areas,
- (b) Agricultural Sciences -to cover agriculture, livestock, fishery, forestry, food and nutrition, etc.

- (C) Medical and Biological Sciences -to include all medical, health, biological and public health areas.
- (D) Engineering and Technology -to include all engineering subjects, architecture, planning, energy, environment, housing, communication, transportation, water resources, etc.

These sectoral documentation centres will have independent facilities for storage, documentation, copying, microfilm/microfiche and so on in their respective areas. These four sectoral centres will be linked together directly and through the central documentation centre.

- C. **Institutional Libraries and Documentation Centres :** Each individual scientific institution (research and/or educational) will have its library and documentation facilities in the respective subject areas. These libraries and documentation centres will perform the function of collecting and documenting basic local information in their respective subject areas and feed the same to the respective sectoral documentation centre and ultimately to the central documentation centre for permanent documentation and international exchange.

2. CURRENT STATUS OF S&T INFORMATION SYSTEMS AND SERVICES IN BANGLADESH :

Bangladesh has now about one hundred specialised libraries and documentation centres in the field of science and technology. These are attached to different Universities, Research Councils, Industrial Corporations, Institute of Technologies and various Medical and Agricultural Colleges.

The Bangladesh National Scientific and Technological documentation Centre (BANSDOC) is the apex organization of the scientific and technological information system in the country. Besides BANSDOC, there are some sectoral information/documentation centres, namely,

- (a) Agricultural Information Centre (AIC) to cater mainly to the needs of the users in the field of agriculture, livestock, forestry fishery etc.
- (b) National Health Library and Documentation Centre (NHLDC) providing services mainly to the users in the field of medical, health and biological sciences.
- (c) The Library of the University of Engineering and Technology providing services to the users on all branches of engineering and technology.

It may be of interest to mention here that the Library of Dhaka University, Agricultural Information Centre (AIC), National Health Library and Documentation Centre (NHLDC) and the Library of the University of Engineering and Technology have been designated as the sectoral documentation centres on Physical Sciences, Agricultural Sciences, Medical and Biological Sciences and Engineering and Technology respectively as per a provision of the National Science and Technology Policy, announced in 1986.

2.1 Bangladesh National Scientific and Technical Documentation Centre (BANSDOC).

2.1.1 Aims and Objectives of BANSDOC :

The principal aim of BANSDOC is "to serve as an infrastructure for supporting effective Research and Development (R&D) programmes for the socio-economic development of the country". In assuming its role as a central national organization it has been entrusted with the responsibility of :

- (a) Collection, processing and compilation of information and data in all fields of scientific research and experimental development including natural sciences, agriculture, medicine, engineering and industrial technology.
- (b) Dissemination of such information to researchers active in all these fields irrespective of their affiliation.
- (c) Assistance to scientists in establishing contact with scientists working in similar fields in other countries of the world.

2.1.2 BANSDOC Activities and Services :

BANSDOC has been rendering a host of essential services to meet various categories of its users, namely, students, scientists, technologists, industrialists, planners, policy-makers, decision-makers and others with the ultimate goal of socio-economic development of the country. The services include:

2.1.2.1 Document Procurement Service :

The most important service offered by BANSDOC is the procurement of documents from home and abroad. Under this service BANSDOC, on request, endeavours to locate and procure copies of scientific paper published anywhere in the world. In the first instance, BANSDOC attempts to locate the paper requested on the resources available in the libraries of the country. For this purpose it maintains a National Catalogue of Scientific and Technological Periodicals holdings of the libraries in Bangladesh. In case the required document is not available locally, BANSDOC procures it from abroad, mostly from National Library of Australia (so far through UNESCO sponsored PGI/ASTINFO Document Delivery project at no cost), British Library Document Supply Centre (BLDSC) and Indian National Scientific Documentation Centre (INSDOC). Payments are made in UNESCO dollar coupons. The number of requests for research papers from research workers are constantly on the increase. Of the total requests only about 20% are met from internal resources and the rest 80% from external resources.

2.1.2.2 Scientific Contact Service :

Through this service, BANSDOC helps researchers to make contact with scientists abroad actively engaged in the same field of interest.

2.1.2.3 Translation Service :

This service is operative on a limited scale with the help of a panel of translators available in the country in different languages. It may be mentioned that BANSDOC has no translator on its staff.

2.1.2.4 Bibliography Compilation Service :

BANSDOC, on request, helps the research workers by compiling lists of references to the published literature in their respective fields. Number of references in each bibliography varies from several dozens to several hundreds. List of BANSDOC bibliographies is available on request. BANSDOC also compiles and publishes bibliography on scientific and technological information materials of national importance.

2.1.2.5 Document Reproduction Service :

BANSDOC is equipped with microfilm, microfiche and photostat copying facilities. Whenever a document is available locally, BANSDOC borrows it and makes a microfilm or photocopy as desired by the requisitioner. Lengthy papers are procured from abroad in the form of microfilm and if necessary photostat copies are made in BANSDOC Reprographic Laboratories. Slides are prepared for seminars, symposia, conferences for the speakers, on request.

2.1.2.6 Library Service :

Library service has been enlarged and enriched after the merger of National Science Library with BANSDOC in 1986. Library information services are further enhanced every year with the addition of new books to its stock and by subscribing to new foreign journals and periodicals. It has now a total stock of about 17000 books on different branches of science and technology and subscribes to as many as 180 national and international journals and periodicals. BANSDOC library is kept open to its users for 10 hours from morning to evening everyday except Friday.

2.1.2.7 Computer Service :

With a view to collecting, storing and disseminating major BANSDOC services specially Documentation, Bibliography, Library, etc. Through creation of new databases, computer service has been introduced in BANSDOC. It provides print-out of documents stored in diskettes to its users. With a view to enhancing the capability of BANSDOC to provide quicker and effective services to its users modern information systems like Telex, Fax and E-mail have already been installed at BANSDOC.

2.1.2.8 Inter-Library Lending Service :

BANSDOC has access to all libraries of Bangladesh and is maintaining close liaison with these libraries. Introduction of inter-library lending system is underway with the initiative of BANSDOC. It has also been maintaining close contact with lending libraries of the world.

2.1.3 Some Important Publications of BANSDOC :

BANSDOC has been bringing out a number of publications on different topics of interest to the scientists, technologists, planners, policy-makers and decision-makers at the highest level.

Some of the publications are :

- (a) Directory of Scientists and Technologists of Bangladesh.
- (b) Bangladesh Science and Technology Abstracts.
- (c) Current Scientific and Technological Research Projects of Bangladesh.
- (d) National Catalogue of Scientific and Technological Periodicals of Bangladesh.
- (e) Science and Technology Information Newsletter (Current Awareness Service).
- (f) Directory of Scientists and Technologists of Bangladesh Living Abroad.
- (g) Survey of Research and Development (R&D) Activities in Bangladesh.

2.1.4 Cooperation Programmes :

2.1.4.1 With INSDOC (India) :

At present BANSDOC can meet only 20% of the total requests of its users from internal resources and 80% from external resources. BANSDOC meets about 30% of the total requests with documents received from INSDOC on payment. Usually the photocopy of a document upto 10 pages costs Indian RS 75.00.

Under an exchange programme concluded in 1987 between BANSDOC and INSDOC, 10 journals published in India are now being received by BANSDOC. BANSDOC, in turn, has been sending 10 journals published in Bangladesh to INSDOC under the same programme.

2.1.4.2 With UNESCO :

BANSDOC has been actively participating in the activities of the Regional Network for the Exchange of Information and Experience in Science and Technology in Asia and Pacific (ASTINFO).

The ASTINFO Work Plan, formulated on annual basis till 1991 and since then biennially, comprises mainly of proposals by member countries for workshops, courses, seminars, consultant missions, information services or facilities in relation to its

programme objectives to be implemented within the specified period at the national or regional levels.

An important project implemented by ASTINFO was its "Document Delivery Pilot Project" which was launched in 1989 with the aim of providing a cheap and efficient way for S&T libraries and institutions in ASTINFO member countries to obtain photocopies of current S&T literature from serials held by the National Library of Australia. The long term aim of this project was to improve and promote interlending between S&T organizations in each country and within the region.

BANSDOC is the ASTINFO Coordinating Unit (ACU) in Bangladesh and its Director is the ASTINFO Liaison Officer.

As was reported by the ASTINFO Document Delivery Project Officer in the 10th Meeting of ASTINFO Consultative Committee held in 1995 in Beijing, BANSDOC was the most frequent user of ASTINFO Document Delivery Service and met about 50% of its user requests with documents received from National Library of Australia (NLA) under the project. During the 1996, BANSDOC received as many as 924 documents out of a total 1423 requests.

Projects under UNESCO Participation Programme :

(a) Completed Projects :

BANSDOC implemented the following two projects under UNESCO Participation Programme during 1995-96:

- (1) Pilot Project on Community Information Services.
- (2) A Comprehensive Analytical Study of National S&T Information Infrastructures and Services in Bangladesh.

(b) New Project :

- (1) Pilot Project on Integration of Information, Communication and other Resources for the Development of Rural, Isolated and Depressed Areas.

Fund for the Project has not yet been released by UNESCO.

2.1.4.3 The British Library Document Supply Centre (BLDSC).

BANSDOC also receives photocopies of articles, on requests, from the British Library Document Supply Centre. Of course, the cost of photocopy service from the BLDSC is the highest so far. It is about US\$10 for an article upto 10 pages. An additional US\$10 is required for additional 1-10 pages.

The BANSDOC document delivery service is highly subsidised. It charges only TK.4.00 per page from the users. The annual expenditure of BANSDOC for this service

ranges from Tk.4 to 5 lakhs. Requests for photocopies of documents are generally sent in pre-paid photocopy request forms made in UNESCO dollar coupons.

2.1.4.4 With other Organizations.

BANSDOC has also been receiving continued assistance from many other organizations of the world, namely, Pakistan Scientific and Technical Information Centre (PASTIC), European Patent Office, Institute of Scientific and Technical Information of China (ISTIC), Japan Information Centre on Science and Technology (JICST), Federation of International Documentation (FID), European Community (EC), International Federation of Library Association (IFLA), ESCAP/APCTT, etc.

2.1.5 Development Projects of BANSDOC :

2.1.5.1 Development and Modernization of BANSDOC (1991-95) :

BANSDOC implemented one development project, namely "Development and Modernization of BANSDOC (1991-95)" at a cost of TK. 60.00 lakhs. Under this Project, 15 personnel including a Systems Analyst, a Programmer and a Librarian have been recruited. Fax and Telex systems have been installed and library facilities enhanced.

2.1.5.2 Automation and Networking of S&T Libraries in Bangladesh 1995-98 :

With the increasing number of information generators and users, there has been a growing problem of collection, processing, storage and dissemination of such massive information. The cost of providing service is higher mainly because of adoption of manual methods and duplication of investment in library holdings. The ultimate solution to overcome this problem is resource-sharing and networking.

The advent of digital computers and telecommunication technology has made possible the exchange and sharing of world's vast information resources among various countries in the shortest possible time.

To keep pace with other countries of the world Bangladesh should take immediate necessary action for automation and networking of the S&T libraries in the country for efficient and quick information service to the researchers. With this end in view, BANSDOC, as the central organization of the S&T information system in the country, has, therefore, undertaken a project on "Automation and Networking of Science and Technology Libraries in Bangladesh (1995-98)" at a cost of TK. 185.75 Lakhs.

Under this project 16 major S&T libraries in the country will be automated and brought under a computer networking system with BANSDOC as the Network Service Centre (NSC).

2.2 Agricultural Information Centre (AIC):

Agricultural Information Centre (AIC) was established by Bangladesh Agricultural Research Council (BARC) in 1988 to serve as the focal point of National Agricultural Information System (NAIS) in the country.

Some of the major objectives of AIC are to :

- (a) act as the custodian of nationally produced agricultural literature;
- (b) establish an agricultural Information network in the country by organizing a National Agricultural Information System;
- (c) set up information linkages among national, regional and international agricultural organizations to serve as a depository of regional and international agricultural literature;
- (d) publish valuable conventional and non-conventional agricultural literature to support education, research and extension work;
- (e) participate in regional and international agricultural information system such as SAIC, AGRIS, CARIS, AGRICOLA, etc.;
- (f) train agricultural information personnel in modern library services, computerization and information technologies etc.

Some of the activities of AIC are :

- (a) document delivery service ;
- (b) computer search of literature ;
- (c) creation of in-house database;
- (d) compilation of Bangladesh Agricultural Bibliography;
- (e) compilation of special bibliography, like Annotated Bibliography on Agro-forestry in Bangladesh;
- (f) Annotated Bibliography on Potato in SAARC member countries;
- (g) Procurement of world agricultural databases from AGRIS, CABI and AGRICOLA on CD-ROMS;
- (h) audio-visual media productions, view, slide-sound combinations, microfiche, photography, photocopying services;
- (i) SDI services.

The SAARC Agricultural Information Centre (SAIC) established in BARC campus collects agricultural information from SAARC member states and supplements the AIC effort.

2.3 National Health Library and Documentation Centre (NHLDC) :

National Health Library and Documentation Centre (NHLDC) was established in 1974 with the financial assistance provided by Asia Foundation to serve as an apex organization of the national network of health information system. The objectives of NHLDC are to :

- (a) provide necessary central library services ;
- (b) give leadership within the national health information system, and
- (c) participate in the planning and development of a national network to make the sharing of information resources and services more effective and efficient.

The audio-visual unit of NHLDC produces, on payment, polaroid prints, slides, photo-prints, histopathological photographs etc. for users. The library renders reference services to the users on all branches of medical science.

NHLDC is the national focal point (NFP) of the HeLLIS (Health Literature, Library and Information Services) network in the South-East Asia Region of World Health Organization (WHO). HeLLIS was originated in 1979 in New Delhi to strengthen the health science libraries of the countries of the region including Bangladesh by the year 2000.

NHLDC has compiled a Union List of Serials based on the holdings of the participating health science libraries within the country with the financial assistance of WHO/SEARO. It has also compiled Bangladesh Index Biomedicus, an author and subject index to biological literature published within the country from 1972 to 1986.

3. STATUS OF IMPLEMENTATION OF ASTINFO WORKPLAN 1995-96 BANGLADESH :

BANSDOC implemented a number of programmes and projects as included in the ASTINFO Workplan for 1995-96 formulated in its 10th Consultative Meeting held in Beijing in 1995.

3.1 National Projects :

3.1.1 National Seminar on Common Communication Format (CCF) :

BANSDOC has devised a Common Communication Format (CCF) for creation of computerised databases on different topics of interest. The seminar could not be organised due to delay in standardization of the CCF. Since the CCF has been devised by a group of experts in consultation with the librarians of the participating libraries, there is probably no need of organizing the seminar now. Different databases are now being created with the CCF.

3.1.2 National Union Catalogue of Serials :

About 9000 completed catalogues cards on S&T serials holdings of all the libraries of Bangladesh have already been collected. Database of all these serials is now being created by BANSDOC according to the CCF already devised.

3.1.3 Projects on Abstracting of R&D Reports :

BANSDOC is now preparing computerised database of abstracts of articles of all scientific and Technological periodicals of Bangladesh under the title "Bangladesh Science and Technology Abstracts".

3.1.4 Advanced Training Course on Micro-CDS/ISIS Use and Applications for Information Management :

This training course could not be conducted because of the non-availability of Micro-CDS/ISIS expert in BANSDOC. In the meantime two officers of BANSDOC have been trained on Micro-CDS/ISIS. It is expected that it will be possible to organise the training course in June-July 1997 with the help of an expert from Indian National Scientific Documentation Centre (INSDOC) under SAARC Documentation Centre (SDC) programme.

3.1.5 Seminar on Document Delivery System in Bangladesh :

BANSDOC has already established an efficient document delivery system in Bangladesh. There is no need of organizing this seminar now.

3.1.6 National Seminar on National Information Policy Towards Use of Advanced Information Technology

Since draft National S&T Information Policy is yet to be approved by the Government, the above seminar could not be organized.

3.1.7 Workshop on CD-ROM Technology :

The seminar is expected to be organized in October-November 1997.

3.1.8 Sub-regional Training/Workshop on Networking and Systems Interconnection :

The project was submitted to UNESCO for financing under its Participation Programme. But it has not been approved yet.

3.2 Regional Projects :

3.2.1 Sub-regional Training Workshop on Networking and Systems Interconnection :

BANSDOC submitted this project to UNESCO for inclusion in its Sub-regional Programme of Activity. But no response to this effect was received from UNESCO.

The aim of this Project is to :

- (a) Know about various factors and conditions necessary to establish and operate a network;
- (b) gain experience on compatibility and standardization issues;
- (c) learn about network design and configuration (hardware and software) etc.

The project has not been approved by UNESCO yet.

3.3 ASTINFO Document Delivery Pilot Project :

As was reported by the ASTINFO Document Delivery Pilot Officer in the 10th ASTINFO Consultative Meeting held in 1995 in Beijing, at present BANSDOC is the most frequent user of ASTINFO Document Delivery Service and meets about 50% of its user requests with documents received from National Library of Australia (NLA) under the Project. The document delivery service as received from NLA in the last three consecutive years is shown below in Table-1.

Table 1 : ASTINFO Document Delivery Service Received by BANSDOC

Year	No. of Documents Requested	No. of Documents Received	% of Delivery
1994	638	515	80.72
1995	834	639	76.62
1996	1423	924	64.93

It is apparent from the above Table that the requests for ASTINFO Document Delivery Service in Bangladesh has increased over the years.

The status of implementation of the ASTINFO Workplan (1995-96) in Bangladesh is given in Annex-A

4. UNESCO Projects outside ASTINFO WORKPLAN (1995-96)

4.1 Pilot Project on Community Information Services (1995-96) :

The activities carried out under the Project (under UNESCO Participation Programme) are given below:

(i) Establishment of Village Library and Information Centres :

Three Village Library and Information Centres were established in 3 villages of Dhamrai P.S. about 40 Kms. away from the capital city Dhaka with the active cooperation of Library Association of Bangladesh. The Hajipur Village Library and Information Centre was inaugurated by Professor Tamiko Matsumura, University of Library and Information Science, Tsukuba, Japan on 7 December 1995, while the Kakran Village Library and Information Centre was inaugurated by

Dr. Md. Lutfur Rahman, Director, BANSDOC, on 1 December 1995 and the Tetulia Village Library and Information Centre by Mr. M. Shamsul Islam Khan, President, Library Association of Bangladesh. These libraries and information centres are now being used by the villagers. They are now very happy to have such facilities in their doorsteps.

(ii) Training on Improved Pottery :

15 potters were trained to produce various earthenwares by using the potters wheel instead of traditional hand-driven wheels during November-December 1995. These potters can now produce different varieties of articles with good finish and quality. The income of these potters has greatly increased thereby. They now lead a better life than before.

(iii) Training on Improved Mud Stoves :

A week-long training course on construction, maintenance and operation of different models of improved mud stoves was held during 22-28 December 1995 in Dhamrai. These stoves save 40-60% fuel in comparison to the unmodified ones. 26 young women took part in the training course. These improved mud stoves are now being widely used in the area. The training course was conducted by the Institute of Fuel Research and Development (IFRD) of Bangladesh Council of Scientific and Industrial Research (BCSIR).

(iv) Training on Rural Librarianship :

A week-long training course on "Rural Librarianship" was organized jointly by BANSDOC and Library Association of Bangladesh (LAB) during 13-19 January 1996 in Hajipur and Kakran Village Library and Information Centres. Sixty young boys and girls participated in the training course.

4.2 A Comprehensive Analytical Study of National S&T Information Infrastructures and Services in Bangladesh :

With a view to formulating an action plan for the development of S&T information infrastructures and services, it is necessary to assess the facilities in the existing libraries and information centres in the country. With this end in view, the above project was undertaken by BANSDOC under UNESCO Participation Programme. The task of the Project consisted of inventorying the existing resources, equipment and facilities, manpower, annual budget, S&T information collections and reference materials stored in different libraries, information and documentation centres of Bangladesh and the kinds of services they provide to various user communities. The information and data were collected through a questionnaire devised by SISNAP (Study on the Information Infrastructures for Planning Information Systems and Networks in Asia and the Pacific), a Japan-UNESCO sponsored project. The draft report was discussed in a national seminar held on 5 December 1995 in BANSDOC. Professor Tamiko Matsumura, University of Library and Information Science, Tsukuba, Japan and Mr. Hiroya Takeuchi of the University of Tokyo Library System, Japan, attended the

national seminar. It may be mentioned that Professor Matmura is the Coordinator of the SISNAP Project. The draft report was finalised on the basis of comments and suggestions received in the seminar and sent to UNESCO.

Result of Survey :

Of the 135 questionnaires distributed, 102 completed ones were received back. The response rate was 76 percent. The results of survey are given below item-wise :

- (a) **Books :** The total number of books in the 102 S&T libraries and information centres surveyed is only about 14 Lakhs.
- (b) **Journals :** The total number of S&T journals is about 9000.
- (c) **Other collections :** Other collections in the form of manuscripts, technical reports, abstracts, dissertations, theses, maps, microfilms, microfiches, motion picture films, video tapes and disks and archival materials available in the 102 libraries and information centres number about 1.38 Lakhs.
- (d) **Computerization :** The level of computerization in libraries, documentation and information centres of Bangladesh is still very low. Wherever the computers are used, they are mainly used for information storage and retrieval and for the word processing work. The CD-ROM facilities are available only in a few libraries and the services are offered on a limited scale. Organizations that have computerised their information storage systems mostly use micro-CDS/ISIS software. As of now only 11 libraries are using personal computers in creating various databases and for the word processing work. These libraries have created 69 databases of the library holdings, on-going projects, directories of specialists and organizations, etc.
- (e) **E-mail :** So far, only 7 libraries and information centres have installed e-mail facility.
- (f) **Manpower :** 971 people are working in 102 S&T libraries and information centres of the country. Of them, 213 are professionals and 221 are sub-professionals.
- (g) **Training :** Most of the members of the staff do not have any formal training in information management and in the use of computers.
- (h) **Information Services :** About 50 percent of the libraries do not have modern library and information services facilities.
- (i) **Budget :** Most of the libraries and information centres suffer from inadequate budget provision.
- (j) **Inter-library Loan Service :** Both formal and informal resource sharing activities are in practice in the country.

4.3 3-day sub-regional Workshop on Redefined Roles of Libraries in an Information Society and Promotion of UNESCO Network of Associated Libraries (UNAL) :

The Workshop was jointly organised by UNESCO and BANSDOC in Dhaka during 16-18 February 1997. Thirty-five participants including librarians and information scientists from 7 SAARC member states (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) attended the Workshop.

The objectives of the Workshop were :

- to discuss the changing roles of libraries and librarians in development;
- to discuss the role of information and communication technologies (ICT) in information delivery and in transforming societies into information societies and their relevance to development;
- to develop strategies for promoting awareness and appreciation of ICT in development and the role of libraries and librarians in such programmes;
- to invite public and school libraries to join UNAL.

Miss Delia E. Torrijos, Regional Adviser, UNESCO, Bangkok, took active part in the Workshop.

4.4 Training Course on the Application of Information Technology to Library and Information Services :

The training course was organized by BANSDOC in Dhaka during 26-28 April 1997. Sixteen library and information professionals of the country attended the training course. Professor Lourdes T. David, Chief Librarian, College of Science Library, University of the Philippines conducted the training course.

5. NEW PROJECT PROPOSAL FOR INCLUSION IN THE ASTINFO WORKPLAN FOR 1997-99

BANSDOC has prepared a list of new project proposals for inclusion in the ASTINFO Workplan for 1997-99 (Annex-B). The proposed projects are :

(A) National projects :

1. National Union Catalogue of Serials.
2. Project on Abstracting of R&D Reports.
3. Advanced Training Course in Micro-CDS/ISIS Use and Application for Information Management.
4. Development of a Database on Scientists and Technologists of Bangladesh
5. Development of a Database on Library and Information Scientists .
6. Development of a Database on R&D Projects of Bangladesh.

(B) Regional Projects :

1. Sub-Regional Training/Workshop on Networking and Systems Interconnection.

6. CONCLUSION :

The Government of Bangladesh is committed to strengthen and modernise the scientific and technological information systems and services in the country. A number of projects have been undertaken to achieve the aim. In spite of this, we believe that support from regional and international organizations like UNESCO, UNDP, ESCAP, etc. will complement and reinforce our national efforts in building a modern S&T information system in the country. As has been pointed out earlier that BANSDOC is the most frequent user of the ASTINFO Document Delivery Service for meeting its user requests, we hope UNESCO will ensure sufficient resources for ASTINFO, so that it can continue its supporting role for strengthening the S&T information infrastructures and services in the member countries.

STATUS REPORT OF THE ASTINFO WORK PLAN (1996-97)

BANGLADESH

Sl.No.	Activities/Projects	Status	Remarks
A.	National Project:		
1.	National Seminar on Common Communication Format (CCF).	Common Communication Format has been devised by a group of experts	Various databases are now being created by it.
2.	National Union Catalogue of Serials.	The National Union Catalogue of Serials is now being prepared by BANSDOC by using Micro-CDS/ISIS Software.	About 9000' completed catalogue cards on S&T journals holdings of all the libraries of Bangladesh have been collected for the purpose.
3.	Projects on Abstracting of R&D Reports.	A Computerised database on abstracts of articles of S&T journals of Bangladesh is now being prepared by BANSDOC.	
4.	Advanced Training Course in Micro-CDS/ISIS Use and Application for Information Management.	The training course could not be organised by BANSDOC due to non-availability of experts on CDS/ISIS in Bangladesh.	
5.	National Seminar on the Establishment of a Document Delivery System in Bangladesh.	The Seminar was not held due to non-availability of fund.	
6.	National Seminar on National Information Policy Towards Use of Advanced Information Technology.	The Seminar could not be held because the Policy is yet to be approved by the Government.	
7.	Workshop on CD-ROM Technology.	The Workshop could not be organised by BANSDOC due to non-availability of funds and experts.	
B. 8.	Regional Projects : Sub-regional Training/ Workshop on Networking and Systems Interconnection.	The project is yet to be approved by the UNESCO	

NEW PROJECT PROPOSALS FOR ASTINFO WORK-PLAN FOR 1997-1999

Activities/Projects	Objectives/Targets	Time Frame	Responsible Organisation	Requirements/Resources	Remarks
A. National Projects: 1. National Union Catalogue of Serials.	To improve document delivery services within the country.	1997-98	BANSDOC	-	Government Fund
2. Project on Abstracting of R&D Reports	To strengthen the National STI Databases	1997-98	BANSDOC	-	Government Fund
3. Advanced Training Course in Micro-CDS/ISIS Use and Applications for Information Management.	To develop better proficiency in the use of the Software.	1997	BANSDOC AIC CIRDAP	Resource Person	Possibility of using local resource person should be explored first. If not India may then be approached. UNESCO is requested to bear the cost of Resource Person.
4. Development of a Database on Scientists and Technologists of Bangladesh.	To Strengthen the National STI database.	1997-98	BANSDOC	-	Government Fund
5. Development of a database on Library and Information Scientists.	To strengthen the National STI databases.	1997-98	BANSDOC	-	Government Fund

6. Development of a database on R&D Projects of Bangladesh.	To Strengthen the National STI databases.	1997-98	BANSDOC	-	Government Fund
B. Regional Projects: 7. Sub-regional Training/ Workshop on Networking and Systems Interconnection.	To obtain in-depth knowledge and hands-on experience in networking and systems interconnection.	1998	BANSDOC BCC	US\$ 3000.00 for organisational expenses to be borne locally. US\$ 20000.00 for travel and per diem of foreign participants and resource persons to be externally funded.	UNESCO assistance for external funding sought. Bangladesh, India, Iran, Nepal, Pakistan, Sri Lanka may participate. To be submitted as Regional Participation Programme Request.

COUNTRY REPORT ON LIBRARY AND INFORMATION ACTIVITIES IN CHINA

Paper for 11th ASTINFO Consultative Meeting

Tehran, Iran, May 2-9, 1997

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PART I:

Status Report on ASTINFO Activities in China

1. Introduction

In the last decade, China has achieved tremendous progress in its economic construction in the direction of market economy, with annual growth rate of 10% or more. Fast economic growth has been exerting positive influences on information services in various ways. On the one hand, fast-growing economy will provide information service providers with more financial resources, making it possible for them to invest on information service facilities, such as telecommunication facilities, computers, databases and networks. On the other hand, which is more important in my personal opinion, fast-growing economy will help to build up information market, making information services more acceptable and more profitable than before.

Since 1995, information networks established in early 1990's in China had achieved tremendous expansion in terms of geographic coverage, number of end-users, information resources and investment. Major nation-wide information networks are all moving very fast, including CERNET (China Education and Research NETWORK), STINET (national Scientific and Technical Information NETWORK of China), etc. ChinaNet, the national public network established by the Ministry of Posts and Telecommunication (MPT), covers almost every counties and towns in China, and has

attracted hundred thousands of users. Dozens of Internet service providers (ISPs) are vigorously developing their services and trying hard to gain a bigger share of the market. It is predicted that the information services on network in China will take a big jump before the end of this century.

Consultative services are also significantly expanded in China. Due to the growing economic relationship with foreign countries, consultative services are well accepted by domestic and foreign clients, including small and medium enterprises, key projects, government organization, research institutes and many others. Consultative services are playing a more and more important role in Chinese economic development.

Two important conferences, the '96 IFLA Congress and the World Archive Conference were successfully held in Beijing last year. The success of these two meetings played actively promoting roles on the further development of Chinese information services and industry.

2. ASTINFO Activities

2.1. Following up the 10th ASTINFO consultative meeting, ISTIC continues its regular training activities for trainees from Asian and Pacific countries. The 6th Workshop on Exploitation and utilization of Information Resources in Asian-Pacific Region was held in last October and attended by about 20 trainees from Asian-Pacific region. The coming 7th Workshop will be held in ISTIC in May 6-19, just in coincidence with the 11th ASTINFO Consultative Meeting in Iran.

Major objectives of the workshop are as follows:

- To exchange experiences on exploitation and utilization of information resources;
- To promote co-operation in information sharing between Asian-Pacific countries;
- To facilitate joint research on exploitation and utilization of information resources;
- To stimulate educational and training activities in this region.

Major activities for the workshop include:

- Lectures on information services by ISTIC specialists;
- Exchange of experiences among the participants;
- Exchange of information needs and information offering among these countries;
- Visits to typical information centers and consultative services in China;
- Visits to typical small- and medium-sized enterprises.

Facts have proved that this kind of activities is attractive for most countries in this

region, especially the developing countries. Thanks to the supports from SSTCC (State Science and Technology Commission of China), some local expenses, on request, could be covered by ISTIC.

2.2. ISTIC's representative, Ms. Han Li, Director of Research and Training Center, participated the Experts'/Donors' Meeting on the Education and Training of Information Professionals in Asia and The Pacific, Which was in response to the recommendation of the Regional Seminar/Workshop sponsored by ASTINFO in Beijing in 1995.

2.3. The training course of CDS/ISIS for Chinese users has been continued in 1996 and 1997. In order to suite the needs of processing Chinese characters, ISTIC engineers developed a Chinese version of CDS/ISIS called ISTIC/ISIS a few years ago, which is fully compatible with original CDS/ISIS and bares some additional excellent features. The latest commercial version can be used to manage many existing databases constructed with other prevailing software. An application server for the Chinese version of ISTIC/ISIS is now under development, which can make efficient use of existing databases on Web sites.

2.4. In October of 1996, ISTIC held a Workshop on Information Technology Towards 21st Century, in cooperation with UNESCO and under the support of the Department of Scientific and Technical Information, the State Science and Technology Commission of China (SSTCC). 35 participants, including officials and professionals from domestic and abroad, attended this workshop and discussed and exchanged ideas on the new information technology towards the 21th Century, information technology trends in China and the impact of information technology on social and economic development.

2.5. Early 1996, an ISTIC delegation conducted a 2-week study tour on information education and training to the regional countries, i.e., Philippines, Thailand and Vietnam. The delegation was headed by Mr. Lu Weiwei, assistant to the director general of ISTIC. Mr. Zhang De, deputy director of research and training center, and Ms. Zhao Lin, senior engineer in the research and training center joined the delegation.

2.6. In last October, ISTIC also sent a professional, Mr. Chen Xiaobao, for a study visit to the National Library of Malaysia last October for About 2 weeks in order to make an investigation on the computerized library automation systems, including digital library projects.

2.7. ISTIC has reached an agreement with the Thailand Open University on the mutual cooperation of information education and exchange.

2.8. Two professionals from the Industrial Technology Market Information Network Limited, Sri Lanka, made a Two-day study visit to ISTIC in February, 1997. They visited each main divisions of ISTIC, interviewed with the professionals, investigated and studied the services and management of ISTIC.

3. Suggestions

ISTIC would like to host a seminar on the collection and utilization of information resources on networks in order to facilitate the exchange of experiences in this aspect. Projected attendees include directors and specialists who are responsible for data collection and network management in national information centers in Asian-Pacific countries.

ISTIC hopes UNESCO could kindly give financial support to this activities in order to cover part of the expenses. ISTIC will also try to get support from SSTCC.

PART II:

Ten Major Activities in Library and Information Service Domain

In the past year, information service Major activities in information service in China:

1. Legislation on information networks in China

On February 1, 1996, the State Council of China published China's first law on information networks, that is, the Provisional Regulations on Information Networks in the People's Republic of China.

This document has provided a general guideline for information service providers and Internet service providers (ISP) to set up and operate information networks, connect their networks to the Internet, and provide information services via their networks.

In view of the existing and increasing multiple low speed international communication links, it has also been specified in this document that only four international communication links are considered legal and all the other information networks must be connected to the above-mentioned links in order to go to other parts of the world.

Information services can only be done in the way not to violate Chinese laws, not to endanger national security and not to hinder traditional Chinese ethics and culture.

2. The first national plan for national information infrastructure in China under preparation

In late 1996, a special drafting committee was established in order to formulate a draft plan for China's National Information Infrastructure (CNII), which is entitled the National Plan for Informationization during the Ninth Five-Year Plan Period (1996-2000) and to the Year 2010 for the People's Republic of China.

This document will officially be published in the first half of 1997.

3. Fast growth of the National Scientific and Technical Information Network of China (STINET)

Since STINET was connected to the backbone of NSFNET in late 1994, fast growth has been achieved in the past three years. Till now, about 20 class C subnetworks have been connected to STINET, spreading from Heilongjiang province in the northern part of the country to the Hainan Province the Southern part of the country. The total investment on STINET has accumulated to about 20 million US dollars by the end of 1996. More investment will be made in the coming years.

The network management center (NMC) in ISTIC is responsible for overall management of the network. Technical staff in ISTIC/NMC can also provide technical support to all the information service providers using STINET.

Existing backbone for STINET is the CHINAPAC and CHINADDN, which are the nationwide public X.25 packet switching network and digital data network respectively established by the Ministry of Posts and Telecommunication (MPT) of China. Typical transmission rate between provinces is 64Kbps at present. STINET is

now shared by dozens of information service provider at provincial and municipal levels as a platform of information services to end users throughout the country.

4. VSAT backbone for STINET under construction

The telecommunication facilities such as CHINAPAC and CHINADDN are relatively expensive right now, though there is a tendency of reducing the cost in the near future. VSAT (very small antenna terminal) technology today can serve wide area networks (WAN) as a backbone network.

After a preliminary market research, the Department of Scientific and Technical Information, State Science and Technology Commission of China has decided to set up a VSAT backbone network for STINET. This project will be finished before the end of August this year.

The application of VSAT system will reduce the telecommunication cost greatly and hence the information service cost on end users. The total investment on VSAT network will be about one million US dollars, which can be regained in one year by reducing the operating cost of STINET.

5. China national on-line cataloging system for documents in western languages

This is one of the key projects in the library and information service sectors for the Ninth Five-Year Plan (1996-2000) approved and financially supported by the State Science and Technology Commission. The objective is to provide a nationwide platform for libraries and information service institutes to do on-line cataloging and to provide such services as inter-library loan (ILL) to end users.

The total investment is about 13.3 million RMB (1.5 million US\$), half of which was made by SSTC. The feasibility study, overall design and standardization have been finished. This project will be undertaken by ISTIC in co-operation with a dozen of related library and information institutes, such as Beijing Library (the national library), the Documentation and Information Center of CAS (Chinese Academy of Sciences), Library of Beijing University and Library of Tsinghua University.

6. ChinaInfo Project is about to start

In order to speed up the construction of networked information resources, the Department of Scientific and Technical Information, SSTC (SSTC/DSTI) has submitted a proposal on ChinaInfo Project to SSTC for approval. This project is

aiming at commercialization of information services by providing comprehensive information to the public on a charged basis although it would be free in the initial stage.

This project is in the feasibility study stage now and will be started in the second half of this year. In concept, ChinaInfo is a WWW-based information delivery service, something like the American On-line and CompuServe.

7. Experimental Digital Library systems in China

Digital library (DL) becomes more and more popular in industrial countries like USA. In 1996, some initiatives in DL took place in China as pilot projects. Some experimental DL systems are being implemented in some university libraries, such as those in Tsinghua University and Shanghai Jiaotong University. In addition, the New Times Digital Library is being jointly implemented by Guangdong Provincial Library and Guangdong Provincial Information Center.

There are also some initiatives jointly sponsored by Chinese libraries and foreign companies, such as the Joint Project on Digital Library sponsored and implemented by Fudan university and IBM.

The 211 Project sponsored by the State Educational Committee is a 21st century-oriented project. Its objective is to upgrade 100 major universities in order to meet the needs of highly talented people in the coming century. As a part of this project, it's planned to establish a digital library, called China Academic Library and Information System (CALIS), on the basis of CERNET.

8. IFLA conference in Beijing

The 63rd IFLA Conference in Beijing was attended by about 3,200 participants, including 1,500 foreign guests from 93 countries all over the world. The central government of China paid great attention to the organization of the conference, which made the conference very successful.

9. The 13th World Archive Conference in Beijing

The 13rd World Archive Conference in Beijing was attended by 2,600 participants, including 1,200 foreign guests from 120 countries.

10. Celebrating the 40th Anniversary of the Founding of Scientific and Technical

Information Career in China

State Science and Technology Commission of China (SSTCC), Chinese Academy of Sciences (CAS), Chinese Association of Science and Technology, National Natural Science Foundation of China and National Commission of Military Science and Engineering had jointly sponsored a series of activities to celebrate the 40th anniversary of the founding of scientific and technical information career. The founding of the Institute of Scientific and Technical Information of China (ISTIC) in 1956 was suggested by a group of famous scientists and approved by former premier Zhou Enlai, which marked the beginning of information service in China. Now there are more than 400 information institutes all over China.

Many government leaders and famous scientists attended these activities. Premier Li Peng, vice-premier Zhou Jiahua, Dr. Song Jian, State councilor and Chairman of SSTCC all wrote inscriptions to encourage further development in this fast-evolving field.

Acknowledgment

I feel in debt to Mr. Feng Haitao, my colleague and deputy director of the Division of International Cooperation, ISTIC, who has offered great help during my preparing part I of this report.

EMPOWERING SCIENTIFIC TECHNOLOGICAL INFORMATION
FOR DEVELOPMENT

INDONESIA: COUNTRY REPORT*)

Endang Tjempaka Sari Hartomo**)

Since the implementation of PELITA (Five Year Development Plan) I, the Government of the Republic of Indonesia (GOI) has continuously put efforts to improve and sharpen its development programs. From PELITA I to PELITA VI which will end in March 1998, some improvements on the the focus of priority of national development plan has been taken place. The National Guidelines of the State Policy has noted Science and Technology is as the fourth subject of focus after economy (1), social welfare, education and culture (2) and religion (3). In line with this, it is also stated that access to information on S & T research report is strengthen in order to enable the communities to make use of it through publication, services of STI documentation and information center as well as that of libraries through out Indonesia. For that reason, development of STI devices and network supported by information technology, communication and computerization has to be more developed and strengthen. In brief this statement supports the development of S & T including STI in the country.

*) Paper presented at the 11th ASTINFO Consultative Meeting and Regional Seminar on Information for Development, Tehran, Iran, 2-9 May 1997.

***) Senior Staff of Center for Scientific Documentation and Information - Indonesian Institute of Sciences and Public Affairs and Communication Officer of Management Systems Strengthening Project, Indonesian Institute of Sciences.

S & T Policy

In connection to the National Guidelines of the State Policy, the State Minister for Research and Technology (SMRT) is coordinating the S&T program based on S & T systems with the concept of technology transformation through a number of packages. There are four major elements of S & T systems which interact each other, namely:

- research and development
- innovation and technology diffusion
- education and training
- policy formulation

In coordinating the S & T program, SMRT works together with the National Research Council to produce Principal National Programs on Research and Technology. Some steps has been done, such as:

- One-gate policy
- National S & T Coordination Meeting (Rakosnas)
- Involvement of the Scientific Professional Organization
- A National Accreditation Scheme of Indonesian S & T journals
- National Congress of Science (Kipnas)

In promoting a coordinated and integrated R & D activities in Indonesia, some programs has been carried out, such as:

1. Integrated research

to promote the collaboration between R & D institutions

2. Partnership research

to promote collaboration between R & D institution and industry, with focus to enhance productivity and effectiveness of production process.

3. Nationally Strategic research

It is special program and it is top down project which is intended to coordinate S & T resources and investment in

government & private sectors in a concerted effort to solve specific development problems.

4. Integrated Research International

to promote the international linkage between Indonesian researchers and their fellows abroad.

Since now it is intended to involve private sector in R & D activities. For this purpose, the GOI has established a project in R & D activities which is called Integrated Technology Development Project (ITDP) in Department of Industry and Trade, Agency for the Assessment and Application of Technology and Indonesian Institute of Sciences. The project in each institution is managed independently. Each has a foreign partner which is selected through an international bid. Four parties involved in the establishment of the project. National Development Planning Board, Department of Finance, The World Bank which provides loan and the institution itself. It is expected that through this project the enhancement of R & D capability which is stressed on assisting small and medium scale industries can be achieved.

STI Development

As stated that the S & T programs is coordinated by SMRT. As coincidence that SMRT is also the program coordinator of some R & D institution which are called Lembaga Pemerintah non Department (Government Institution which is structurally not under any department. They have has direct line to the President). However, their finance is coordinated by the State Secretariat. There are two other kind of R & D institutions, namely that of university and R & D institution which belongs to department.

The STI need of each R & D institution is supposed to be supported by their information, documentation centers or libraries. Some of those are relatively small and still weak in

collection, services as well in man power. In this situation, Center for Scientific Documentation and Information - Indonesian Institute of Science (PDII-LIPI) takes part in serving their users. This fact brings them to be rely on STI networking for fulfilling their users need. Based on its experience, Documentation and Information-Indonesian Institute of Sciences (PDII-LIPI) has been appointed as the coordinator of the STI network in the country.

The fact that PDII-LIPI becomes the coordinator of STI network is of much benefit to the whole S & T LIPI's program. As R & D institute which is fully aware of the importance of information, Indonesian institute of Sciences (LIPI) intents that in 1998 it will play mayor role in the National S & T Information Services Network for Research and Industry as stipulated in the strategic plan of LIPI. To realize the plan, PDII-LIPI counts bit by bit its activities to step forward. At the time being the Indonesian STI database which is owned by PDII-LIPI continue to collect Indonesian research reports, journals articles and conference papers. Development of the Indonesian STI database would be one of its top priority. Working together with Agency for the Assessment and Application of Technology, Center for Agricultural Library and Research Communication, Data Center of the Department of Industry, National Library and some small libraries of LPND, PDII-LIPI plays a role in supporting information for IPTEKNET which is supervised by the National Research Council. A research on inventarization its users has proved that its information service has been disseminated to 27 provinces in Indonesia. This early achievement has encouraged PDII as well LIPI to strengthen its program on Indonesian STI database, STI program for rural community and that is for special users and improvement the capability of manpower.

Factors that indicate and support the development of STI:

- Increasing number of libraries in Indonesia which covers public libraries, including rural and mosques libraries, special libraries and academic/university libraries;
- Increasing number of users of most libraries, information and documentation centers;
- Improvement in government regulation and policy;
- Increasing number of literacy and educated people;
- Improvement in infrastructure.

The most prominent one is that at present there is 8 internet providers in the country;

- Increasing amount of libraries, information and documentation centers due to better economic growth in the country as well in the region. Inflation in Indonesia in 96-97 is 5,17% while it is 8,86% in 95/96. Economic growth is 7% and 6,3% respectively ;
- Increasing numbers and improvement of information network and databases;
- Good respond and support from communities, including private contribution. People get better image and perception about the library and education. Self funding programs and fund raising on these activities are starting to increase.

The Execution of ASTINFO Activities in 1996-1997 and Planning Activities for 1998-1999.

It is about 90% of the total activities has been accomplished. All activities at the national level has been completed while some of regional level have to be modified due to lack of fund and resource person. Six activities were changed to be executed for the national level. Changing on its target group happened in one activities while another activity has to be totally changed in term of subject. Three activities are still in progress. Only one activity can not be executed.

Development of information services as well that of collection

has taken the primary attention. It is regarded as successful activities. Project on developing PDII-LIPI's branches in Serpong and Cibinong received good response from the users in particular community who lies closed to the respected areas. Communication facilities and time constraint may still happen. Although the use of telecommunication facilities are common, the service charge is relatively expensive. Location also plays an important role in inviting users to come to libraries, information and documentation centers. Learning from this experience, PDII-LIPI commits to continue its program in Serpong, Cibinong and Bandung, the last mentioned has been established since the earliest phase of LIPI's R & D center in Bandung were set up. This fact encourages PDII-LIPI to extend its information services in 8 provinces in Indonesia in cooperation with local universities and governments.

Regarding information services, it is noted that the cessation of ASTINFO coupon makes some libraries which greatly depend on it has to look for other alternative ways. In this matter, the libraries get benefit from the scheme. Great appreciation to UNESCO contribution and the National Library of Australia' support has been extended. It is expected that the similar scheme will established in the region.

The project on developing information communities in Muara Enim, Sumatra has received good response from the community and the government. The successful concept of CLARC is expected can be applied in this project. During its implementation, assistance and support from other parties such as publishers, local goverment, community and privat sector has come. It is intended that continuation of the project will be carried out in 1998-1999. This model will be implemented in another area during 1998-1999.

Providing basic and appropriate STI for grass-root who lives in rural area has a greater portion of attention in the program 1996-1997. Cooperation with other institutions which have similar interests and responsibility resulted in integrated successful programs.

Documentation activities are regarded beneficial for the nation. Cooperation among institutions in continuity of these activities will be strengthen. Such programs will be carried out as regular activities in 1998-1999.

Program which aims at developing manpower is the most popular activity. It is also in the top priority since the focus of the National State Policy is still economy with stress on structuring industry and developing manpower. It is perceived that all activities in this area are extremely demanded. Topic of the activities is varied, ranging from information technology, management, manpower, information services etc. The activities has two target groups, namely user and information worker.

Two constraints that was faced during the execution of the program are: - lack of capable manpower

- Insufficient funding.
- lack of infrastructure

Program on 1998-1999 will cover activities which are mostly similar to those of last year. Improvement will be done based on the result of those in 1996-1997. It will be smaller in quantity, however, it is set to be greater in term of quality. Cooperation among institutions which deal with the program will be strengthen.

It is expected that the program 1998-1999 will meet the need of the country and in line with ASTINFO/UNESCO guideline.

Recomendation

With respect to the benefit of ASTINFO program for the country, it is expected that the most needed activities can be kept remain. Consolidation among institutions at the national level which are responsible for these activities should be strengthen. Improvements in the program should be taken into account. Quality has to be maintained and developed. Sharing resource person may be beneficial for solving funding problem. Learning from others' experience is such an first remedy to those constraints.

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IN THE NAME OF ALLAH

COUNTRY REPORT: ISLAMIC REPUBLIC OF IRAN

Computerization, Telecommunications and Networking:

The period 1995-1996 witnessed an explosive growth of networking services within the private sector. Iranpac was officially launched linking 100,000 nodes nationally, it had given rise to more competitiveness within the budding Iranian Information industry. There are now 20 independent national and regional networks with nearly 15,000 users.

The Ministry of Higher Education has also begun plans for implementation of an Academic Network, similar to Euclid and Janet.

In order to enhance productivity of national and regional information systems, Irandoc undertook a number of studies.

Dealing with the design of systems, operation research methods, employment of simulation method.

Once the necessary base line information was collected, studies were made on examining the Ideal as well as real-world information system performance in order to determine the inflection points or "bench-marks". A special program was developed that provided both online as well as time-series simulation of an existing or proposed information system.

Documentation & Document Delivery:

Teams of linguists as well as computer professionals formed various working group for the design of persian thesauri in different scientific fields.

With respect to establishment of women database, various organizations responsible with the women affairs were contacted.

IRANDOC, has developed a women database dealing with the role this group plays in research. A printed version of this database, containing 6,000 records was published in 1997.

The process of creation and establishing various databases has been automated and compartmentalized to a limited degree. The retrieval software is still based on CDS/ISIS . Nearly 11 databases have been developed and upgraded dealing with various aspects of the Iranian scientific research. The system is currently available online to Iranian institutions, as well as on diskettes as well as in-house developed cd-rom.

Establishment, Promotion & Marketing of Library and Information Services

Since 1970's, the subject of machine translation had been of interest to a number of Iranian organizations which in a way dealt with timely processing of information for strategic -tactical decision making. While these organizations have traditionally made use of the Academia, there had been no similar movement in the opposite direction. The Machine-Translation group has so far confined its job to the task of collecting data on the various aspects of the researches carried out in this area. The spin-off of this project, such as the Persian grammar checker have been tested for use in IRANDOC's own abstracting and indexing operation.

With respect to standardization of information systems there seems to be much to be done in this respect. The Iranian national bureau of standards (ISIRI) has indeed developed a number of standards with respect to the computer industry, but its.

The library extension service has entered its semi-pilot phase. The system is capable of establishing interlibrary loan and services with nearly 400 academic and professional libraries throughout Iran, thus achieving the much needed economy of scale via resource sharing. At present, Irandoc is staging simulations to extend this program to the area of electronic publications as well.

Given the 1996 budgetary constraints, the task of design of IRAN MAERC was carried out with limited resources. However, the initial results have been encouraging. Enhancing productivity of a national information system had been a somewhat daunting task. Presently there are two reports on national information systems, (Appendix D)

The Ministry of Higher Education has agreed to establish a prototype department of information technology at one of the major technical universities in Tehran. The curr

offered at various institutions around the world were offered . The IT course is multidisciplinary and is basically aimed at the engineers and basic science graduates.

As part of its task to share regional resources and develop cooperative scientific projects in the region, IRANDOC agreed to send a resource person to Nepal to assist the Nepal National Library project. Unfortunately, the ticket was received a day or two after the person was to supposed to fly to Nepal.

New Activities:

At present Irandoc has established a communication department. Its task is to provide the following functions:

- 1- Public relations
- 2- development and management of international cooperation
- 3- Monitoring of new information technologies and management techniques
- 4- Marketing of IRANDOC products and services

COUNTRY REPORT: JAPAN

The major ASTINFO/UNESCO related activities since the 10th ASTINFO Consultative Meeting and Regional Seminar/Workshop in Beijing in 1995 are as follows:

1. 3rd SISNAP Workshop, 8-11 October 1996, Tsukuba, Japan

The workshop was attended by 17 members of the SISNAP Study Team from 10 countries in the region. The 3-year SISNAP studies produced the following outputs:

- National case study reports based on the methodology used; e.g., inventory questionnaire, conduct of the survey and writing of the report by national inter-agency study team, validated by the Japanese team through country visits and national seminar/workshop;
- directories of information institutions, with focus on STI;
- regional cross-country assessment report.

This regional cross country assessment report, which was produced by Dr. A. Lahiri based on country reports and other data, show that tangible results have been achieved in raising the level of appreciation and understanding at country level of the scope and significance of the information infrastructure in development. The study has clearly shown the need for all the key players and stakeholders to be involved in the formulation of policies and planning the development of NII, indicating the improved environment under which a truly comprehensive study of NII can be undertaken with possible greater degree of success.

In the light of these results and consideration, the meeting recommended the following action at regional and national and national levels.

At the Regional Level

- The experiences of the SISNAP Project be disseminated widely, both within and between countries in the region and in other regions as well.
- a -day international conference on information for development be organized in September/October 1997. The main objective of the conference is to get a consensus among the policy and decision makers, key players and other stakeholders from the Asia/Pacific region on the formulation of information policies, strategies, and plans for the development of national information infrastructure, with a view towards contributing significantly to the Asia/Pacific information infrastructure development initiatives.

- The government of Japan be requested to consider the expansion of the SISNAP study in two directions: to widen the scope of the study to include the survey and analysis of all segments and aspects of the information sector, and to expand the geographical coverage of the NII study.

At National Level

- Further action is required by each participating country as indicated in the action plans included in the country reports, with priority given to the unique needs of and conditions prevailing in the country
- Each country will maintain and periodically update its own directory
- In developing the content segment of the information infrastructure, it is strongly recommended that serious consideration be given to the following points:
 - i) increasing emphasis on the non-print and electronic forms of information, and serious considerations to ensure access, cost-effective handling and preservation
 - ii) the need to co-opt the private sector and NGOs in effective alliances and partnerships in the development of information products and services
 - iii) the possibility of multi-country cooperative activities, e.g. database development, cooperative acquisition of expensive publications
 - iv) the importance of patents and standards and access to them should be ensured.
- There is a need to upgrade the knowledge and skills of information professionals particularly with respect to IT applications and Internet access, leadership, marketing and information brokering skills.
- There is a need to address the widening gap between the information-rich and the information-poor segments of society.
- This stratification of society into haves and have-nots can be addressed by ensuring universal access to information by all segments of society, through a more judicious development of the telecommunications infrastructures and application of appropriate technologies in the transfer and delivery of information.

2. Presentation on SISNAP and ASTINFO in INIS Regional Officers Meeting

To follow up the decision of the 10th ASTINFO Consultative Meeting in Beijing 1995 where Mrs. Taghrid Atieh, representative of INIS/IAEA attended as observer,

Professor T. Matsumura made two presentations: one on SISNAP studies and the other on ASTINFO in the INIS Regional Officers Meeting in Asia and the Pacific, which took place in Kyoto in June 1996.

3. Report on the 10th ASTINFO Consultative Meeting and Regional Seminar/Workshop in the 11th Intergovernmental Council for the General Information programme, 2-3 December 1996.

In accordance with the decision of the 10th ASTINFO Consultative Meeting, Professor Matsumura reported to the 11th Session of the Intergovernmental Council of PGI on ASTINFO activities during 1995-1996 period.

4. Establishment of Japanese Funds-in-Trust

The Ministry of Education, Science, Sports and Culture, Japan, founded a Funds-in-Trust for UNESCO in 1996 fiscal year for the development of human resources in Asia and the Pacific. The establishment of such Funds was strongly urged in the 2nd SISNAP Workshop in 1995, which also urged that in implementing the activities to be supported under such Funds-in-Trust the mobile team should be composed of various experts from the recognized institutions in Japan and other Asia/Pacific countries.

As the first activity supported under this Funds-in-Trust, the 5-day consultative meeting/workshop "Planning Human Resource Development for Information Societies" was held on 3-7 March 1997 at Sukhothai Thamathirat Open University, Thailand. Attended by 27 experts from 11 countries, the meeting identified the skills and competencies that will be required of information professionals in the future; prepared specific plans and programmes to support and promote the development of education and training programmes in the region; and discussed the mechanisms for developing curricular guidelines for degree and continuing education programmes.

**11th ASTINFO CONSULTATIVE COMMITTEE MEETING
& REGIONAL SEMINAR OF NATIONAL INFORMATION
INFRASTRUCTURES AND SERVICES**

3-8 MAY 1997

**IRANCOC,
Tehran, Islamic Republic of Iran**

MALAYSIA: A COUNTRY REPORT

by

**AMANAH AHMAD
PERPUSTAKAAN NEGARA MALAYSIA**

1. National Conference on Multi-Media Digital Library

This National conference was held on 19 - 22 November 1996. It was organised by and held at Perpustakaan Negara Malaysia. 250 librarians, information officers, information technology personnel, government officers, computer vendors and publishers attended the conference.

Its objectives were:-

- a) To provide a platform for discussion on multi media digital library.
- b) To establish strategies for library services in information technology era.
- c) To set up plan of action for determining policy and multi media digital library program
- d) To establish guidelines for the setting up of multi media digital library.

Papers presented include topics on multimedia super corridor, infrastructure, interactive multi media service, smart card technology, video conferencing, competencies and skills for information personnel, legal and security issues, electronic publishing, digitisation, and marketing of information products and services through the Internet.

A steering committee is to be set up and to come out with Plan of Action for the setting up Multimedia digital library throughout the country.

2. ASEAN COCI Books for all : Asean Conference on Book Development

It was held on 13-15 August 1996 with 90 participants comprising of librarians and

information specialists, publishers, booksellers and those in the book trade and publishing industry from Brunei, Philippines, Singapore, Thailand, Vietnam, Australia and Malaysia attended the conference..

The objectives of the conference were:-

- a) To promote understanding and development of a cooperative network among publishers and those engaged in the book trade in the ASEAN region.
- b) To strengthen the development of the book industry in ASEAN
- c) To promote indigenous publications by facilitating translation to local language of ASEAN
- d) To strengthen the development of bibliographical control of ASEAN publications
- e) To promote free flow of books amongst ASEAN

Its resolutions were:

- a) Asean authors, translators and publishers must collaborate in the production of high quality books at affordable prices focusing on ASEAN culture, economy, history etc.
- b) Asean publishers and librarians must collaborate in the promotion of ASEAN publications.
- c) to facilitate and enhance free flow of publications within the region.
- d) to upgrade skills, competencies and professionalism among the book community.

3. Conference on Rural Library Services in ASEAN Countries : a new perspective

This conference was held on 13-15 January, 1996 and organised by the Council of Directors of Public Libraries. 20 papers were presented covering topics on information superhighway, library cooperation at ASEAN level, marketing of rural library services, standards for rural library development, services to the disadvantaged, cooperation between schools and rural libraries and library users perspective.

Various recommendations were made which include the adoption of APPREB's Standard and training manuals for library services in rural areas, physical facilities/infrastructure, staffing and training, services, collection development, resource sharing and users need survey. An ASEAN task force on Public Library would be formed to discuss various programme that would be beneficial to rural libraries in the region. This is to be initiated by Malaysian Council of Directors of Public Libraries.

4. Talking Books Production

Perpustakaan Negara Malaysia with the cooperation of Golden Arches Restaurants (M) Sdn. Bhd. and Dewan Bahasa dan Pustaka has produced audio books based on 10 selected titles of Malay fictions published by Dewan Bahasa dan Pustaka suitable for young adults. This was officially launched on 27 November 1996 and they were distributed to all public libraries and schools and associations for the visually impaired throughout the country.

The titles are:

- a) Merdeka! Merdeka!
- b) Rahsia Lubuk Menangis
- c) Tempat Jatuh Lagi DiKenang
- d) Hari-Hari Terakhir Seorang Seniman
- e) Anak Warisan Zaman
- f) Rahsia Saidin
- g) Sayang DiSayang
- h) Sejambak Bakti
- i) Peristiwa Di Rumah Api
- j) Ibu Yang Kusayang

5. Nursery Rhymes on CD ROM

Esso Production Malaysia Incorporated has agreed to donate RM60,000 to enable Perpustakaan Negara Malaysia produced selected Nursery Rhymes by a Malaysian author in Bahasa Malaysia on CD ROM. This is an effort to make available in the market CD ROM in the Malay language with Malay values.

6. DAISY Plectalk World Field Testing

Malaysia is one of the 30 countries participating in this project to convert audio book into CD-ROM for the visually impaired.

IFLA Section for the Blind has appointed Perpustakaan Negara Malaysia and Malaysian Association for the Blind to undertake this project. 8 titles of the talking

books as cited under item (4) of this report would be converted to CD-ROM. The project has to be completed by Jun 1997.

7. Standard Floor Areas for Public Libraries

The *Standard floor areas for public libraries* was prepared by Perpustakaan Negara Malaysia with the cooperation of public libraries. This is a guide for floor areas of state public library building, metropoliten library, branch library and rural libraries in Malaysia. This standard has taken into account new development such as information technology, information network, building security and work environment.

Prior to the publication of this standard, a national conference *Persidangan Bangunan Perpustakaan Awam : Abad ke-21* (Conference on Public Library Building : 21st Century) was held to get input from public libraries, government agencies such as Public works Department and building consultants and vendors for library equipment. This standard would be of use to those who are planning to build public libraries.

8. NLG-SEA Directory : Computer Systems, Software and Databases in Southeast Asian Libraries

This is a directory compiled based on a survey done by Perpustakaan Negara Malaysia under the National Libraries Group - Southeast Asia (NLG-SEA) project.

It covers the national, public, academic and special libraries in Brunei, Cambodia, Indonesia, Laos PDR, Malaysia, Philippines, Singapore, Thailand and Vietnam. This

is to facilitate access to information and better networking among libraries in South East Asia. The publication has been distributed to participating institutions and also available for sale.

9. Malaysian Technical Cooperation Programme (MTCP)

Under the Malaysian Technical Cooperation Programme, Perpustakaan Negara Malaysia organised to programmes i.e. Basic Course of Library Assistants and Library Visits/Attachments for Librarians and Information Specialists. Since its inception in 1985, 247 library personnel from 49 developing countries have benefitted from this programmes.

In 1996, the *Basic Course of Library Assistants* was held from 28 August - 7 September 1996 and 10 Library Assistants were selected and attended the course. They were from Malawi, Tanzania, Sierra Leone, Ghana, Gambia, Cambodi, Republic of Kiribati, Sri Lanka and Brunei Darussalam.

Library Visits and Attachments was held from 10 October - 28 October 1996. 15 librarians and information specialists in the middle management group from Tanzania, Malawi, Bosnia-Herzegovina, Mongolia, Sultanate of Oman, Zambia, Philippines, Pakistan, Brunei Darussalam, Republic Uzbekistan, Thailand, Croatia, Iraq including from Malaysia attended the programme. Various visits and attachments were arranged for them to various libraries in Malaysia according to their training needs. One day seminar on Library Development in MTCP participating countries was also held.

In 1997 both programme would be held in July. The applications have been received by Perpustakaan Negara Malaysia in batches from the various embassies through the Wisma Putra (Ministry of Foreign Affairs). The Selection Committee comprising of representatives from Economic Planning Unit, Public Services Department, Ministry of Foreign Affairs and Perpustakaan Negara Malaysia. A meeting would be held soon to select the qualified candidates.

10. CDS/ISIS Training

The total numbers of CDS/ISIS users has increased to 159. Training were given to the users. In 1996, 37 participants attended the Beginners and Advanced course. In 1997, 21 participants attended the 2 workshops held in March and 2 more workshops would be held in August.

11. MASTIC Link

MASTIC (Malaysian Science and Technology Information Centre) was officially launched on 12 March 1997. A MASTIC Link a service which provide accesss to science and technology management information was also launched then.

The following databases are available at MASTIC Link:-

- 1) National Science and Technology Minimum dataset
- 2) Science and Technology Management
- 3) Malaysian Technology Bank
- 4) Intensification of Research in Priority Areas (IRPA)
- 5) Computer aided design and computer aided manufacturing
- 6) Science and Technology Statistics.

PROPOSED ASTINFO WORK PLAN 1998 - 1999

Activities/Projects	Objectives/Targets	Time Frame	Responsible Organisation	Requirement/Resource	Remarks
<i>National</i>					
1) Workshop on CDS/ISIS - Beginners - Advanced	To develop and enhance proficiency in the use of the software.	1998-1999 (Annual) 1 week	Perpustakaan Negara Malaysia	Resource Person from Malaysia	Funds from Malaysian government
2) CDS/ISIS Users' Group	Improve cooperation and knowledge of database application		CDS/ISIS Users' Group	Local resources	
3) Workshops on Internet, Internet Utilities and web page design and development	To enhance proficiency in using Internet and development of homepages.	1998 - 1999	Perpustakaan Negara Malaysia	Local resources	

Activities/Projects	Objectives/Targets	Time Frame	Responsible Organisation	Requirement/ Resource	Remarks
<i>Regional</i> 1) IFLA/UBCIM Regional Seminar on Bibliographic Control	a) To provide information on current developments in bibliographical control in a networked environment b) To promote cooperation in bibliographical resource sharing and the development of appropriate standards. c) To disseminate information on IFLA/UBCIM activities	9 - 11 March 1998	Perpustakaan Negara Malaysia & IFLA/UBCIM	IFLA/UBCIM	Funds from IFLA, Perpustakaan Negara Malaysia & British Council. Participants from National libraries and documentation centres of Malaysia, Singapore, Indonesia, Thailand, Philippines, Brunei, Vietnam, Laos, Cambodia and Myanmar.

**Status Report of the ASTINFO Work Plan
1996-1997**

Activities/Projects	Status	Remarks
<i>National</i>		
1) Workshop on CDS/ISIS - Beginners	1996 : 1 - 5 October 1996 1997 : 1) 17 - 22 March 1997 2) To be held on 18 - 23 August 1997	29 participants 10 participants
- Advanced	1996 : 28 - 30 August 1996 1997 : 1) 24 - 26 March 1997 2) To be held on 25 - 27 August 1997	8 participants 11 participants
2) CDS/ISIS Users' Group 3) Workshop on HTML (Hypertext Mark-up Language)	No meeting was held in 1996 but a CDS/ISIS Users' Group newsletter were distributed to users. A number of workshops on Internet, Web page design and development and Web server management were organised by Perpustakaan Negara Malaysia, Persatuan Perpustakaan Malaysia (Library Association of Malaysia) and state libraries where there we opened to all local librarians and information specialists to attend.	There are 159 users of CDS/ISIS in Malaysia and in 1996 there were 16 new recipients of CDS/ISIS software.

Country report of Mongolia on Development of Information Infrastructure and services

Since the 10 th ASTINFO Mongolia continues to develop the national information infrastructure and services.

1. Back bone Network development.

Mongolian Telecommunication Company(MTC), DATACOM Co. ltd and Mongolian Civil Aviation Company and Oil Import company are involved to the data transmission back bone network development.

In last two years the capacity of back bone network for data transmission is increased, mainly in the capital city.

Several digital station for data and voice communication were established.

International exchange capacity was considerably increased. Second international route for

Datacom Co. ltd is increased its capacity for Internet services. But such services are available only for users in the Ulaanbaatar city.

In the provinces and rural areas data transmission network not yet set up.

But at least three projects are under implementation for setting up telecommunication facilities in the provinces and rural area.

First one is MTC project in which is envisaged to set up VSAT stations in the centres of provinces for voice and data transmission. Second one

is Oil Import Company's project for setting up VSAT stations in the site of provincial petrol stations, which will be completed in this year.

Datacom company in cooperation with Oil Import Company is planned to be use this VSAT transmission for Internet services. Third project is Mongolian Civil Aviation Company's VSAT network for provincial airports.

Above mentioned provincial data transmission network can be used for scientific and education systems.

2. INTRA network development

Last two year few internal specialized networks are developed within the different projects and volume of records and services of existing networks are being increased.

The kernel of meteorological data exchange network and customs information network are being established. The existing networks such is library network, education information network and statistical information networks are being extended.

There has also been increase in the E-mail services within these networks.

One of the drawbacks of these networks are limited access to their databases from the user side due to communication problem effected by its high cost.

3. Database and service development

Database creation in the various field has been growing, efforts are also being made to establish on line facilities in the capital city.

Maginet home page is being established. In this home page for Internet local users two public newspaper, daily news, weather forecasting and other public related news are available for the Internet users.

Bibliographic databases and environmental databases are made available for public users through dial up network. Soon these databases will be installed on the Internet server for public usage.

Country Report - Nepal

ASTINFO Consultative Meeting and Regional Seminar/Workshop Meeting

IRANDOC, Tehran, Islamic Republic of Iran

3-8 May 1997

Mr. Bhanu Pathak

President

CDS/ISIS Society Nepal (CISN)

Nepal is yet to enter into real information age, however, the trend in IT use by different information centres is promising. As many as 60 libraries and documentation centres are using computers to manage their collection and almost all of them are using CDS/ISIS as major software for database management. Some of the libraries have CD-ROM readers and subscribe to the international databases that are available in CD-ROM. A number of libraries have e-mail access in addition to fax and other basic communication equipment. Only a few have access to Internet. Internet services are available through commercial vendors for general public also.

There are two Library and Information Science professional organizations namely, Nepal Library Association (NLA) and CDS/ISIS Society Nepal (CISN) which conduct training and provide technical services for the advancement of skills of the professionals in the country. In late 1995, a Department of Library Science has been established under Tribhuvan University which produces Bachelor level manpower (B. Lib. Sc.).

The activities of the ASTINFO Coordinating Unit (ACU) are undertaken by the Research Centre for Applied Science and Technology (RECAST), an institution under the Tribhuvan University, in cooperation and collaboration with other institutions and professional associations in Nepal.

The major works done since October 1995 to date include:

National Union Catalogue

National Survey of Libraries, Information and Documentation Centres

Workshop on Standardization of Subject Headings/Keywords for Document Indexing

Workshop/Training on Information Technology and

Communication Skills for Information professionals

All these activities were done with the financial support of UNESCO.

In addition to these there have been couple of important works have been done which include"

National Union Catalogue (NUC)

The NUC is a catalogue of documents that are about Nepal and are published in English language.

- 21 Libraries/Documentation and Information Centres participate and is coordinated by Nepal National Library (NNL)
- 16,880 Records were collected from the participating libraries
- 10731 Records are finally included in the NUC (After excluding duplicates)
- NUC is available in printed and machine readable form
- CDS/ISIS Society Nepal was given the responsibility of compiling the records and editing the catalogue.

Workshop on Standardization of Subject Headings & Keywords

- A list of main subject headings being used in the records including in the National Union Catalogue was prepared
- 35 Professionals participated and discussed each of the subject heading in the list using different thesauri to make sure the terms are standard.
- A list of stand terms was agreed upon and printed and distributed to all participants. This list will serve as the major tool for document indexing to start with
- CDS/ISIS Society Nepal organized and coordinated workshop.

Workshop/Training on Information Technology

- A two-day workshop/training was organized on Information Technology and Communication Skills for Information Library Science Professionals on 22 and 23 April 1997
- UNESCO provided resource person and Nepal National Library in collaboration with CDS/ISIS Society-Nepal organized the workshop.

1. Department of Library Science has been established and produces bachelor level man power (B-Lib-Sc.)
2. Nepal Library Association conducted 3 level-3 (semi-professional) trainings on library and information science.
3. CDS/ISIS society conducted three trainings on basic and advance level training an CDS/ISIS including CCF.

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION

REGIONAL NETWORK FOR THE EXCHANGE OF INFORMATION AND EXPERIENCE IN SCIENCE AND TECHNOLOGY IN ASIA AND THE PACIFIC (ASTINFO)

ASTINFO ACTIVITIES IN NEW ZEALAND 1995-1997

Report to the Eleventh Consultative Meeting Tehran, Iran, 3 - 8 May 1997

BACKGROUND

In August 1995 RS&T:2010 - the Government's Strategy for Research, Science and technology to the year 2010 was released. This draft provides the detailed context for the Government's commitment to science and technology made in Path to 2010 (1993), that it would aim to increase public investment in research, science and technology to 0.8% of GDP by the year 2010. It provides a strategic framework for that increase, and also a context for the wider involvement of science and technology in achieving New Zealand's social, economic and environmental goals. It affirms the value of scientific research for the advancement of knowledge "for its own sake", and outlines how the Government sees the enhancement of New Zealand's future quality of life as increasingly reliant on science and technology. In order to develop a sound knowledge base there needs to be increased investment by Government and the private sector, and a recognition of the value of science and technology. By late 1995 considerable consultation had taken place and overall there was a positive response to the development of a long-term strategy for RS&T. Areas of concern included the concept and criteria of key science areas; funding; some scepticism concerning the funding target of 0.8% of GDP; infrastructure - both capital and human resources; lack of emphasis on technology and engineering; and the need for the Public Good Science Fund (PGSF) to be closely aligned with achievement of the objectives.

In August 1996 the Prime Minister officially launched RS&T 2010, which had been given Cabinet approval. The strategy outlined in this document will be measured and reported on every three years. "This is the first time a national strategy for research, science and technology, has been articulated. It is the first time that the whole of the Government's investment in science and technology has been drawn together in one coherent framework. RS&T: 2010 - the

Government's strategy for research, Science and technology to the year 2010 will affect not only the future of the science and research community, the major industries and government departments, but also parents and students contemplating future directions." *SCI-TECH Sept 1996 p 6*

A MAORI PERSPECTIVE

TREATY OF WAITANGI

"In 1840 there were mainly Maori people living in New Zealand. More and more British people were coming to settle in New Zealand. So, the British Government drew up a treaty to help two races live peacefully together.

The treaty gave the settlers the right to stay in New Zealand.

The treaty promised the Maori people that they would continue to own their lands, forests and fisheries for as long as they wished.

The treaty said Maori people would make their own decisions about their lands and the way they lived.

The treaty promised to set up a government so there would be peace and order for all.

It also promised to protect all things valuable to Maori people.
<http://www.knowledge-basket.co.nz/waitangi/info 1.htm>

MAORI PARTNERSHIP IN SCIENCE

Throughout the restructuring of science from a departmental framework to Crown Research Institutes(CRI's) serious attention was given to consultation with the Maori community. The CRI Task Group and later the Implementation Steering Committee established a Kaumatua Committee which began consultation on issues of recognition of the body of knowledge developed by Maori, and the future input required by Maori. The Kaumatua Committee was composed of senior members and elders from the Maori community.

Two main issues affecting public good science were identified as critical to Maori. Firstly their status as a partner to the Treaty of Waitangi and the implications for science of the existence of two cultures, languages and value systems in New Zealand. Secondly, Maori were concerned to achieve full participation in the development, operation and benefits of public good science

in New Zealand in accordance with their status as a Treaty partner. Initially there was a debate as to whether traditional Maori science was equivalent to western (British Royal Society model) of science, and therefore whether access to the western culturally biased Public Good Science Fund (PGSF) was a Treaty obligation. This debate has not been resolved to the satisfaction of the Treaty partners, but what has become clear is that Maori had proven technologies in the western cultural sense. On that basis Maori had a perfect right under the Treaty to access the fund. Although not required in CRI legislation, each CRI Board on establishment had an (appropriately skilled) member of Maori descent, and acknowledged by Maori. Where possible this convention has been maintained. It is important that Maori representation, and a Maori perspective is acknowledged as being that not of a section interest group, but of as Treaty partners. Each year the performance of each CRI and government department is monitored/audited. Partnership with Maori and meeting the obligations of the Treaty of Waitangi are an important component of the monitoring process.

At the end of 1992 the Ministry of Research, Science and Technology (MoRST) hosted a hui which established guidelines for future consultation with Maori on science issues. MoRST established a standing consultative arrangement with several groups to assist with access to the Maori community.

As a response to concerns over low participation and achievement of Maori in mathematics, science and technology Te Puni Kokiri established an advisory committee to address these issues. NAMMSAT the National Association of Maori Mathematicians and Science Technologists developed out of these discussions. It was felt that there should be a national body interested persons could network with.

In 1995 Dr Terrance Lomax, an analyst for the Ministry of Research, Science and Technology reported on an exercise aimed at finding determining the aspirations of Maori with respect to scientific research and the Public Good Science Fund (PGSF). The areas covered were:

How can Crown-funded public good scientific research be made more relevant to Maori i.e. to what extent should science effort reflect Maori aspirations. How can the involvement of Maori be improved, and where does Mātauranga Maori interface with western science. The major issue identified for Maori was that of access to the PGSF.

The 1996 New Zealand government budget established a new programme of postgraduate Maori Science and Technology Fellowships starting in 1996/97 to develop and promote Maori role models in science, technology and engineering research.

THE NATIONAL LIBRARY OF NEW ZEALAND

"Services to Maori

The National Library of New Zealand, Te Puna Mātauranga o Aotearoa, established a small Maori unit in 1991 to enable the National Library to implement its goals relating to the Treaty of Waitangi in a practical way across the whole organisation. The unit is managed by a Maori senior manager who reports directly to the National Librarian ... There are specialised positions within the unit called Takawaenga-a-Rohe, Maori district liaison librarians... acting as a link between Maori and the library community. The committees, called Komiti Whakahaere, meet quarterly with Takawaenga. "

<http://www.natlib.govt.nz>

The functions of the Maori Unit include participation in decision-making of the National Library, advising on policy related to the Treaty of Waitangi, promoting partnership relations, advocating issues of importance to Maori and developing and maintaining links with Maori.

University libraries and many of the public libraries have a strong Maori focus and collections. There is also an increasing range of Maori Internet resources e.g.

Nga Matatiki Rorohiko - Maori electronic resources

Ara Nui Aotearoa

The knowledge basket

SISNAP

Two members of the SISNAP (Study on the Information Infrastructures for Planning Information Systems and Networks in Asia and Pacific Countries) visited New Zealand for two days, 26-27 February 1996. They were hosted by Industrial Research Ltd and visited a wide range of information organisations. Although the visit was of necessity brief, they commented that it was very useful.

New Zealand was pleased to participate in the 3rd SISNAP workshop on information infrastructures and services in Asia and the Pacific 8-11 October 1996, Tsukuba, Japan.

NDIS

The New Zealand National Document and Information Network project (NDIS) which was being developed by the National Library of New Zealand in conjunction with the National Library of Australia will not proceed in its current form. The two national libraries will be developing their own separate systems. The National Library of New Zealand is committed to the vision of electronic access of "knowledge at my fingertips" for all New Zealanders. The National Library hopes to build on the development work already undertaken for the NDIS project. The library and information profession is concerned that they be given the opportunity to provide input into the new project. There is concern that with the rapid developments of the Internet it is no longer appropriate or necessary for a national library to develop a full bibliographic utility as there are now many places around the world from whom libraries can obtain cataloguing records etc.

LIBRARY AND INFORMATION EDUCATION

Significant changes are occurring at the two library schools. The Department of Library and Information Studies (DLIS), as part of a major restructuring of many departments at Victoria University of Wellington, has become part of the Faculty of Commerce and Administration. The School of Communications and Information Management is an amalgamation of DLIS, Information Systems and Communications. The Head of the new school is the previous Chair of the Department of Library and Information Science. The Masters in Library and Information Science (MLIS) will continue, however the course will be enhanced by the association with the Graduate School of Management and Business, particularly in the areas of management, marketing, and policy studies as well as Information Systems and Communications. The School has been looking at new methods of course delivery. The Internet has been used as both a method of teaching, and also a topic in a number of the courses e.g. Advanced information retrieval (Libr 533) which held "tutorials" as an email discussion group, and created all their assignment work as web sites.

From 1993 The School of Library Studies, Wellington College of Education, became part of the undergraduate degree programme of the Bachelor of Applied Science, The Open Polytechnic of New Zealand. "The Bachelor of Applied Science has a 'staircasing' structure which involves intermediate (diploma) level qualifications as well as a full degree.

1. A new student will be able to enrol and complete courses until they qualify for a Diploma in Information and Library Studies. If this is as far as they wish to go they may leave at this stage.

2. A student may continue with further study to achieve a higher level diploma or, eventually, a Degree with a major in Library and Information Studies.

3. A student with an existing Certificate will be able to apply to have their qualification recognised as prior learning.

... this development will offer new opportunities for Certificate holders to further their education and gain higher qualifications... the 'staircasing' structure of Diplomas at two levels will ... provide for those who wish to gain a qualification in librarianship but do not want to complete a full degree." *Library life Te Rau Ora* no 210 1997 p 9

Lindsay Milne
30 April 1997

COUNTRY PAPER ON TELECOMMUNICATION, INFORMATION AND SOFTWARE TECHNOLOGY POLICY OF PAKISTAN.

1. Telecommunication, Information and Computers in the modern global economy offer a new dawn of economic opportunities for developing countries. By making flexible economic policies developing countries can surmount the barriers and inequalities that presently place them at a disadvantage in the global market place. If the developing countries do not rapidly upgrade telecommunication, information infrastructures and human skills it is feared that late starters will risk exclusion from the global economy and face severe competitive disadvantage for export of their goods and services. The Industrialized world is racing into Information age, faster on information super highways which they are rapidly building. The gap between the first world and the third world is widening. Keeping in mind deliberations, conclusions, and back ground of Information Society and development,

, awareness is growing in developing countries.

Pakistan has evolved policy and plan keeping in mind needs of its society briefly summarize hereunder.

- An integrated system to meet people's basic needs;
- Telecommunication & Information Network for Universal Access.
- Develop, Software, appropriate applications and content;
- Massive Human Resource development;
- Technology Support for business, especially small, medium and micro enterprises;
- Support for good, sound, transparent government;
- Support Employment and Cultural development;
- Modernize and Expand the infrastructure

Telecommunication Information and Software Technologies have the potential to offer a significant contribution towards the promotion of sustainable growth in the economy of any country. By developing the needed infrastructure and effectively utilizing the same, we can narrow the current economic and social gap and prevent it from widening. Today the information society in Pakistan is in rudimentary stage. We have prepared draft policy/strategy for implementation of technology infrastructure. Telecommunication, Information, computers and Internet are bringing revolution in communications and it is likely to change the world significantly. It offers a new way to communicate and share information of all types, therefore Internet usage is growing every year. Businesses and universities are the biggest users, as they need high speed connectivity. The Internet is central to everything we are doing today. Business community is asking to let them use Internet to be more efficient to serve their customers. It is the printing press of the technology era and Millions of people find the Internet important to them. It enables users to have choices and people do not feel tied to a specific platform. All they need to think about is having a device that can connect them to Internet.

3 In Asia and around the world global information network is viewed more and more as strategic tool for business. Recently countries at WTO platform have agreed to open telecommunication and informations markets for foreign investments, reduce tariffs and duties according to their individual policies. The information technology market in advance countries like; USA, Canada, UK, Germany, Australia, Japan and far east is still growing fast. Information technology product and service volume is estimated to be over US\$ 300 billion in these markets.

4. Pakistan as a policy is accelerating pace to promote Information Technologies, software development, export and marketing to exploit the valuable potential. There is good talent in the country which can be developed to a level that we can compete in the export of software and be a major player. Telecom infrastructure in Pakistan is modern and can better support software export to overseas destinations by taking measures in the right direction. Country has evolved software, content development and information technology policies to create infrastructure for IT industry and software parks connected with high capacity fibre optic, digital cross connect, VSAT and satellite links to support fast transfer of software data on high speed.

5. Pakistan is promoting Telecom and IT infrastructure by increased private sector participation. Software Board is setting Technology Parks in major cities. Later on similar parks shall be set up near each city that has an engineering or a university conducting Computer Science Courses. Action Learning Centers shall

Training Centers, Universities and Software Houses. The Government will be active as Information-centric and Islamabad will work on the motto "Information Age".

6. Pakistan is planning to accelerate pace of infrastructure support, manpower skill development and training. Computer Science Graduates and unemployed engineering graduates shall be retrained as per new syllabus of informations technologies and software development needs. Federal Education Ministry and provincial governments will follow and implement skill and technology improvement policy consistently.

7. Management of Software Technology Parks shall hire domestic satellite capacity/terminals and Fibre Optic links to connect overseas clients. Government has liberalized satellite services by permitting PakSat Joint Venture, Pan Amsat, Asia Sat and other similar projects. Telecommunication Network is being digitalized and it is planned to fully load existing fibre optic links and accelerate completion of alternate fibre optic links, (622 Mb, SDH) under construction before 1997 alongwith subsidiary routes. The software parks shall be connected on commercial feasibility through fibre rings. Network of cross connect equipment capable of supporting high speed data and software transfer for domestic and international use from 64 Kb -2 Mb, is being launched. Pakistan is committed to invest in international fibre optic links like TAE and SEA ME WE III to share usage in global information highways. International satellite links are being expanded and digitized upto 100%. The quality of Internet services in Pakistan is reasonable but needs to improve. The Internet, E-Mail and other wide band ATM services are planned to be expanded. Separate data back bone network is planned to meet growing need of Licensed Service Providers, General Public, Finance, Industry and other Sectors of the economy. Pilot and test bed projects can be launched with the help of multilateral bodies.

8. Pakistan is initiating human resource development programmes to develop skill base and to export highly valuable skilled workers in international markets. Massive efforts on Hi-Tech education by universities, colleges, computer training centers, institutes, polytechnics and by participation of multinationals shall result in producing good manpower base (7 years programme) as detailed under:-

- a) Produce 50,000 IT educated experts and managers
- b) Produce 50,000 IT educated technicians

c) Produce half Million IT workers.

9. Curricula of computer science programs offered by universities is being revamped through computers science departments, Universities and Educational Institutions. Country wide seminars and workshops addressing concerned sections of the society shall be conducted aiming to develop skills and use of computers to increase productivity. Internet and software learning seminars shall aim at people from all walks of life who use computers connected to the Internet, information and education computer programs.

10. Government is planning, software export, to be treated as an industry. Financial institutions shall permit capital for investment in this industry and simplify procedures so that the software service industry gets recognition as an export trade. Procedures like shipping documents, bill of lading are being simplified. Software Export Board shall regulate the sector and keep government informed through annual reports of their activities focusing on export targets.

11. Fiscal incentives shall be given to Software houses. ISO-9000 and other Certification programme are being launched. Intellectual Property Rights Issues shall be resolved by reviewing present laws. Massive awareness programme for members of major trade organizations on opportunities in information and software business are planned. This will attract business groups to enter into the IT & software business. Software export industry be given tax holiday for the next five years. GOP may review the levels of duties and taxes on hardware and software. Import of computer hardware could be allowed either free of customs duty or under cascaded tariff regime. Plants to manufacture computer hardware be

exempted from custom and regulatory duties. Production of computers be encouraged by giving special incentive to local industry.

12. Pakistan should launch national information technology policy and plan to be a signatory to WTO Information Technology Agreement as 39 countries have already signed IT Agreement. Export finance credit facilities be provided for software export. State Bank of Pakistan to design forms for declaring export earnings for this industry to make it eligible for export credit facility and rationalize the procedures for recording export revenues from software.

13. While planning information programmes we are going for harmonized social awareness and uplift of society to bridge social and cultural gap to reinforce bonds in our society for ultimate prosperity of the nation. Comprehensively coordinated national and international policies by governments and industry are essential to guide the evolution toward information societies within framework of international cooperation.

14. It is, however, felt that information society may affect individual cultures of nations if proper code is not formulated as societies of the World are not at one cultural level. Today our world is multi-colored, multi-racial and we have variety of cultures based on religion and historical heritage. The information society as emanating from modern cultures may not be acceptable to all the nations. There could be ethical problems to eastern and other cultures. We have apprehensions about ownership and responsibility of content. There could be transmission of content and information which are obscene, obscure and indecent. In the absence of an international coherent regulations in place every one is driven by the direction of USA including their laws relating to right of speech and freedom. The misuse of

Internet is known in USA and Belgium where societal issues have already cropped up. We recommend Internet to be guided by ITU instead of different society deciding Internet content related issues. Policy makers and regulators at global level need to design code of ethics and conduct so that individual nations could retain cultural identity, value and heritage yet be part of future information society.

15. In emerging markets and developing countries the technological issue of voice and transit switching on internet is causing considerable worry for reasons of exclusivity on voice services. It will take time for monopolies to adjust to the new challenges coming from voice on internet affecting their cash flows. In addition there is security and personal privacy issue where hackers can play havoc to industry and to networks. The new operators do not have necessary skills to address these challenges.

16. However while we want to move faster in information technology field we expect ASIA and to take up the issues in this forum. We need cooperation and help to enhance our technical know-how skills and training in the Information Sector. We need assistance in framing sectorial policies to further liberalize and open the sectors to drive benefit from future information age.

Status Report on Information Infrastructure and Services in the Philippines

by

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1. Introduction

The Philippines has finally shed off its image as the sick man of Asia and as an economic basket case to become one of the region's newest economic tiger. For 1996, the growth in the gross national product (GNP), as adjusted for inflation, has levelled at 6.8%, a remarkable jump from the 5.1% growth in 1995. With this new found prosperity, more resources are now being allocated for the development of the country's information infrastructure and services. This report provides an overview of the Philippine information infrastructure and services and some of the relevant developments that occurred in the last two years.

2. National Information Infrastructure

The past two years have seen the realization of the DOST Enterprise Network. The DOST network is an electronic network that links all of the agencies and regional offices of the Department of Science and Technology (DOST), the premiere science and technology body in the country. The core of this network is a newly-installed fiber optic network connecting all of the agencies in the DOST main campus in Bicutan. Agencies outside Bicutan and regional

A Country Report for the 11th ASTINFO Consultative Meeting and Regional Seminar/Workshop on Information for Development, May 2-9, 1997, IRANDOC, Tehran, Iran.

offices connects to the backbone network via the PHnet or commercial Internet Service Providers (ISPs). The establishment of the DOST network is expected to serve as a model for the government and educational sectors in harnessing information technologies such as the Internet as a tool for national development. Aside from operating its network, the DOST also administers the Philippine government domain (i.e. gov.ph) in the Internet.

Substantial gains towards the ultimate establishment of a national information infrastructure had been made in the past two years. PHnet, the DOST funded research and academic network, had increased its membership from initially ten (10) organizations to more than fifty (50). The PHnet expects to connect to the Internet about 500 research and academic institutions in the next two years. Since the first gateway to the Internet was established by PHnet in 1994, private companies had been jumping into the bandwagon of providing Internet connectivity services. In 1995, one year after the establishment of PHnet, there were around twelve (12) commercial ISPs in the country providing services mainly in the Metro Manila Area. Two years later, the number of commercial ISPs have grown to more eighty (80) and Internet connectivity services are now available in most of the cities and urban areas all over the country. The increased availability of the Internet resulted in a substantial increase in the number of Internet users in the country from around 15,000 two years ago to approximately 50,000-80,000 users in 1997.

The growth of the Internet in the Philippines is expected to accelerate in the next two years with the implementation of RPWEB which is often referred to as the precursor to the Philippine Information Infrastructure. RPWEB is a project initiated by Congress and to be signed into an Administrative Order by the President. RPWEB specifically orders all

government entities, around 20,000, to connect to the Internet via the PHnet or any commercial Internet Service Provider. It also orders all ISPs operating in the country to help in developing a national Internet backbone to improve local network connectivity.

3. Library and Information Services

As reported earlier, there are two main science and technology related information consortium in the country namely SciNET and ESEP Library Consortium. SciNET or the Science and Technology Information Network of the Philippines is the consortium of the special libraries of the Department of Science and Technology. The ESEP Library Consortium is a network of libraries of academic institutions participating in the DOST-funded Engineering and Science Education Project.

SciNET-PHIL was formed to address the technical information requirements of the DOST and its clientele (e.g. academics, scientists and researchers). SciNET-PHIL also aims to rationalize the collection development effort of the DOST and maximize use of resources through information sharing and human networking. The consortium had been maintaining a World-Wide Web site since early 1995 and had completed a Web-based Online Public Access Catalog of Books in 1996. The consortium was also able to conduct an inventory of the resources of member libraries resulting in the publication (i.e. electronic and print) of the Directory of SciNET Member Institutions. The URL of the SciNET Home Page is <http://www.stii.dost.gov.ph/scinet.html>. SciNET also sponsored various training and manpower development programs for its members including training on accessing the Internet, using the World-Wide Web in the library and trainer's training.

The DOST Engineering and Science Education Project (DOST-ESEP) is a World Bank Finance project whose objective is to produce around 3,000 competent scientists and engineers by 1998. The project includes: (a) scholarship grants and short-term training courses; (a) faculty development; (c) equipment and library upgrading; (d) strengthening of R&D capabilities through research grants and linkages with R&D institutions here and abroad; (e) linkage with industry for R&D applications/needs and focusing of specialization of graduate programs. One of the major programs of this project is the upgrading of the library holdings and facilities of the top academic institutions in the country and making these resources accessible from the PInet/Internet. This program is expected to have a significant impact on the local S&T information environment since it will bring into line the significant body of knowledge from the academe.

Relevant developments were also reported by the PCIRD, the APINMAP national node and secretariat. Perhaps the most important of which is the development of the APINMAP home page in the World-Wide Web. The APINMAP home page can be accessed at <http://www.pchrd.dost.gov.ph/apinmap>.

4. Concluding Remarks

With the marked improvement in the economy, major steps towards the development of a national information structure and establishment of information services have been undertaken in the past two years. In the Philippines, people are starting to realize that a national information infrastructure is necessary in order to sustain the economic gains so far realized. Thus it is expected that more and more resources will be made available by both the government and private sectors for the development of the national information structure and services. □

11th ASTINFO CONSULTATIVE MEETING

PNG COUNTRY REPORT

Introduction

Over the last three years, PNG has undergone some very difficult and confusing times. First, there is the ongoing Education Reforms, which is a major overhaul of the country's education system. Then in mid 1990, Parliament approved the Reforms on Provincial and Local Level Governments. In addition to these, government organisations have had to endure a harsh financial climate and reduced manpower ceilings. Basically, we have been asked to do more with less, but this is feasible only to an extent. This situation has affected our efforts to improve information services within the country.

1. Up-date on Work Plan

1.1 CDS/ISIS Workshops

There have not been any CDS/ISIS workshops held in the last two years. The main reason has been the lack of technical expertise at the SPCenCIID. However, now there is a Papua New Guinean who is running the CDS/ISIS course for students at SPCenCIID. He is will be the trainer in future courses that will be arranged for practising librarians, archivists and other information workers.

1.2 CDS/ISIS Users' Group

Some years back, there was a thriving user group in Pt Moresby. However, when the coordinator went on study leave, the activities of the group petered out. The Papua New Guinean who is now teaching students at SPCenCIID is interested in reviving the user group. The National Library is kick-starting the group with a meeting in May.

1.3 Information Management & Technology Courses

The main IT course that SPCenCIID runs is Introduction To Information Technology. This is offered to diploma and degree students. National Library staff on part-time studies have also taken the course.

1.4 NULOS

Some work was done on the 3rd edition of NULOS. However, due to severe staffing constraints, the project has been left untouched.

1.5 CD-ROM Workshops

There have not been any workshop concerning on CD-ROM. However, this topic is covered in the Introduction to Information Technology course at UPNG.

The National Library, the Pacific Adventist College Library, and some of the Government Department libraries use CD-ROM, mainly for cataloguing functions. Much of the CD-ROM training for staff have therefore been in-house.

The National Library's planned workshop/conference (See 1.9) would have given us an opportunity to introduce provincial public librarians to CD-ROM technology. Due to insufficient funds, that workshop/conference had to be postponed.

It is possible that once the PNGLA is operating (See 1.6), we will be able to secure ALIA's assistance in running workshops on CD-ROM and other topics for practising librarians and information workers in the country.

1.6 Revival of PNGLA

The PNG Library Association (PNGLA) has been in hibernation for many years. The association, when up and running, would have the potential to contribute significantly to effective information dissemination to the community, and also to PNG's literacy efforts.

In its attempts to revive the PNGLA, OLA organised a special meeting of senior librarians from Pt Moresby and Lae in May 1996. The purpose of the meeting was to discuss ways of resurrecting the association. After much debate, it was decided that a new and interim executive should be formed and that one of its first tasks was to look at a proposed reorganisation of the association. To date, no further action has been taken by the interim executive.

In June, the National Librarian held discussions with the Australian Library & Information Association (ALIA). ALIA indicated their desire to help revive the PNGLA. The offers of assistance were relayed to the interim executive. As far as we know, none of these offers have been taken up yet by the interim executive, and it appears OLA's efforts have once again been fruitless.

In 1995, a Participation Programme request was submitted to UNESCO for funds in the 1996/97 Biennium Budget. The requested funds (US\$15,000) would be used to help revive the PNGLA. This project request was one of only three PNG requests approved for funding.

The UNESCO funds will be used to hire a part-time executive officer (E/O) for the PNGLA, and to run an interim association office. The E/O will take care of the day-to-day affairs of the association. Details of the E/O's duties and other information about the PNGLA Office are given in Attachment A.

The E/O has commenced duties. Her first major task is to organise a meeting for librarians in the National Capital District (NCD). In this meeting, an executive for the NCD will be elected. Similar gatherings will be held at the other centres. Later in the year, a meeting will be called of all provincial executives to discuss and map out the best way forward for the association.

Librarians from around the country have voiced their support for the efforts OLA is putting into reviving the PNGLA.

1.7 National Literacy Week

In the 1996-97 ASTINFO Work Plan, PNG was to establish and promote a "Visit the Library Month". However, we decided to change things a bit and instead established a National Literacy Week (NLW). The concept was first mentioned in the OLA Report to the National Literacy and Awareness Council (NLAC) meeting in September 1995. A proposal was developed and tabled at the next NLAC meeting in March 1996. The idea was unanimously approved and a committee was formed to coordinate NLW. Things moved very quickly and so PNG celebrated its first NLW on the 8-13 September 1996. The event, modelled on the successful National Book Week, received wide media coverage.

Planning of the 1997 NLW is well underway.

Attachment B is the NLW proposal, and Attachment C the Report on the 1996 NLW.

1.8 Regional South Pacific Reading Promotion Seminar

No progress has been made with this project. As it is a good idea, it has been incorporated into the 1998-99 Work Plan. We hope to have this back-to-back with a PNGLA conference in 1998.

1.9 Public Library Workshop/Conference

OLA was planning a Public Library Workshop/Conference for November 1997. A Participation Programme request was submitted to UNESCO for funds in the 1996/97 Biennium Budget. The requested funds were to be used as part funding for the workshop. No notification has been received on the status of this request. The National Library also made a submission in the 1996 budget estimates for funds for the Workshop/Conference. Only half of the requested amount was granted.

Due to insufficient funds, OLA has postponed 1998 the Conference/Workshop to late 1998.

1.10 Directory of Information Sources in Science & Technology

This is another project that was neglected because of the staffing constraints OLA faced. Another directory, the **Directory of Libraries in PNG** is currently being updated. This next edition will also include software (but not the databases) held/used by libraries in the country. There will therefore be a need to update the science and technology directory.

2. World Book & Copyright Day

One of the Resolutions from the 1995 UNESCO General Conference was to make April 23 the World Book & Copyright Day. The aim of this resolution was to draw the attention of government and the general public to the fact that despite the spread of electronic media, books

still remain the basis of active education and critical thought.

OLA was not aware of this resolution as the PNG National Commission for UNESCO did not publicise it. Two weeks before the event, we received a fax from the UNESCO Regional Office in Bangkok, requesting OLA's assistance in publicising and celebrating the event.

OLA staff took up the challenge and set about planning and publicising the event. We organised a launching to be held at the indoor complex of the Sir John Guise Stadium. Invitations were sent to departmental heads, members of the Diplomatic Corps, and other organisations to witness the occasion. Things began to come together.

However, on the eve of World Book & Copyright Day, OLA was informed that the Governor General would not be available for the launching. It was too late to get another high profile person to officiate, so the whole thing was called off.

This year, OLA arranged for a statement on World Book and Copyright Day by the Chairman of the PNG National Commission for UNESCO. This statement appeared as full-page advertisements in the two national dailies.

3. OLA Nius

In February 1996 the Office of Libraries and Archives revived its monthly newsletter, **OLA Nius** (formerly called **National Library Nius**). **OLA Nius** is distributed to government and education authorities and institutions, libraries, and NGOs nation-wide. It is also sent to National Libraries and network members within the Asia-Pacific region.

4. Internet Project

PNG at present does not have full internet access. However, there are institutions and organisations which have some access, mainly email. These organisations use off-shore commercial suppliers such as Compuserve. The Office of Libraries and Archives (OLA) does not have any internet access at all. However, all this is about to change.

In 1996, the National Library of Australia (NLA) initiated a pilot project to give OLA internet access. In late October, two NLA officers visited PNG. The main purpose of their visit was to carry out an investigation into the technical and equipment needs for the project.

The pilot project proposal was to create a dial-up email gateway between OLA and the NLA. A mini-LAN will be created within OLA. The terminals in the LAN would have email access to the NLA, and through the NLA, to the rest of the world. The OLA home page will be mirrored on the NLA website and kept up to date with regular batch deliveries of data to Canberra.

While in PNG, the two NLA officers held discussions with various individuals and organisations, such as the Education Department, the Prime Minister's Department, UPNG, Unitech, and Telikom.

In May 1997, an IT expert from the NLA will install the LAN and the gateway at OLA. He will

also be carrying out training for OLA staff on using and maintaining the system. A number of other organisations have expressed interest in sending their staff to the training sessions.

OLA's internet project should get off the ground at the same time as the long-delayed community communications network (COMMNET). The COMMNET partners, the Education Department, the University of Technology, the Summer Institute of Linguistics (SIL), OLA, and PTC, have agreed to bring in an American consultant to carry out the technical implementation of COMMNET. The consultant's visit will coincide with the visit of the IT expert from NLA. We believe OLA's internet project and COMMNET will dovetail nicely. The installation of a router at OLA will facilitate external networked communications between the OLA LAN/Webserver and COMMNET users.

The pilot project is being funded by the NLA through its Regional Cooperation Programme.

On the 9 April, Telikom launched Tiare, the PNG Internet gateway. OLA is seriously considering the option of full internet access if the costs are affordable. We are holding discussions with various government bodies on issues such as costs, training, accessibility, and the idea of having a single access point for all government organisations.

5. National Literacy Council

PNG has a National Literacy and Awareness Council (NLAC). Established in 1989, the NLAC aims to coordinate and support the literacy efforts that are being carried out by government agencies, NGOs, churches and community groups around the country. The executive agency for the NLAC is the National Literacy and Awareness Secretariat (NLAS).

Through the NLAC, member organisations can see that the ultimate objective for all our efforts is improving the lives of our people. We all recognise that information is the key, and that without literacy, and ultimately without relevant information, the majority of our populace have been, are, and to an extent, will continue to be subject to exploitation. It is therefore important to empower our people, so they will be able to make informed decisions. Improving our literacy rate, and increasing people's access to information is therefore vitally important to the well-being of our people and country.

PNG WORK PLAN FOR 1998-1999

ACTIVITIES	OBJECTIVES	TIME FRAME	RESPONSIBLE ORGANISATION	REQUIREMENTS / RESOURCES	REMARKS
NATIONAL 1. CDS/ISIS Workshops (a) Beginners (b) Advance	Develop proficiency in the use of software	Annual	SPC ent IID, OLA & User Group	Internal	Seek funding for resource person for advanced training component
2. CDS/ISIS Users Group	Improve cooperation & knowledge of database applications	Annual	User Group, SPCenCIID, OLA	Internal	
3. National Union List Of Serials (NULOS)	Improve document delivery by producing 3rd edition	1999	OLA	Internal	Funding & staffing constraints
4. CD-ROM Workshops	Develop proficiency in use of CD-ROM technology	Annual	SPCenCIID, OLA, & other libraries	Mostly internally funded	Secure funds for trainers to attend commercial training courses. Request manpower assistance from NLA, ALIA, etc.
5. Internet Training	Develop proficiency in use of internet	Annual	OLA, SPCenCIID, Education Dept	Mostly internally funded	Secure funds for trainers to attend commercial training courses. Request manpower assistance from NLA, ALIA, etc.

6. Public Library Conference/Workshop	To bring together public librarians from around the country and possibly the sub region	1998	OIA & PNGIA	Internal & external. Resource persons from Australia	PCI/ASTINFO, ALIA and AusAID to be approached regarding support for conference workshop
7. Directory of Information Sources in Science & Technology	Update directory and expand coverage to include social science databases	1999	OIA	Internal	Investigate regional coverage

**ELEVENTH
ASTINFO CONSULTATIVE MEETING**

3 - 9 MAY 1997

IRANDOC, TEHRAN

COUNTRY REPORT

1996-1997

SRI LANKA

**NATURAL RESOURCES ENERGY AND SCIENCE AUTHORITY
COLOMBO, SRI LANKA**

ASTINFO CONSULTATIVE MEETING

SRI LANKA COUNTRY REPORT

1996-1997

ASTINFO activities in Sri Lanka are closely associated with those of the Natural Resources Energy and Science Authority of Sri Lanka (NARESA) which is the National ASTINFO Coordinating Unit. Largely due to the fact that NARESA had taken several important steps to expand and strengthen the services offered to the scientific community, 1996/97 saw a significant improvement in scientific and technical information services in Sri Lanka.

Sri Lanka Library Services Board (NLSB), Sri Lanka Library Association (SLLA) and Sri Lanka Standards Institute (SLSI) are other key national organizations which are responsible for the development of different aspects of librarianship in Sri Lanka. This status report discusses the contributions that these organizations and the library networks had made during 1996/97, towards achievement of the ASTINFO objectives.

A. NARESA/SLSTIC

One of the main objectives of NARESA is coordination of scientific and technical information resources, experiences and efforts of the country for providing effective and efficient library, documentation and information services to the scientific community. This responsibility of NARESA has been vested in the Sri Lanka Scientific and Technical Information Centre (SLSTIC) which is one of its administrative unit.

NARESA has appointed a committee named the Steering Committee on Scientific and Technical Information (also functions as the ASTINFO Advisory Committee) to advise SLSTIC in planning and implementation of its systems and services.

During the period under review, SLSTIC had made important contributions in computer systems development, in-house databases compilation, provision of scientific information services, promotion of library cooperation and user education/library training.

a. Computer systems development:

CDS/ISIS

Since its establishment in 1977, SLSTIC had played a leading role in library automation in Sri Lanka. In 1983, it installed the first bibliographic computer system in Sri Lanka and since then, SLSTIC pioneered in utilization of information technologies for library automation.

SLSTIC functions as the national distributor of micro CDS/ISIS which has become the standard library software in Sri Lanka. In addition to distribution, it promoted application of the software by providing training, consultation and documentation services.

A simplified manual on CDS/ISIS was compiled in English and Sinhala. SLSTIC staff was made available for trouble shooting and software installation. A common file structure (SLSTINET Bibliographic Format) was designed for standardising library databases. IDAMS, a statistical package developed by Unesco which could be used as a supplementary software of CDS/ISIS has not been exploited yet by Sri Lanka. SLSTIC plans to launch a programme to introduce IDAM to library professionals. Non availability of an interface to convert local script for CDS/ISIS has been recognized as a major impediment in utilization of the of the software by public and school libraries which have substantial collection of books in local languages. SLSTIC initiated negotiations with Indian Authorities concerned to get their support for solving this problem.

Local Area Network

On a grant received from SAREC, a local area network with 15 workstations and 5 multimedia PCs was established to strengthen the in-house computer capabilities. The LAN provided multiple access to NARESA staff and to the library visitors for exploiting CD-ROM and in-house databases.

Wide Area Network

By linking the LAN with the Lanka Educational Academic and Research Network (LEARN), which is operated by the University community, SLSTIC facilitated remote users to communicate with it via e-mail. This was the first step taken towards out-reaching the scientific community who stationed at remote places and the SLSTINET libraries.

With a 64k bps leased line linked to the Sri Lanka TeleCom, SLSTIC had obtained Internet accessibility. It is planned to provide dial-in services to remote libraries and scientific organizations, by acquiring routers and necessary software.

b. In-house databases

With the view of documenting national research efforts, scientific information sources, systems and services, SLSTIC continued compilation of the following in-house databases.

- * SLSTIC - library catalogue
- * SLSI - scientific and technical documents generated in Sri Lanka or by Sri Lankans
- * ULIST - Union List of Scientific Periodicals in SLSTINET libraries
- * SLSTEP- Scientific and Technical personnel in Sri Lanka
- * DBOSR - on-going Scientific and Technical research in Sri Lanka
- * RGRA - Final reports of research projects on NARESA grants

In addition to the above, action had been taken to compile a referral database on climatic information relating to Sri Lanka.

c. Scientific information services

SLSTIC provided information services to its visitors and to the remote users who access its LAN. CD-ROMs and in-house databases can be searched online by visitors; remote users can send their search queries by e-mail. Similarly a user can request SLSTIC by e-mail to conduct Internet searches. When dial-in facilities are procured remote users would be able to access LAN and conduct searches themselves.

SLSTIC has acquired external databases on CD ROMs which are not available in other libraries. A cooperative plan for acquiring CD-ROMs by SLSTINET libraries will be drawn up.

d. Library Cooperation

Sri Lanka Scientific and Technical Information Network (SLTINET) functions as the main network which covers the scientific and technical libraries. Being the hub of the network, SLSTIC made the network active by organizing meeting and cooperative activities. Annual general meeting of the network was held in January 97. Progress of activities were reviewed and new programmes were identified at this meeting. A working committee comprising the Sub-Network Coordinators and senior library professionals

was appointed to draw up an action plan for 1997. On the recommendation of the Sub Committee action had been taken to revise the Union List of Scientific Periodicals (ULIST).

e. Training and education

For effective use of the new information systems and products introduced by SLSTIC, it was necessary to train the three categories of personnel: NARESA/SLSTIC staff; SLSTINET librarians and scientific personnel. SLSTIC Training and Education Programmes (STEP) were organized for this purpose.

Workshops on CDS/ISIS were conducted to help library personnel developing and exploiting databases. Training seminars on CD-ROM and Internet were organized to develop search skills of both librarians and scientific personnel. SLSTIC conducted tailor-made programmes on the request of scientific institutions. Recognizing the importance of marketing of information services, SLSTIC organized special programmes such as displays, information bureaus and demonstrations at the premises where major scientific events took place.

B. Sri Lanka Library Services Board (NLSB)

Prime objective of NLSB is the operation of the National Library of Sri Lanka (NLSL) which functions as the apex library of the country. NLSB is responsible for advising the government on matters relating to libraries and for planning library development. While continuing its regular programmes such as national bibliography, legal depository, book development, library training, ISBN/ISSN registration, it had initiated several new programme during 1996/97.

a. National Union Catalogue (UNICAT)

The union catalogue which was maintained as a card file had been computerized using micro CDS/ISIS software. With the commencement of this project the subject oriented union catalogues compiled by library networks became redundant. By the end of the first year (1996) UNICAT had over 15 000 entries received from 18 libraries. Compilation of the computerized union catalogue was made easy by adaptation of CDS/ISIS as the common software and SLSTINET Bibliographic Format as the common file structure.

b. Library Legislation

Action has been initiated to introduce library legislation at the provincial level. Library legislation encourages the Provincial Authorities to develop library facilities. It was planned to establish Provincial Library Services Boards which functions at each province under the guidance of NLSB. The Central Provincial Library Services Board had been established.

c. School library development

A project for the development of 2000 school libraries with the financial support from the World Bank had been initiated by NLSB. This project is expected to have short term and long term impacts on library development of the country.

C. Sri Lanka library Association (SLLA)

Organization of training programmes for the development of professionals and para-professionals, provision of consultation services for library development, formulation of professional standards and guidelines are the main areas of activities of SLLA which is the professional association of librarians and documentalists in Sri Lanka. The following activities of SLLA had a significant impact on library development during the period under review.

a. Course of Library Automation (COLA)

COLA was designed by SLLA to satisfy the need of a training programme to prepare library personnel in utilizing modern information. This course contains modules on operating systems, CDS/ISIS, database compilation, word processing, use of new information media etc.

b. Sri Lanka ISIS Users Club (SLISIS)

SLISIS was organized to promote utilization of CDS/ISIS software. It created a forum to discuss user experiences, problems, solutions and innovations. ISIS Clinics or trouble shooting sessions were organized fortnightly. A panel of ISIS experts was appointed to help SLLA in ISIS activities. Quarterly meetings were organized to demonstrate databases, share Pascal programmes, inform new development and problem solving.

D Sri Lanka Standards Institute

Standardization of characters, data, information and documents is essential for effective communication. The Working Committee on Library and Documentation was responsible for identifying information products and services that should be standardized at the national level. The Committee surveyed the existing ISO standards and selected those should be adapted. These standards, after making modifications to suit the local requirements, were adapted as Sri Lanka Standards. During the period 1996/97, the Committee recommend adaptation of 13 standards in the library and documentation field.

E Library Networks

Four library networks covering science and technology were in operation during 1996/97 period. They were SLSTINET, AGRINET (agricultural information network), ENLINET (environmental library network) and HELLIS (health science literature library and information service). Network activities which had made significant impact on the development of library systems and services are discussed below.

a. PURNA : integrated library system

Agrinet created an integrated library system named PURNA which was based on CDS/ISIS, for the benefit of the participating libraries. PURNA handles cataloguing, indexing, ordering, gifts & exchanges, circulation, accession, serials control, current awareness and SDI services. Two modules of PURNA had been already installed in the agrinet libraries.

b. National Agricultural Bibliography

Agrinet libraries initiated a new cooperative database to capture locally generated agricultural literature. The Bibliography was compiled by merging cds/isis data received from participating libraries.

c. Library Development Reports

The Agrinet Advisory Committee appointed by the Council for Agricultural Research Policy, visited participating institutions on invitation to survey the library resources and to make recommendations regarding improvement of the systems and services.

**11th ASTINFO Consultative Meeting
and Regional**

Seminar/Workshop, 2 - 9 May, 1997,

Tehran, Iran

Country report : Thailand

Prepared by Knid Tantavirat

Library School

Chulalongkorn University

Bangkok , Thailand

ASTINFO Activities in Thailand

1. Introduction

"In the new era of information society, it is information that is the most important factor of production and wealth creation".

The National Research Council of Thailand (NRCT) has been designated as the ASTINFO Coordinating Unit (ACU) for Thailand with another 12 Associated Centers following:

Center of Academic Resources, Chulalongkorn University

Central Library, Kasetsart University

Library and Information Center, NIDA

Library and Information Center, Mahidol University

National Library of Thailand

Thai National Documentation Center, Thailand Institute of Scientific and Technological Research

Library of Science Service Department, Ministry of Science, Technology and Environment.

Instructional Resources Center, Khon Kaen University

Central Library, Chiangmai University

Central Library, Songkhanakharin University

Library and Documentation Center, Bank of Thailand

UNISIST

Among these libraries, 6 of them are national coordinating centers and 1 act as THAINATIS Secretariat. So they play an important role in library development.

From the Fifth National Policy of Research (1997-2001) the strategic directions on science and technology has been focused, especially development of Science and Technology manpower, more efficiency of technology transferred from abroad, promoting more role of private sector in research and development and more support research and development on industrial. In order to develop such plan, these things should be considered:

1. Need more fund for research
2. Need more researchers to be involve in research
3. Develop quality and quantity of researchers in university
4. Establish mechanism between the researchers and the users
5. Research-management structures should be adjust

2. Activities

2.1 Seminar / meeting / training / workshop

National Library of Thailand hosted the IFKLA-RSCAO meeting upon the request of IFLA-RSCAO Regional manager

Central Library, Chiangmai University organized seminar / workshops such as

- Library computer networking.
- Bibliography of Thailand.
- Computers and your library, What they can do for you.
- National academic library networking.

Central Library, Kasetsart University organized

- Library network.
- Information technology and library.
- Internet and the library.

Library of Science Service Department

Environmental organized

- Abstracting for books on S&T
- On-line search for S&T databases.
- Information on S&T in globalization period.
- JICST's management and services.
- TQM for library work.
- Thai indexing for S&T network.

Library and Documentation Center, Bank of Thailand

- Image processing

Library and Information Center, Mahidol University organized

- Workshop for Health Science Librarians (for HELLIS network)
- Medical information retrieval system
- On-line service for scientific and technology network
- Medical services of Health and Biomedical libraries
- SEAMIC Technical Committee - meeting on Health documentation

Library and Information Center, NIDA organized

- Periodical index for S&T network
- Social science databases : services and use.

Research Information Center, NRCT organized

- Research databases for networking
- Data entry and thesaurus construction
- Creation of databases
- Record management of NRCT
- NRCT and MIS
- Bibliography of research work
- Directory of researchers

3. Cooperation / network

Among the associates centers of ASTINFO, the academic libraries play the leading role in all aspects of library cooperation and development in Thailand while National Library of Thailand cooperates closely with the Southeast Asia such as NLDC-SEA consortium, etc.

University Library group under the support of Ministry of University Affairs has formed "Library Development Committee" to discuss and solve the problems including setting up the guideline of activities and co-ordination in order to improve the existing facilities, expand the services and to avoid duplication of work as the following :

For acquisition or resource development work

- Compiled list of book dealers and their policy including evaluated their services.
- Cooperate in the project of resource-sharing by using standing order
- Exchanging of books, serials, etc.
- Exchange information on information resources and bibliography
- Work together on the project of using modern technology with the acquisition work

For cataloguing and classification work

- Compiled Thai Subject Heading manual.: 3rd ed.
- Compiled Thai corporate body for data entry
- Creating standard data structure and field structure which will be used in networking
- Created Union catalog of books in university libraries : automated
- Work together on the project of creating standard data structure

For serials work

- Organized workshop on "Using computer with serials work"
- Compiled manual of information concerning serials work and services for public use.
- Created database of Union List of Serials in Thailand
- Study of the duplicated volume for library management policy.
- Cooperate in making periodicals index on different topic as a tool for giving service
- Work together on the project of using modern technology with serials work
- Organized workshop on "Serials searching ; Uncover and EBSCONET thru Internet"
- Compiled a handbook on serial management and services for the use of network of periodical-indexing

- Cooperate in study on periodical-index for the point of decreasing the duplicate of work by using technology
- Exchange list of subscribed-serials.

For library and information service work

- Compiled list of databases in libraries : automated
- Inter-library loan service and copying service
- Created databases for Thai periodical index for sharing
- Compiled and published a manual on library services for the benefit of users
- Exchange of list of subscribed-serials
- Work together on on-line service from OCLC (first search) and on-service from Uncover Company thru Internet
- Developed together for full-text service and document delivery

For educational technology (A-V) work

- Compiled and published Directory of A-V sources
- Work together on creating database of A-V materials
- Organized workshop on Data entry for A-V materials
- Organized seminar on Electronic library and multimedia

4. Computer network

At present university libraries play an important role in the development of computerized library operation. Because of the favourable circumstance on necessity of higher education, the government gives strong support to the university library. So the first target of computer networking is among educational institutions and research centers.

Since 1989 NECTEC (the National Electronics and Computer Technology Center, Ministry of Science, Technology and Environment) has supported to link the science and technology information databases created by 11 universities forming a computer network system which the users can access and retrieve information available within Thailand and foreign countries effectively.

1. Chulalongkorn University
2. Chiang Mai University
3. Kasetsart University
4. Khon Kaen University
5. King Mongkut Institute of Technology-Lat Krabang
6. King Mongkut Institute of Technology - Thonburi
7. King Mongkut Institute of Technology - North Bangkok
8. Mahidol University
9. Prince of Songkhla University-Hat Yai Campus
10. Silpakorn University - Phra Ratchawang Sanam Chan Campus
11. Sukhothai Thammathirat University

THAILINET (Thai Academic Library Network - metropolitan)

It is the network of the university library in Bangkok Metropolitan area established since 1994 composed of 12 government university libraries as following :

1. Chulalongkorn University
2. Kasetsart University
3. Thammasart University
4. Mahidol University
5. Ramkamhaeng University
6. Silpakorn University - Wang Thapra Campus
7. Srinakharinharaviroj University - Prasarnmit Campus
8. Sukhothai Thammathirat University
9. King Mongkut Institute of Technology - Lat Krabang
10. King Mongkut Institute of Technology - Thonburi
11. King Mongkut Institute of Technology - North Bangkok
12. National Institute of Development Administration
13. Ministry of University Affairs

The purpose is to develop automated library system by using computer and modern telecommunication for increasing of efficiency and potential of academic service, for resource sharing project and for decreasing the overtopped - information resources. management and library work.

The profile of the network that been set. including the hardware and software and the basic requirement such as

- CPU with multiuser
- memory between 16 Mbyte to 64 Mbyte
- tape backup not less than 15 Mbyte
- UPS 5 KVA for main CPU
- one smart HUB not less than 12 ports.
- terminal server at least 16 ports
- one multi CD-ROM player
- PC / terminal which has network capability modem high speed - 9600 bps etc.

Each university library will be linked thru leased line with router and high speed modems. At present, most of them has connected to Internet, so the linkage is not just only in Bangkok area but thru out the country and abroad.

PULINET (Provincial University Library network)

It is the network of the provincial university library established since 1986 - 87 which composes of 11 libraries as following :

1. Central Library, Chiangmai University
2. Academic Resource Center, Khon Kaen University
3. Academic Resource Center, Prince of Songkhla University
4. Academic Resource Center, Mahasarakam University
5. Library, Institute of Agricultural Technology-Maejo
6. Central Library, Silpakorn University - Phra Ratchawang Sanam Chan Campus
7. Academic Resource Center, Ubolrajthani University
8. Central Library, Naresuan University
9. Central Library, Burapa University

10. Information and Educational Technology, Suranaree University of Technology

11. Central Library, Thaksin University

Its objective is to create format and standard-databases, develop information resources and render on-line services among the network, promote the concept of resource-sharing and give variety of activities and services including the delivery system.

At present, PULINET can link with THAILINET and Internet thru Thai Sarn (Thai Social/Scientific, Academic and Research Network) which is the national computer network of Thailand.

Conclusion

University library gives more active and efficient service to the users due to the more budget received, more qualified staff. Also they have to be alert of the new technology, keep up with the globalization, so that IT turns to be operated by university library group before the other for the concept of networking, resource-sharing, on-line searching and decreasing of duplication of some library work.

For Cooperation work - Library in Thailand has cooperated in different kind of work but the university library seems to have long history of cooperation and more variety of work such as acquisition-resource development, cataloguing and classification, automation, library services, serials, educational technology and even networking. There will be meeting every month among the librarians who work in certain work for discussing and solving all problems. Then every year they will have an annual conference where all of them will join and discuss. The theme of the conference will change every year in order to make them abreast of the advancement of library world and keep up with the globalization and modern technology.

For activities work - The activities of the university library in Thailand are quite active. They always organize meeting, seminar, workshop or training all year round. They touch every point - every topic which should be interested for librarians from library work to marketing, to TQM even the IT and networking. So the concept of continuing education has started long time among the associate centers of ASTINFO in Thailand.

For library service work - All basic services have been prepared for the users. For example the inter - library loan service they have even the reciprocal borrowing and the tools which will help users such as Bibliography, Directory, Periodicals Index, Abstract, Thesaurus, Union Catalog, Union List of Serials, Databases, etc. These things have been done and produced more than 10 years ago.

For information technology work - The government realizes the importance of library work so they support big budget for a certain project such as IT project for the country or even the library network. Also the policy of the national information infrastructure has been written. So it is not that difficult for library to be automated. The point of having resource - sharing is networking such as THAILINET or PULINET.

NECTEC who is responsible for IT has already established the superhighway for the country. Thru ThaiSarn all network can connect directly with Internet. So there will be no problems on resource-sharing and on-line service. The most important is the question of enough information in database has been established or not or the question of standard - database.

From the survey among the associated centers of ASTINFO, the softwares which are used are :

CDS / ISIS	Microsoft word
Oracle	Microsoft Excel
Visual Basic	Dynix
Fox Pro	Innopac
Dbase III	VTLS
Cobol	BRS
SPSS	Relational database
SQL	

The operating system in networking are :

Unix	Windows
netware	etc.
DOS	

Instrument for networking are :

Modem

Terminal servers

Internet

etc.

So the ASTINFO activities in Thailand are developed quite active. NRCT and other library network are preparing to make homepage for their networking. The quality and quantity of database must have to be improved for the benefit of information retrieval service. The future concern should be the **Basic Structure of National Information System, Information Superhighway, Electronic Library, Digital Library and Standard for Electronic Library.**

Received: from SpoolDir by GATEWAY (Mercury 1.13); Sat, 26 Apr 97 4:10:07 +0430

Return-path: <hanoi!nacesti!uucp@postbox.anu.edu.au>

Received: from alborz.nic.ir by gateway.neda.net.ir (Mercury 1.13);

Sat, 26 Apr 97 4:08:31 +0430

Received: from postbox.anu.edu.au by alborz.nic.ir with SMTP (5.65/1.2-eef)

id AA00904; Sat, 26 Apr 97 03:32:55 +0330

Return-Path: <hanoi!nacesti!uucp@postbox.anu.edu.au>

Received: by postbox.anu.edu.au

(137.109.16/16.2) id AA019221143; Sat, 26 Apr 1997 09:32:24 +1000

Received: from hanoi with uucp; Fri, 25 Apr 97 18:10:10

From: nacestid.ac.vn@postbox.anu.edu.au!hanoi!uucp

Date: Fri, 25 Apr 97 16:51:41 vst

Message-Id: <gate.u9kq6D1w165w@nacestid.ac.vn>

To: gharibi@neda.net.ir

Sender: nacestid.ac.vn@postbox.anu.edu.au!hanoi!system

Reply-To: nacestid.ac.vn@postbox.anu.edu.au!hanoi!system

11 th ASTINFO Consultative Meeting & Regional Seminar/Workshop on Information for
Development

Tehran, 2-9 May 1997

Country report of Vietnam

I. Overview of situation in Vietnam

In the period 1996-1997 there are 4 events which influence on the development of

science and technology in Vietnam, especially in all information activities

In July 1995, Vietnam became the member of ASEAN. This event has pushed Vietnam develop all their activities to meet ASEAN's level in economy, culture, science and technology

Recognizing the important role of education, science and technology, in December 1996, The Government of Vietnam approved the Resolution No. 02-NQ/HNTW on "Orientation of Development strategy for Education and Training in the industrialization and modernization period and main tasks until 2000 years" and "Orientation of Development strategy for science and technology in the industrialization and modernization period and main task until 2000 years". This Resolution confirmed that education, science and

sciences, technology, environment to all citizen, especially people living in rural and mountainous areas to form the civilized life and healthy environment of society.

Increase information services for S&T on management, research and renovation of technology in enterprises, especially technology information .

Develop and good manage the system of collection, processing of foreign scientific and technological information ..." (Resolution no. 02-NQ/HNTW, Hanoi, 1977, p. 72)

Recently, in March 1997 our government made a decision on the official participation of Vietnam in Internet. National Coordinating Committee was organized for regulating, coordinating and developing the network and exploiting services of INTERNET. The minister of Science, Technology and Environment (MOSTE) was appointed as head and the Director of Vietnam Post and Telecommunication as deputy head of the Committee. The other members of Committee are: Minister of Culture and Information, Minister of

Int

The Summit Meeting of French-speaking countries will be held in Hanoi in November 1997

I. Information and Documentation activities for 1996-1997

1. Education and Training of information personnel

Besides 3 library schools namely Faculties of Library Science at Hanoi College of Culture, Hochiminh City College of Culture and the Hochiminh City University, two other training centers have been founded: Faculty of Information Science at the Dong Do Open University and Department of Library and Information Science at the National University in Hanoi.

. In period 1996 -1997 a number of workshop for development professional skill were held in various ministries:

- Hanoi College of Culture, beside their courses has organized 3 courses for master degree for librarians with more than 60 participants;

- The Department of Library under the Ministry of Culture and Information organized 01 training course on library management skill for directors of libraries of 53 provinces and cities.

- In August and September 1996 with resource persons from the British Council, NACESTID and the Centre for Scientific and Technological Information in Hochiminh City (CESTI) have organized two 3 days workshops in Hanoi and in Hochiminh City on "Curriculum Development for Information Management". The participants were chiefs of information organizations and libraries. The objectives of these workshops are: to explore the changing context within which information professionals will work in the future; to

Within two years, NACESTID organized 06 training courses for information worker in the North, South and Highland of Vietnam as follow:

- 01 course on organization and management of information and documentation activities with 26 participants from Highland provinces (Dec. 1995);
- two courses on Indexing and abstracting of documents for their staff and the information workers from the other information and libraries institutions (April 1996);
- one basic course for information worker with 20 participants (from May 6 to July 2, 1996);
- 01 course on exploitation and use of information resources in Thanh Hoa provinces for information worker in the provinces in the North of Vietnam (July 1996)
- 01 course on information services and marketing of information products in Vung Tau City for information workers in provinces in the South of Vietnam (Nov. 1996).
- In September 1997, National Seminar on Information Policy sponsored by BIEF (Banque Internationale d'Information sur les Etats francophones) and ACCT will be held at NACESTID. This Seminar will be a big contribution to the preparation of the National Policy on Science and Technology Information.

2. Establishment, Promotion and marketing of Library & information services

The priority of information activity is providing referral tools and making information services available to all users and increasing marketing of information services to meet socio-economic development. The following services are provided in all information organization to users:

1. Publication

At present, NACESTID has produced the following publications:

- Journal of Information and Documentation (quarterly)

- Information bulletin on Science, technology and Environment (monthly)
- Vietnamese Scientific and Technical Abstracts (in Vietnamese- monthly, in English- quarterly)
- New book catalog (bimonthly)
- VDN - Vietnam Development News (in English, bimonthly),...
- Current content on Biotechnology, on electronic and information, on Materials Sciences (monthly),
- Review on Science, Technology and economic (monthly)

in order to develop their quality and increase their competitive, NACESTID has increased the budget for these bulletin

2. Database creation and exploitation

Now in Vietnam in the field of information and library there are some LAN and WAN operating separately. Two big one are UNISCO and VESTENet. UNISCO is established and maintained by National Library of Vietnam. The biggest UNISCO's database is SACH (book) which covers all Vietnamese publication (book and periodicals) from 1975 up to now and has more than 80000 records with annual updating of 5000 -6000 records. The 53 libraries under the Department of Library (MCI) can on-line access to the database SACH

Since 1994 NACESTID has integrated and expand its activities in science and technology information field through the formulation of the Vietnam Economics-Science-Technology and Environment Information Network (VESTENet), which is nation wide. The integrated database with more than 500000 records integrated all databases produced by NACESTID (21 databases) and databases of the other information organizations (Information Center under different organization such as: information center under the

Ministry

Using this network, CD-ROM and its library, every year NACESTID answers more than 500 queries and supply 100 profiles for 500 user-group in SDI services in the whole country and supply thousands original of documents. All these services are fee-based services.

In order to develop resources sharing, in 4rd quarterly 1997, VESTERNET will link with the UNISCO so users can access to different databases of NACESTID and the National Library.

One tool in searching information is searching by keyword. In order to unify indexing in all databases of NACESTID and avoiding loss information in searching, since 1995 NACESTID has operated a project entitled "Establishment of Collection of Keywords for Scientific and Technological bibliographic databases". This collection has 50000 keywords, represented most using keywords in all database of NACESTID. For increasing accuracy of searching information 4 training courses on introducing the databases and t

Using FDAPX software of TOOL, since September 1995, NACESTID has launched "electronic Bulletin on Science, Technology and Environment" This Bulletin is weekly and is covering all news information in Vietnamese newspaper. The Bulletin is highly appreciated, especially the decision-makers and management organization in provinces. In some provinces, they print the Bulletin and distribute it to province's decision-makers and local institutions, organizations. Since March 1996, recognizing the role of this

- New Acquisition Bulletin on EU Standards (Information Center under the Directorate for Quality and Standard);

- Newsletter in Environmental activities (National Environment Agency),...

With assistance of AUPEL/UREF (Agence Francophone pour l'Enseignement Supérieur

et la Recherche) since March 20 1997 the Vietnamese scientist and researchers through gateway in NACESTID can access directly to French databases free of charge 10 hour per week . Regional Workshop on Information Technology for French speaking countries in the Asian Pacific Region was held in Hanoi in February 1997. The participants from Vietnam Television, the National Program for Information Technology up to the year 2000,

Since 1989, Vietnam has changed from centrally planned economy to oriented market one. Every year a lot of technologies are imported to Vietnam for increasing economic development. One of the priorities is to help enterprises adapt and appraise imported technology. In 1996, NACESTID has organized two seminar:

- National workshop on technology evaluation and marketing for small and medium enterprises with resources persons from APCTT/ESCAP. This workshop focused on technology evaluation and pricing; technology negotiation and marketing, mechanism for strengthening R&D ... (June 1996)
- Training course on "Warning of technology" with resources person from Agence pour la Diffusion de l'Information technologique (ADIT, France). This is a new concept in Vietnam so 110 persons (40 participants from provinces and Hochiminh City) attended this course, even they have to pay the tuition fee. All participant highly appreciated the course and wish NACESTID will organize more such kind of course but for specialized group users.

3. Documentation and Document Delivery

Every year in the framework of Bilateral Cooperation between Vietnam and France, French Government gives Vietnam 50 000 FF (for National Library, NACESTID and General Library in Hochiminh City) for obtaining original of documents from

CNRS/INIST. This sum help scientist and researchers to reach new achievements of S&T in the world and carry out their work as government budget for document subscription is very limited.

In order to overcome the document and information famine by interlibrary loan and supply with photocopies from articles in periodicals and to widen access to existing periodicals collections, therefore strengthen the capabilities of Vietnam Network of S&T libraries, NACESTID carry out the project "Establishing a database on Vietnamese Union Catalogue of Foreign Scientific and Technical Periodicals" which was sponsored by IFLA. This project finished in December 1996. The result of the project is a databas

III. Workplan for 1998-1999

1. In 1998 Vietnam will host an ASEAN Science and Technology Week and NACESTID is appointed as organizer ASEAN Science and Technology Exhibition.
2. Participate EXPO 98 "The Ocean, a Heritages for the Future" in March 1998, in Lisbon, Portugal
3. Develop "Based sign contract of integrated information services" in the whole country. This service will supply the users the following services: all publications published by NACESTID, on-line access via VESTERNET to all databases, electronic Bulletin, local e-mail service, download information in CD-ROM on the field which the users need (2 CD-ROM per year); copie of the database of Union catalog... This service started in January 1977 and now have 40 users.
4. Publish the Bulletin - Vietnam Development News monthly and increase produce databases in English to expand the possibility for publication exchange with the others ASTINFO's countries and in the region.

5. Upgrade LAN at NACESTID with the international networking standards. To connect various LAN's into a WAN making use of public or leased telecommunication facilities and information services.
6. National Seminar on the establishment of a document delivery system in Vietnam
7. Organize 6 training courses on searching of information on INTERNET and technology of WEB side and WEB pages.
7. To develop professional skill (04 training courses) and foreign language, first English
8. Develop cooperation with the others ASTINFO's members.

RECOMMENDATIONS:

1. It is required to prolong the Pilot project on regional document delivery (ADDP). If it is necessary, the participants have to pay 50% of fee-paying documents. This project gives experiences in obtaining documents from overseas and in developing national document delivery system.
2. It is required the ASTINFO to delivery information package to members countries
3. ASTINFO's member homepage would be put up on the INTERNET
4. To develop more information services to various countries.

CDS/ISIS GROUP

INDIA * IRAN * NEPAL * SRILANKA * The PHILIPINES

GOALS

Retain micro CDS/ISIS as software for library & information database development for ASTINFO region.

Objectives

1. To make CDS/ISIS user friendly.
2. To make it more popular
3. To make interfaces and utilities for export/import from-to other softwares
4. To identify and develop extra library application such as:
 - a) hospital administration personal management
 - b) profile development
5. To empower CDS/ISIS to handle local languages
6. To develop various application packages on CDS/ISIS platform and evolve mechanism for sharing the application utilities identified under objective 3 & 4.
7. To collect information on experts, applications, user group, users training courses, database information products based on CDS/ISIS, papers and other publications.
8. To explore the feasibility of the use of international formats like CCF, US marc and Unimarc standards for various kinds of description and various media of recording.

PROGRAMME ELEMENTS

1. Development of CDS/ISIS user friendly searching interface.
2. Design of an intergrated database based on the above mentioned

- standard using the windows version of CDS/ISIS (minisis)
3. Develop conversion program from different database into ISIS.
 4. Develop unix of window NT version of CDS/ISIS for multi national environment and remote searching.
 5. Putting the CDS/ISIS database in the internet.
 6. Develop ISIS program to accomodate local languages information materials (ie, indian languages)
 7. Create database of users, users group, training courses, and information products (prepared by using ISIS)

RECOMMENDATION

1. UNESCO to continue its support for maintenance and development of CDS/ISIS.
2. Establish a clearing house of CDS/ISIS software and documentation for the benefit of the ASTINFO region.
3. Establish coordinating units to promote development of CDS/ISIS utilities and interfaces by indentifying local experts and funding development programs.
4. Countries that already have developed CDS/ISIS utilities should publicize in the ASTINFO newsletter in order to facilitate sharing with other countries in the region.
5. Countries with software development expertise should make their services available for other ASTINFO member countries.
6. Organise a regional workshop for ISIS trainers in application utilities, customizing the software application of the windows version.

COMMUNITY INFORMATION SERVICES

1. GOALS:

To improve the quality of the life of various communities

2. OBJECTIVEES:

- To improve status
- To improve literacy
- To deliver health care information
- To create awarenes about environment
- To make aware of various govt. programmes & facilities
- To build scientific temper
- To make aware of civic richts and responsibilities.
- To transfer appropriate technology for development of professional skills.

3. PROGRAMME ELEMENTIS:

- To identify information requirements of the target communities
- To design and develop required information packages
- To develop audio- & video packages posters etc. for Information dissemination
- To identify hosts of the info services at the local level & at the central location
- To identify the dissemination mechanist
- To explore the possibility of using/extnting the telecom facilities
- To evolve a feed-back mechanism

4. IMPLEMENTATION:

To undertake a few pilot projects

5. RESPONSIBLE ORGANIZATIONS:

- Different govt agencies
- Village heads, clubs, school teachers, social workers, women activists, post masters, telecom personnel
- Telecom outposts & post offices to provide telecom facilities
- Village library & information centres
- NGOS

6. RESOURCES MOBILIZATION:

- Start-up funds from govt
- Philanthropic organizations
- Eventually from the system itself

COPYRIGHT

- What is to be protected?
- Defenitions
- Registration-Organisation/group
- Infringement-levels
- Legal frame work
- Punitive actions

Copyright & Resource sharing

All countries are urged to analyse their respective copyright laws, and identify violation position concerning the activities they perform. Some examples are given below:

- * Whether making one copy of a paper in a journal will imply violation
 - for a copy given free of cost
 - for a copy given after recovering photocopy charges
 - for a copy given and at a piece based on multiple criteria
 - * whether making a cover to cover copy of a monograph like book & journal would amount to violation
 - * Whether a scanned document is to be treated on part with print on paper document
 - * Whether a document without a copyright notification is freely reproducible
 - * Whether charge of authorship of a document without a copyright notification would amount to violation
 - * Whether downloading of a public domain from a document database and its multiplication and transmission through telecom or selling at a price would amount to violation.
 - * When a violation is detected, how about mitigating and punitive measures.
 - Who is responsible for taking actions against violators.
 - If an infringed document is found with an end-user who is to held responsible for copyright violation - the end - user?
- The library who has issued the book? The book seller concerned? The printer who has printed the document? The publisher? What is the

procedure for fixing the responsibilities.

- * How to take a copyright: procedure, administrative, and how to take protection measures

- If a document is published but a copyright not taken, whether the copyright laws still hold good.

- If a publisher prints in excess of the print-order, whether production of additional copies would imply a violation (in case the copyright is held by the author)

- If a research result is obtained through an extra-mural funding who holds the IPR

- If an idea/ concept is drawn from a copyrighted document and "minor" changes are made, whether the redone document could be published a copyright taken, where the boundary lies.

- * What is the relationship between a commercial right and a copyright?

- * Whether the two rights would rest with different parties.

Programme Elements

National

1. All countries should undertake an analytical study to find answers to search questions indicated above and compile a report.

2. National seminars may be held involving libraries, copyright lawyers and users to spread answers about IPR and catalyse them to take necessary measures (Action: all members)

Regional

One or two regional/sub-regional workshops may be organized to assess the present situation in member countries and to take a view of the emerging scenario concerning copyright.

(Action: India/China)

Resources

The national activities ought to be organized with internal resources

For the regional/sub-regional workshop assistance of WIPO, travel of foreign participant and services of resource persons may be sought.

NII

Goals

1. Develop a national information policy to ensure that the required implementation mechanism is established.
2. Enable decision-makers to make more informed cost-effective decision
3. Raise awareness of the value of information as a commodity
4. Ensure the development of reliable telecommunication system

Goal 1

To develop a national information policy & to ensure that the required implementation mechanism is established

Objectives

1. To develop/ enhance the levels of cooperation among library & information centers
2. To establish coordinate mechanism for the sharing information between lib & information system
3. To increase the productivity & quality of services provided by lib & info centers

Programme Implementation

1. Establish the roles of the national coordinating body
2. Identify & empower additional appropriate institution for coordination
3. Establish standards & guidelines
4. Implement training programmes
5. Implement quality management standards (eg. ISO 9000, TQM)

Responsible Organization

National Lib

Lib Association

Archives Association

Reading Association

Library and Information Centers

Goal 2 & 3

2. To enable decision makers to make more informed cost-effective decision

3. To raise the awareness of the value of information as a commodity

Objectives

1. To promote & develop the awareness of users particularly policymakers on the value & importance of information

2. To promote informed decision making among decision makers

3. To develop educational programmes

Programme Implementation

Organise Information

Awareness Programmes

Responsible Organization

National Lib

Lib Association

Archives Association

Lib & Info Center

Goal 4

To ensure the development of a reliable telecommunication system

Objectives

1. To improve communication channels between library & information centers & telecommunication providers
2. To ensure government support for a reliable telecommunication system

Program Implementation

Organize meeting & forums with telecommunication providers & central applianceseg trfasury, economic planning unit, etc.

Responsible Organizations

1. National Lib
2. Lib Association
3. Archives Association
4. Reading Association
5. Library and Information Centers

ACTIVITY	OBJECTIVE	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCE REQUIRED	RESOURCES
1. Develop a user friendly search interface for CDS/ISIS	To make CDS/ISIS user friendly	1997-99	IRANDOC		
2. Desing integrated databases using one of the standard format such as USMARC or CCF based as WINISIS	To make the data bases internationally acceptable in terms of its format	1998-99	India IRANDOC		
3. Develop conversion programs form and into CDS/ISIS	To make the data bases easily convertible	1997	India IRANDOC		some work already been done
4. Develop UNIX or Windows NT version of CDS/ISIS	To make CDS/ISIS usable in multi user environment and remote access	1997-99	UNESCO		
5. Put CDS/ISIS web page on the net	Popularize and create user groups	1998	Philippines	some work	some work already been done
6. Develop ISIS to accommodate local languages	To make ISIS more usable for materials other than English	1998	Concerned countries with the help of experts in the region		Some countries have already completed China, Thailand
7. Create databases of users usergroups, training courses and products	To have easy access to experts and training courses	1998-99	India in collaboration with others		

COMMUNITY DEVELOPEMENT

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
1. To improve the quality of the life of various communities	A) To improve - economic status - literacy - delivery of healthcare - awareness about environment - knowledge about govt programmes - scientific temper - knowledge about civic rights - professional skills - capabilities etc B) To prepare a broad based proposal Bangladesh, Indonesia, India, Nepal & PNG will undertake experimental projects for demonstration of the concept	1997 1998	India with inputx form Iran will draft the proposal Astinfo points in respective countries	UNESCO will be the top resource of funds. Participating countries will also explore other sources for their national projects.

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
To improve PR literacy	- To analyse respective national copyright laws keeping in mind the requirements of resource sharing activities	1997	All member states are to undertake this and compile reports and conduct national seminars	National resources are to be explored. Availability of an external resource would be advantageous
	- Regional/subregional workshops to be organized to assess the status and examine the emergency IPR scenario	1998	India (NISSAT) to take the lead	Assessment from the WIPO may be sought.

HUMAN RESOURCE DEVELOPMENT

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
1. To increase the region's capacity to educate and train the info. professionals needed to aid the transformation into an info. society,				
2. To reduce the imbalance in capacity between developing and developed countries where this aspect of HRD is concerned.				
To identify the strength, weaknesses, opportunities, and threats of the present education system for info. professionals in the region	Comprehensive baseline survey		UNESCO Nat. Commiss Univ. of the Philippines Institute of Li Sci.	UNESCO Participation programme
To meet training needs among practicing info. professionals	Short-term training courses (continuing education)	1998-99	ASTINFO members	Jap. funds-in-trust.
To disseminate, promote the use of, and evaluate the guidelines on curriculum development. developed in 1997	Development of curriculum guidelines	1998-99	UNESCO ASTINFO members.	for UNESCO PGI

HUMAN RESOURCE DEVELOPMENT

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
To enhance the provision of distance learning for info professionals taking into consideration the special needs of rural libraries	Expand the STOU survey and publish the results on www - Provide training in the development of distance learning programmes - Develop distance learning packages on specific topics to meet high priority training needs.		STOU	Thailand's Dept of Technical and Economic Cooperation

NATIONAL INFORMATION INFRASTRUCTURE

GOAL	OBJECTIVE	PROGRAMME/ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCE
1. To develop a national information policy and to ensure that the required implementing mechanism is established for library information services for various communities	1. To develop/enhance the levels of cooperation among library and information centres 2. To establish coordinating mechanisms for the sharing of information between library and information systems 3. To increase the productivity and quality of services provided by library and information centres	1. Establish the roles of the national coordinating body. 2. Identify and empower additional appropriate institutions for coordination 3. Establish standards and guidelines for library and information services 4. Implement training programmes 5. Implement quality management standards (eg. ISO 9000, TQM)		1. National Library 2. Library Association 3. Archives Association 4. Reading Association 5. Library and information centres.	
2. To enable decision makers to make more informed costeffective decisions	1. To promote and develop the awareness of users particularly policy makers on the value of and importance of information.	1. Organise information awareness programmes for decision makers.		1. National Library 2. Library Association	

NATIONAL INFORMATION INFRASTRUCTURE

GOAL	OBJECTIVE	PROGRAMME/ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCE
3. To raise the awareness of the value of information as a commodity 4. To lobby for the development of a reliable telecommunications systems to support library and information services	2. To promote informed decision making among decision makers 3. To develop educational programmes 1. To improve communications channels between library and information centres and telecommunication providers 2. To ensure government support for a reliable telecommunication system	- Organise meetings and forums with telecommunications providers and central agencies eg. - Treasury, Economic planning Units etc.		3. Archives Association 4. Library and information centres 1. National Library 2. Library Association 3. Archives association 4. Reading Association Library and Information centres	

RESOURCE SHARING

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
1. Strategic plan for ASTINFO resource sharing that matches members' strengths and weaknesses	Census of information service strengths and weaknesses of ASTINFO member countries	Census form Dec. 1997 Census returned analysed- 1998 Formulate strategic plan at next ASTINFO mtg.	IRANDOC as processing and modelling centre	IRANDOC to share costs with UNESCO and member countries
2. Promote international cooperation in national information infrastructure development.	Construct a database of regional library and information experts	1998-99	India Mongolia (ASTINFO members to supply DATA)	
3. Establishment of indeginised library nationwide membership schemes in ASTINFO countries.	Seminars to promote LNM information packages on LNM to be distributed to ASTINFO members who may refer on as appropriate	1998-99 by July 1997	IRANDOC India UNESCO-PGI	UNESCO-PGI
4. Create regional self sufficiency in international interlending	Interested ASTINFO members to become participant in the IFLA interlibrary lending Voucher Scheme and promote use of the scheme to appropriate libraries in their countries	Interested ASTINFO members to acquire stock of IFLA vouchers by July 1997-sell within country July 1997	Australia to distribute information by end May 1997-Interested members to determine their own interlending charges and communicate	Interested ASTINFO members to purchase vouchers from within own budgets.

RESOURCE SHARING

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
To improve the quality of life of various communities including the disabled	A. TO improve: - economic status - library - delivery of health care - awareness about environment - knowledge about government programmes - scientific temper - knowledge about civic rights - professional skills - entrepreneurial capabilities etc. B. To prepare a broad bases proposal	1997	India with input from Iran will draft the proposal	UNESCO will tap various sources of funds
	B' dest, Indonesia India, Nepal and PNG will undertake experimental projects for demonstration of the concept	1998	ASTINFO modal point in respective countries	Participating countries will also explore other course for their national projects
	To analyse respective national Copyright laws keeping in mind the requirements of resources sharing activities	1997	All member states are to undertake this analysis and compile reports and conduct national seminars	National sources are to be explored Availability of an external resource person would be advantageous
To improve IPR literacy				

RESOURCE SHARING

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
	Each ASTINFO member to make their union catalogues for serials available for searching on the web where possible. Members without web access to receive and distribute union catalogues in agreed formats.	By Dec. 1998. Publicise web addresses in ASTINFO Newsletter by early 1998	Each ASTINFO member, IRAN and Philippines to assist of her members in website construction.	To be met by each member from within their own budgets
	ASTINFO members to organise in-country workshops to promote the use of the IFLA voucher scheme within their countries	1998-99	Each ASTINFO member	Training could be presented in the context of a more broadly focussed seminar on resource sharing
	Low priced document supply of patents to ASTINFO members	Aug 1997	3 countries IRANDOC, Vietnam, India to circulate info on patent supply services to ASTINFO members by Aug 97.	IRANDOC to subsidize for 12 months, self-financing after that.

RESOURCE SHARING

GOAL	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANIZATION	RESOURCES
	Regional/dub-regional workshops to be organized to assess the status, and examine the emerging IPR scenerio	1998	India (NISSAT) to take the lead	Assistance form the WIPO may be sought