Knowledge-Sharing Activities in India

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Abstract

Libraries in India are striving to provide necessary and relevant information to their users. Limited resources have been one main barrier to satisfying the growing informational needs of the users. Now, the Indian libraries are planning various methods of resource sharing to help meet information demands. Attitudes of library and institutional managements have undergone a change, to become more open to the benefits of resource sharing. A number of formal arrangements are being made for resource sharing among the libraries. A number of resource-sharing activities are discussed in this article, broadly arranged under four headings: National Information System in Science and Technology (NISSAT) National Information Centres (NIC); library consortia; document delivery services; and interlibrary cooperation.

Introduction

India is one of the largest countries in Asia, with a land area of 3,287,263 square kilometers. It has a land frontier of 15,200 kilometers and a coastline of 7,516.5 kilometers. Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep in the Arabian Sea are parts of India. Its population is 1,027,015,247 (2001 census) (*Manorama Year Book*, 2005). Today India is producing a very large number of skilled workers. It has an active satellite space program and is recognized as a nuclear power. India's recent achievements are possible at least in part due to information and knowledge dissemination. Therefore, India is striving to become a knowledge superpower.

The contribution of libraries to India's advancement is phenomenally important. Libraries in India have struggled with many problems, but recent government support for research has provided an opportunity for

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the development of library services and increased access to information. Government encouragement of funding of private organizations through tax benefits has also led to investment in libraries and information as part of research activities. The need for Indian researchers and scientists to compete in the global context has led libraries to seek several alternatives for providing increased access to information. Resource sharing is one of the primary functions of the libraries, which has enabled them to provide increased access to information for their users.

Every library attempts to use all its resources to achieve its stated objectives, to provide the best possible services. It is usually not possible for any single library to procure all the materials that are relevant to its users. This has become especially true with the literature explosion in recent decades. Naturally, libraries try to borrow materials from one another informally, but informal borrowing is difficult to sustain without more formal agreements between libraries. In the context of ever-increasing demands for information and limited resources, it became necessary for all libraries to develop agreements for the sharing of materials and information. Resource sharing includes sharing of various types of resources, such as human, infrastructural, and information, but the main emphasis continues to be on sharing of materials.

Libraries in developing countries face particular problems procuring library materials and information resources. This is due to lower currency values in the international market and to limited financial resources, along with regular increases in subscription prices. Most libraries are supported by different levels of government either directly or through government-funded agencies. In India many libraries were procuring the same materials from the same sources and spending large amounts of funds. In turn, libraries were finding it difficult to procure alternate resources due to limited funds. Therefore, they were denying access to a full selection of information resources. There was increasing frustration among the information providers and seekers about limited access to existing and available information resources.

There were several studies on procurement and use of similar expensive resources, especially secondary resources, and duplication of high-priced resources by many libraries in India. There were repeated complaints that use was not optimum, and cost per use was estimated to be very high. When this crisis reached its peak, libraries, government agencies, and even the concerned ministries started working together to find ways to make better use of limited budgets to provide access to increased numbers of resources as well as make optimum use of the resources to enable the scientists and researchers to become more information rich.

Libraries in India have developed many schemes to make optimum use of library resources and to provide access to increased amounts of materials through resource sharing. Over a period of time several attempts have

been made. The overall success of these plans or attempts is difficult to evaluate. However, it is a fact that approaches have been varied in nature and experiences have been mixed. Some of the major initiatives taken by libraries and other agencies in India for resource sharing in libraries and information centers are discussed in this article.

Resource-sharing activities in Indian libraries can be grouped broadly into four categories:

1. Establishment of National Information System in Science and Technology (NISSAT) National Information Centres (NIC)
2. Library Consortia
3. Document Delivery Service (DD)
4. Interlibrary Cooperation

NISSAT AND SICs

The National Committee on Science and Technology of India (NCST) and the Council for Scientific and Industrial Research (CSIR), with support from the United Nations Educational, Scientific, and Cultural Organization (UNESCO), developed a national-level plan in 1977 known as NISSAT (National Information System in Science and Technology). It was established with the main objectives of organizing information support facilities for customers engaged in research and academics, promotion of existing information systems and services, introduction of modern information handling tools and techniques, and promotion of cooperation in information access. Its main goal was to establish a bridge between information resource developers and information users in diverse subjects (NISSAT, n.d. a).

In addition to those mentioned above, one of NISSAT's objectives is to develop internal linkages among the information industry, its promoters, and its users. NISSAT supported and sponsored development of library networks in India in order to use information technology in libraries and also to promote resource sharing. It sponsored the preparation of union catalogs in science and technology, initiated rationalization of periodical subscriptions, and advanced the concept of universal library access. NISSAT also sponsored creation of subject databases in the subjects in which the Indian contributions and literature are not properly represented. Two of the indigenous databases sponsored by NISSAT are Food Technology Abstracts and Leather Science Abstracts. This program covers the entire spectrum of science and technology. NISSAT activities have strengthened the library movement in India.

NISSAT also worked for the introduction of priced or fee-for-service information services with a motive of meeting the user's demand for high-quality materials and timely provision. It also had close interaction with international organizations such as UNESCO and the Regional Network for the Exchange of Information and Experiences in Science and Technology

in Asia and the Pacific (ASTINFO). Such interaction enhanced international linkages and the flow of information resources. During the period of the NISSAT project, several activities and initiatives were planned and executed. The NISSAT program brought about a number of important changes in information management in India.

Under this program, the major activity has been the development of what were first called Sectoral Information Centres (SICs) and are now called National Information Centres, though they are still commonly called SICs (NISSAT, n.d. b). These centers provide bibliographic, factual, and numeric information as a product to the scientists in the country. Each SIC is supposed to develop information and information sources in a particular or assigned discipline, including micro-disciplines. The sources include both Indian and foreign materials. The centers serve as national bases for information work in their assigned fields and disciplines. They supply copies of documents on request to the users and in turn act as document delivery centers. They also prepare special bibliographies and provide patent search, translation services, and interlibrary loan.

To summarize, the activities of the SICs include the following:

- Preparation of subject bibliographies and union catalogs
- Information retrieval on request
- Selective Dissemination of Information (SDI) services
- Building information on patents, specifications, and standards
- Carrying out surveys, preparation of state of art reports, and scientific and technological forecasting
- Provision of translation, reprographic services, etc.

Modalities for establishing the SICs were:

- Identification of subject area and host institution
- Assessment of relative merits and utility and evolution of collaborative systems
- Upgrading of existing facilities at host institutions to serve the national community of users
- Provision of manpower and relevant training
- Procurement of necessary infrastructure
- Pricing policy for the services

Initially, a suitable host institution was identified to establish each one of the SICs. On the basis of the reports submitted by the experts, as well as availability of infrastructure at the host institution, twelve SICs were established. They are in the following fields:

- Leather technology
- Food technology
- Drugs and pharmaceuticals

- Textiles
- Chemicals and allied industries
- Management sciences
- Marine and aquatic science
- Advanced ceramics
- Bibliometrics
- Crystallography
- CD-ROM

The SICs were supported by the Department of Scientific and Industrial Research (DSIR). Each SIC acted as a national information center in a specific subject and provided all the required information in that particular area. By 2004 the NISSAT project came to an end; however, the host institutions are continuing the centers, and they are being managed with their internal resources.

There was also momentum to establish city- or region-based library networks. NISSAT promoted and tried to provide some financial assistance for developing these networks. They are ADINET (Ahmedabad Library Network), BALINET (Bangalore Library Network), BONET (Mumbai Library Network), CALIBNET (Calcutta Library Network), MALIBNET (Madras Library Network), MYLIBNET (Mysore Library Network), and DELNET (Developing Library Network). Not all of these networks have carried through with plans for network library services (Kaul, 1992). The most active have been DELNET and MALIBNET. So far, DELNET has done the best work among all these networks, including the creation of a database of 5 million records (as of December 2005) and other activities (DELNET, 2005). DELNET is discussed in more detail below.

Library Consortia

> The primary purpose of establishing a library consortium is to share physical resources including books and periodicals amongst members. However, the mode of cooperation has gone under transformation with infusion of new information technology from print-based environment to digital environment. The emergence of internet, particularly the World Wide Web (WWW) as a new media [sic] of information delivery triggered proliferation of web-based full-text online resources. (Arora and Agarwal, 2004, p. 293)

Consortia in India have undergone a transformation with this infusion of new information technology and the movement from a print-based environment to a digital environment. Library consortia are basically formed to use resource sharing as a means of dealing with increased demand for materials and increased cost for information products. Through consortia, libraries are coordinating their purchasing to provide the best quality and quantity of materials to their clientele at a lower cost. Consortium programs

not only contribute e-resources at discounted rates, but they also help to make them available on users' desktops. Consortium purchasing is assisting libraries to deal with the increasing pressures of diminishing budgets, increased user demand, and rising journal costs. With the welcome development of e-journal content, libraries all over the world are forming consortia of all types and at all levels to take advantage of current global networks to promote better, faster, and more cost-effective ways of providing electronic information resources to information seekers.

Looking at the experiences and benefits accrued at the international level, many consortia have been formed in India. Most of these consortia had support from the government either directly or indirectly. These consortia have slowly picked up and have been able to achieve the purpose for which they were established. The objectives for their formation have been similar, although the number and types of libraries and services differ. Some of the more important consortia in India are described below.

Indian National Digital Library in Science and Technology (INDEST)

"The availability of IT-based electronic information products are [sic] exerting ever-increasing pressures on libraries, which, in turn, are committing larger portions of their budgetary allocation for either procuring or accessing web-based online full-text search services, CD ROM products and online databases" (Arora and Agarwal, 2004, p. 293).

Library consortia have been formed to deal collectively with the problems of purchasing online products, to benefit from the best possible volume pricing, and to secure the best terms of agreement from online publishers.

In view of the facts mentioned above, the INDEST consortium was formed in 2003 on the recommendation of an Expert Group. In addition to a financial contribution of Rs 200 million by the Ministry of Human Resource Development (MHRD), the All India Council for Technical Education (AICTE) also contributed Rs 37.5 million to this consortia project for purchase of e-resources (Dr. Jagdeesh Arora, National Coordinator, INDEST, personal communication, May 2005). Formation of INDEST also involved many other departments and ministries such as the Ministry of Information Technology, the Department of Science and Technology (DST), the Department of Biotechnology, DSIR, the Department of Ocean Development, etc. Thirty-eight centrally funded government institutions, including the Indian Institutes of Technology (IITs), the Indian Institute of Science (IISc), the Indian Institutes of Management (IIMs), the National Institute of Technologies (NITs), and a few others, are core members of the INDEST Consortium (INDEST, 2004).

The policy of this consortium is open ended, that is, any institution can join the consortium. Sixty-six government (including government-

aided) institutions and fifty-three private colleges/institutions have joined as members. The membership charges are Rs 1,000 per year. Many engineering colleges have joined this consortium. The private institutions are self supported (contributing Rs 35 million during the year 2004). The members are provided with access to all electronic resources selected by the consortium. Of course, the ministry provides funds only to the core members and government colleges through the consortium headquarters set up at IIT, Delhi. Now the total number of members is 173 (as of December 2005).

The journals subscribed to by the consortium total more than 6,500 from seven databases from various publishers and aggregators. The National Steering Committee has overall responsibility and sets policy, monitors progress, and coordinates with the University Grants Commission (UGC) and AICTE (which is responsible for licensing engineering, technology, pharmacy, and business schools) to promote the consortium. The headquarters manages subscriptions to e-resources. The consortium negotiates the prices and is able to get discounts between 22 percent and 93.01 percent (the average is greater than 80 percent). It is estimated that Rs 221.6 million were saved by all the institutions put together due to purchase of e-resources through INDEST for the year 2005 (1955.8 million rupees [normal subscription]–1734.2 million rupees [actual subscription paid through INDEST]). On the basis of the instructions from the MHRD, INDEST instructed all of its members to stop subscriptions to print resources in lieu of the e-resources available. This has resulted in savings of Rs 91.3 million (Dr. Jagdish Arora, National Coordinator, INDEST, personal communication, May 2005).

The most useful policy of this consortium is that members can choose to subscribe to as many titles as they want. At present, there is no local hosting of resources. They are accessible from publishers' Web sites. That is, publishers' Web sites host search and browse interfaces to locate journals and their URLs. The consortium is also making continuous attempts to identify other electronic resources of relevance to educational institutions and also to get the best possible subscription prices and license terms. It also monitors international developments in this area and liaises with the International Coalition of Library Consortia (ICOLC) to bring the best possible solutions to its members.

Document delivery and interlibrary loan are felt to be very important in this consortium. Therefore, Informatics India Ltd. designed and developed J-Gate Custom Content for Consortium (JCCC) for INDEST members (JCCC, 2003). This is a common, publisher-independent gateway to search and access the journals subscribed to by the consortium. The tables of contents of approximately 4,271 journals from 960 publishers, both print and online, are included in this database.

The JCCC provides the following services:

- Ability to browse the tables of contents of journals
- Ability to search articles by author, title, and keyword across the journals
- Ability to create users' own e-mail alerts for getting tables of contents from their favorite journals
- Ability to send instant e-mail requests whenever users find an article that is not in the user's library but is available in other libraries
- Facilitates generation of automated interlibrary loan requests directly to one of the member libraries; however, at present, these requests are routed through the consortium headquarters (IIT Delhi)

INDEST Extended

The INDEST Consortium would like to take up additional activities related to content creation under a new MHRD initiative called "INDEST Extended." The consortium would like to add the following activities to its existing activities:

- Interoperable electronic submission of theses and dissertations
- Electronic preprint server for all consortium members
- Manual of procedures for management of libraries and information centers of INDEST member institutions
- Web-based union catalog of journals and other serial publications
- Web-based union catalog of books
- Cooperative cataloging of Internet-based electronic resources (Arora & Agarwal, 2004)

Other issues related to INDEST include the following:

- INDEST is organizing training programs for the member libraries (for both users and library staff)
- It is providing consultancy services to the member libraries in library computerization, digitization, and developing computer infrastructure
- It is planning to offer joint computer storage facilities to host archives and back files; these files can be accessed by the members
- In due course, INDEST wants to develop a shared core collection of e-books
- INDEST wants to invite and encourage all engineering and technological institutions in India to be members of the consortium, in order to have continuity and sustainability
- It encourages continuous communication among members, which may contribute to their commitment and cooperation
- An archived mailing list is available to facilitate communication among the members of the consortium

- A user group and user convention have been established for identifying issues and solving problems

Special Interest Group on Management Sciences

A special interest group on management sciences (SIG-MS) was formed in March 2003. The group is called Electronic Resources for Indian Management Schools (ERIMS). At the organizing meeting, Professor Roshan Lal Raina stated that in 1994 a resource-sharing program was started among four IIMs (there were only four IIMs during that period). At that time research found that 62 percent of foreign journals were duplicated among these IIMs. Forty percent of IIM budgets was spent on 10 percent of total subscriptions. The managers of these IIM libraries felt the need for document delivery of print journals and started resource sharing among these libraries. This cooperation led to serious consideration about forming a larger consortium. In 2000 one product was jointly procured to test the concept of a consortium. With formation of INDEST, all the IIMs joined this consortium and formed the ERIMS special interest group. This group suggests consortium-based subscription to e-resources to member institutions dealing with the subject of management (INDEST, 2003).

In the year 2000 the Management Libraries Network (MANLIBNET) was formed to "achieve high standards in Management and Business (M&B) librarianship and Information services in India." One of the most important objectives of MANLIBNET "is development of strong linkages among the M&B libraries and information centres for resource sharing" (Dr. S. Sangayya, Librarian, IIM, Ahmedabad, personal communication, May 2005). In addition to IIMs, other business schools have joined MANLIBNET. It now holds annual conferences to discuss the trends in information management and issues relating to enhancement of the quality of information services in member libraries.

The INDEST consortium has been managed very well and the services are appreciated. This consortium is trying to continuously develop innovative programs and activities for the convenience of its members. Looking at its effective functioning, more institutions are likely to join consortia of this type.

Council of Scientific and Industrial Research Consortium

The Council of Scientific and Industrial Research (CSIR) is one of the largest government-funded organizations in India, with a chain of thirty-eight laboratories spread across the country. It has an estimated 5,000 active researchers supported by approximately 16,000 technical and administrative staff. It has contributed to research output in various disciplines of scientific and industrial research. As support services, these laboratories have established libraries and documentation centers on their premises and procure all sorts of document sources in support of their work. These laboratories

together spend about Rs 250 million and procure about 3,400 foreign print research journals. These numbers include some duplicates, as the same title may be procured by many different laboratories. The print editions create an annual repository of 5 million articles (Narayana & Goudar, 2004). Regular increases in subscription rates, the decreasing value of Indian currency, increased demand for information, and dwindling library budgets for procurement of journals have caused CSIR laboratories to look for alternatives, such as procurement of electronic journals, extensive use of information technology, and sharing of resources by forming library consortia.

The CSIR labs made attempts to form a consortium in 1993 and 1999. In 1993 the heads of the Libraries and Information Centers (LICs) met and wanted to create an exhaustive bibliographic database covering five disciplines. However, this could not take place. In 1999 an unsuccessful attempt was made to create a Consortium for Materials Science and Aerospace Collections (CoSMAC).

In 2001 the heads of the CSIR-LICs met to consider the pooling of CSIR resources and the forming of a CSIR consortium to share resources in a distributed information environment and overcome the limitations of space and time. As a result of the deliberations, a final report was prepared. On the basis of this report the CSIR consortium was formed, basically to provide access to electronic journals for forty-three centers (including thirty-eight labs and other units).

A budget of Rs 117.9 million was allocated for a five-year plan for the CSIR e-journal consortium, targeting access to over 4,500 journals (Narayana & Goudar, 2004). At present, the consortium has already entered into an agreement with many publishers, such as Elsevier Science, American Chemical Society, American Institute of Physics, and Springer (P. Diwakar, Senior Information Officer, IICT-CCMB library, personal communication, May 2005).

Features of the CSIR consortium include the following:

- Access to e-journals: Four types of models were devised for access to journals. The model varies from publisher to publisher. The model is also based on the number of labs interested in procuring a particular publication. These models are (1) all the journals to all the labs (Elsevier, American Chemical Society, and Springer are giving access to all the subscribed journals to all the centers); (2) all the journals to select labs; (3) select journals to all the labs; and (4) select journals to select labs (the American Institute of Physics uses this model).
- The current print journal subscription should be continued by all the participants. However, the titles can be changed during the period of the agreement.
- Access is IP based. Wherever such facility is not available, ID-based access is provided.

- Unlimited access to all the users. The CSIR paid approximately Rs 70 million to get such access to e-journals during this year (2005). This is in addition to the print subscription amount. The CSIR paid an extra amount of 10–20 percent to the publishers to get access to e-journals based on the type of access needed by the centers (P. Diwakar, Senior Information Officer, IICT-CCMB library, personal communication, May 2005).
- Access to back volumes for a specified period (five or more years).
- Access to the titles added during the contract period shall be given at no additional charge.
- The titles discontinued or merged with other titles during the contract shall be provided with access to back volumes.
- On termination/expiration of the agreement the licensor provides full text on prevalent formats with state-of-the-art archival technology and retrieval software.
- The current agreement tenure runs up to December 2006.
- Facilities to search, browse, view, and download the articles of interest are provided, and their distribution among CSIR labs, centers, and institutes is allowed.

The CSIR consortium has resulted in increased access to the journals by scientists. Previously, researchers devoted time and money to document delivery and to interlibrary loans from sister institutions. The consortium means that these institutions and their researchers benefit from more immediate access through resource sharing.

UGC-Infonet

India has about 310 universities and about 14,000 colleges affiliated with these universities. Approximately 10 million students are studying in these institutions. The UGC is the apex organization and was established under an act of Parliament in 1953. It gives recognition to the universities in the country and makes every attempt to maintain standards in higher education in the country. The UGC is the funding agency for the higher education system. The government of India provides the funds for higher education through UGC, similar to the University Funding Council of the UK.

The universities and colleges were finding it difficult to provide access to relevant information to their users due to limited resources. In the context of more than 10,000 Ph.D.'s produced every year by these universities, the universities were badly in need of support for information sources for its users so that the quality of education and research could be improved. Further, the journals procured by these universities were duplicated, and there was no formal understanding between them for resource sharing. Resource-sharing activity was totally localized, informal, and minimal. Even individual universities were finding it difficult to share resources between

different departments due to the distance between departments and department libraries on campuses.

Many universities also did not have the necessary information technology (IT) infrastructure and networking facilities, unlike premiere institutions such as the IITs and IIMs. As an apex organization, the UGC was forced to work out strategies for providing increased access to information. It became more essential in the context of increased quality consciousness and competition from foreign and private institutions. As a backdrop to this situation, the UGC planned and established the Information and Library Network (INFLIBNET), which is supposed to take care of networking libraries and their resources in the higher education institutions across the country. This was established along the lines of the Joint Academic Network (JANET) in the UK.

INFLIBNET has initiated several projects. It collected the bibliographic data from various universities to create a union catalog. It also developed a library management software called SOUL (Software for University Libraries), which is being made available to academic institutions at a nominal rate of Rs 15,000 (that is, $330) for a single user and about Rs 50,000 (about $1,100) for the Local Area Network (LAN) version. However, INFLIBNET services are not at the expected level of satisfaction for the academic community and students.

Looking at the information needs of the users of academic institutions, the UGC has launched two ambitious programs: UGC-Infonet and UGC-Infonet e-Journals Consortium. It was difficult for the universities to raise the necessary funds to develop the network infrastructure. Therefore, the UGC-Infonet project, in collaboration with Education and Research Network (ERNET), has provided the infrastructure and also upgraded existing networks to broadband. This network initially connected a select 130 universities on a turnkey basis. They also have plans to use VSAT technology to facilitate networking for both urban and rural universities. Over a period of time, this service is planned to extend to other universities and colleges. INFLIBNET will coordinate between ERNET and the individual universities. Further, INFLIBNET maintains one print copy of almost all the journals subscribed to as a national archive (Murthy et al., 2005).

UGC-Infonet E-Journal Consortium

In the process of improving the quality of higher education, the UGC decided to subscribe to e-journals and provide access to Indian universities and colleges. While procuring these resources, it wants to avoid duplication of procurement of the same titles by the universities as well as bargain for the best subscription rates. Initially, the UGC had subscribed to almost 2,000 e-journals, eight databases, and two portals. Through this project, the e-journals were procured with a discount of between 60 and 90 percent, and access to archival materials was included. The total budget for this project

was allocated by the UGC. In due course, the UGC may collect subscription fees from individual universities.

With the provision of the network infrastructure, the UGC was able to provide access to e-journals. Initially, connectivity was provided to fifty universities starting on January 1, 2004, on a trial basis. It was extended to another fifty universities for the year 2005. Provision of access to e-journals is basic, but more important issues are users' acquaintance with the technology and provision of training to the users to enable them to make optimum use of the resources. Even though the e-resources provide easy and fast access for users, many universities still lack campus networks, resulting in limited access to these resources. Some of the universities still depend on dial-up Internet facilities. However, these days, universities are building improved infrastructure that will enable access through leased lines (IP-based access).

This consortium has improved access to an increased numbers of journals. It has provided the facility for users to directly download information. However, user statistics for the first six months, from January to June of 2004, are not so encouraging. INFLIBNET has received statistics from some of the publishers, and they indicate that the total number of downloads by the member universities was 305,530, out of which American Chemical Society (ACS) journals constituted 37.65 percent. The latest statistics were not yet available but indications are that there is considerable increase in downloading by the users, due to awareness programs and seminars conducted by the universities and by INFLIBNET (Murthy et al., 2005).

It is worth mentioning that a J-gate portal is being procured by UGC-Infonet. It lists about 14,000 journals, both free and subscription based. The user can get access to full-text articles in free journals through a hyperlink. The list is being updated and more and more titles are being included.

A data center with server and storage facilities for content of common interest is being planned for the UGC-Infonet center. The universities can host their Web sites through this data center. An informatics lab was opened at the INFLIBNET center with state-of-the-art technology including wireless technology. This lab is open to faculty and scholars from various universities in the country; there is also provision for supplying photocopies of print journal articles.

INFLIBNET is also building a database of Ph.D. theses submitted to Indian universities. Even the Vidya Nidhi project based at the University of Mysore is in the process of creating a database of Ph.D. theses with financial support from institutions such as NISSAT. It may be worth mentioning that the UGC has already initiated steps for creation of a full-text database of Ph.D. theses presented to Indian universities. It prepared norms for creation of an Electronic Theses Database (ETD). The main purpose of this initiative is to provide free and unlimited access to these theses. However, implementation may take more time.

ICICI Virtual Information Centre

The Virtual Information Centre (VIC) was established at the ICICI Bank Knowledge Park, in Hyderabad, and funded by NISSAT. This VIC was basically established to create e-content and to provide information service and knowledge networking. The VIC formed a journal consortium with seven member institutions, namely VIC, University of Hyderabad, National Institute of Nutrition (NIN), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Centre for Cellular and Molecular Biology (CCMB), Indian Institute of Chemical Technology (IICT), and the National Chemical Laboratory (NCL). Out of these, six institutions are local. This consortium's emphasis is not on subscription to journals but on the optimization of the use of electronic journals. The members share the resources, and VIC acts as a facilitator and fund provider (ICICI Knowledge Park, 2005.). The VIC has entered into an agreement with the service provider (Informatics India Ltd., Bangalore), who creates databases and hosts them on a central Web server with a suitable search mechanism. The end-users from these participating institutions can use the service from their desktops through the Web browser. They can place interlibrary loan (ILL) requests and search databases prepared by the VIC. The advisor for this consortium feels that it could create an awareness of need for consortia, and it has also created innovative initiations. But he also feels that the experience is not entirely a good one, as the participating institutions have not been showing much enthusiasm and are reluctant to put in any extra effort. The participating institutions need not be blamed as they have their own staff problems and are also involved in many cooperative activities. This program has been operational since 2002 and initially was planned as a three-year project (ICICI Knowledge Park, 2005; Dr. P. Vyasa Murthy, Advisor, ICICI-VIC, personal communication, May 2005).

Document Delivery Service

It is a common practice for Indian libraries to provide interlibrary loan and document delivery. However, due to several factors, such as frequent delays in the return of documents by the users and the high costs and concern about the safety of the documents, in practice ILL service is not frequently provided by many libraries. Document delivery, on the other hand, is helping to bridge the gap between the have and the have-not libraries. It is being widely used to facilitate user access to required materials.

It is worth recognizing that network technology made it possible for document delivery services to operate at a much faster rate. In the days before networks, document delivery was time consuming and not very economical. Therefore, the services were not very popular. That has now changed. The educational background and technical access of users affect how they access information. In many institutions, especially in developing and underdeveloped countries, the use of online journals is still limited. The ability to find content online, either Internet resources or library resources, depends

upon the ability of the user to use the technology. Many users are still not familiar with online searching. Therefore, online and paper document delivery is mainly restricted to journal articles, and it is one of the most useful and popular services being provided by the libraries. Document delivery services in India are well organized and institutionalized.

Documentation Centers

Several national- and regional-level documentation centers have been established in India. They include the National Institute of Science Communication and Information Resources (NISCAIR)—NISCAIR itself was formed from two institutions: INSDOC (Indian National Scientific Documentation Centre) and NISCOM (National Institute of Science Communication), which were merged to form NISCAIR in 2002—NASSDOC (National Social Science Documentation Centre); SENDOC (Small Enterprises National Documentation Centre); DESIDOC (Defence Scientific Information and Documentation Centre); and CORD (Centre on Rural Documentation). These centers develop collections in their fields and provide documentation services to various institutions and individuals. One of the major services provided by these centers is document delivery. They also provide training to develop staff practices.

NISCAIR NISCAIR's library is the National Science Library of India. This center is supposed to take care of the information interests of scientists in the fields of science and technology. The major objectives of this center are to provide formal linkages for communication among the scientific community in the form of research journals in different areas of science and technology and to collect, collate, and disseminate information on plant and mineral wealth and the industrial infrastructure of the country. This center also provides document delivery to all the scientists and academics in the country and provides several services such as selective dissemination of information (SDI), in addition to the provision of content pages and document delivery. It also organizes both short- and long-term training programs to improve the skills of the staff members involved in information handling.

NASSDOC NASSDOC was established by the Indian Council for Social Science Research (ICSSR). This center procures and disseminates information in the social sciences to all the social scientists in the country. It acts as a clearing house in the social sciences. Services are provided to everyone without any restriction on the institution or type of user. Services include photocopying, indexing, content page supply, and document delivery. NASSDOC also procures copies of the Ph.D. theses submitted to Indian universities in the social sciences.

SENDOC SENDOC is a national documentation center that develops a collection useful for small industries in the country. It was set up by the National Institute of Small Industries Extension and Training Institute (NISIET).

It provides services such as SDI, technical enquiry services, indexing services, and document delivery to needy users. However, SENDOC has currently restricted its collection and services to the parent institution, NISIET.

DESIDOC DESIDOC was initially established as the Scientific Information Bureau (SIB) in 1958 and was reorganized and renamed as DESIDOC in the year 1967. This center provides information and documentation services to the scientists working in the Defence Research and Development Organization (DRDO). DESIDOC works as a central agency providing library and information services to various defense laboratories established in the country (in addition to the individual libraries of each lab). It established the Defence Science Library (DSL), which acts as a central library of DRDO. DESIDOC has developed a good collection of reports and literature useful to the researchers. It also prepared a database of profiles of the defense scientists to better enable the provision of SDI services, and it developed various other databases useful for various defense labs. One of the main services provided by this center is document delivery.

CORD CORD was established by the National Institute of Rural Development (NIRD). Its focus area is rural development. This center acts as a clearing house in the area of rural development and as a referral center. It provides Current Awareness Service (CAS), SDI, reference services, literature searches (database searches), and training and document delivery. CORD also prepares indexes and digests and provides alert services.

INFLIBNET Document Delivery Centers

UGC-Infonet is a boon to academic institutions, but this facility does not yet satisfy all the demand from users. To overcome this problem, INFLIBNET identified six universities that have good collections (both macro and micro literature) and infrastructure. The libraries of these universities have been recognized as document delivery centers. These libraries provide document delivery on demand to the academic community in the country at nominal charges.

The location of the libraries helps to provide access to document delivery services to researchers working anywhere in the country. The increased communication facilities are an advantage to the universities. The six universities are the University of Hyderabad, Banaras Hindu University, Punjab University, the Indian Institute of Science, Jawaharlal Nehru University, and Tata Institute of Social Sciences. Each of these libraries is supposed to take care of a specified region for document delivery service, but it is not mandatory that it only serve that region; users are free to use resources from any library. However, these libraries are independent and deal directly with the users. In addition to these six libraries, the INFLIBNET center also provides document delivery services to the academic community. As a first step, the users need to know what is being published in their subject area—only then can they request document delivery. To increase user

awareness, INFLIBNET has also introduced services such as Contents of Periodicals in Science and Technology (COPSAT) and bibliographic information services. These services have become the basis for document delivery through INFLIBNET and the six specified libraries.

It may be worth mentioning that several other informal linkages have been established among libraries irrespective of the type and location of the libraries. Several union catalogs have been prepared at local, regional, and national levels to be used to facilitate document delivery services. However, these union catalogs are not updated and in turn their use has become more or less minimal.

DELNET

DELNET (Developing Library Network) provides extensive interlibrary loan and document delivery services to member libraries located in various parts of the country. This is one of the most popular services provided by DELNET. Books are sent to the libraries by courier with charges being paid by the borrowing library. DELNET also provides photocopies of journal articles both to libraries and to researchers at institutions, with email notification to users. Requests are received and registered through mail, fax, or any other manner. As of December 2005, DELNET has 950 members located in India and South Asian Association for Regional Cooperation (SAARC) countries, with a very limited number in other countries (3 in the United States, 1 in the United Arab Emirates, 1 in the Philippines, and 2 in Oman). The members are from various types of libraries and deal with a wide range of subjects in the social sciences, humanities, and science and technology. As an example of document delivery provided by DELNET, KLN College of Engineering borrowed 400 books from DELNET during 2004 (Ms. Sangeeta Kaul, Senior Information Officer, DELNET, personal communication, June and December 2005).

DELNET has developed a library management software system called DELPLUS (the present version is 2.0-LAN version). It is provided to the members at a nominal cost of Rs 15,000 (approximately $330). DELNET also organizes orientation programs to popularize its services. It provides training in the creation of bibliographic records with MARC 21, and it provides DELDOS software free to all its members.

Interlibrary Cooperation

Interlibrary cooperation is local cooperation between two or more libraries. This cooperation may be formal or informal. Cooperation mainly involves resource sharing. Local cooperation has been necessitated due to alarming shortages of financial resources in many institutions. Smaller research and academic organizations are unable to procure information resources to satisfy their users' needs; in turn, the lack of access to such information will have a negative effect on research. A number of industries

established in the country cannot afford to purchase a single database or secondary source. The situation is similar with many colleges offering both undergraduate and postgraduate courses.

The situation is mainly due to limited government support to these small industries, research organizations, and academic institutions. But the contribution of each and every organization is likely to help national development and exports. In this context, the large institutions want to help needy organizations but find it difficult to allow everyone to make unlimited use of their documentary and informational resources. It may directly affect access to information by their own users, and use is also subject to publishers' conditions. Further, allowing outside users also creates security and safety problems. In this situation, a balance must be arrived at that is beneficial to both the organizations. The thinking on helping the less advanced organizations has its roots in a NISSAT project. Under this project, library tickets (cards) were issued to many institutions and organizations allowing them access to the library facilities of government or government-sponsored institutions at a nominal charge. This scheme was successful. The concept of mutual help and resource sharing has become an accepted norm in most Indian libraries.

Every library wants to generate financial revenue as well as support resource-sharing activity. Now, many larger institutions allow smaller institutions' users to make use of their libraries at nominal charges. These charges may vary based on the background and size of the organization seeking the services. The IICT-CCMB library (two laboratories have a common library premises) spends almost Rs 26 million per year on library acquisitions, and the research output of these labs is recognized as the best in applied chemistry and modern biology. It allows users from both academic institutions and industry. It gives free access to library resources to doctoral students from other universities. It has categorized industries into three categories and charges them Rs 50,000, 25,000, and 10,000, depending on the industry, generating an annual income of Rs 1.6 to 1.7 million (P. Diwakar, Senior information officer, IICT-CCMB library, personal communication, June 2005). Institutions are provided with one library card and on request an extra card is provided for a payment of Rs 5,000.

The Central Institute of English and Foreign Languages (CIEFL) allows all the students and researchers from any academic institution to use their library for a nominal payment of Rs 150 per three-month period. The National Institute of Nutrition (NIN) library is permitting free use of its resources on any working day during office hours. At present many students, especially from pharmacy colleges, and the industries use this library facility. Osmania University Library permits the users to use their doctoral theses collection for a nominal payment of Rs 50 per day.

According to the MALIBNET annual report of 2004–05, it has prepared a directory of current serials in Chennai (Madras) for the year 2003, which

includes 4,500 titles. One of the best resource-sharing activities of this network is the MALIBNET Card Service. Under this program, MALIBNET issues cards that permit the card holder to visit the member libraries for consultation. Access is free to all members. To date it has issued 500 cards. It has further plans to make its database accessible through the Web and also to provide e-journal resource-sharing facilities. A similar card system was introduced earlier by NISSAT (*MALIBNET Annual Report, 2004–05,* 2005).

Several organizations provide funds for projects, and many library scientists are involved with projects that are useful to their users. A teacher from Aligarh Muslim University devised a gateway to library and information resources (Library and Information Science Gateway, 2005). It is freely accessible but it is not regularly updated. The Documentation Research and Training Centre (DRTC) of the Indian Statistical Institute has developed a digital library in library and information science (DRTC, n.d.) and also a digital library gateway for LIS journals (Indian Statistical Institute, 2005). The contents are freely accessible.

Similarly, many libraries have been opened up for use by the public. This aspect of resource sharing has created a major problem of damage, and pages are being cut out by some mischievous users. Some libraries have started installing security systems in their libraries to stop pilferage of documentary resources. However, these security systems may not stop the cutting out of pages. The current feeling is that access to resources for the public is needed. It helps in national development and productivity. Currently the feeling among needy users is that since most libraries with good collections are publicly funded, directly from the government or through its agencies, these libraries should make their resources available to all users on a par with public libraries. Of course, this concept is yet to be recognized or accepted by all organizations. But, it is a fact that almost all libraries have become much more open in providing access to their resources to outsiders (except the libraries of defense or sensitive organizations). Previously, the libraries were almost closed to outsiders, and now they are allowing outside users. The access to outside users is either for a nominal payment or free. Due to limited infrastructure, certain restrictions are being imposed on outside users.

Conclusions

There is a transformation taking place in the attitude of Indian institutions toward sharing of their library resources. All libraries are feeling the pinch of limited resources in the context of increased user demand for information. The experiences of libraries in other countries (especially from developed countries) and their resource-sharing programs have given impetus to Indian libraries to plan for resource-sharing activities with an open mind, which in turn is helping to meet the demands of the users to

a limited extent. The major problem for libraries has been limited funding. Involvement of the scientists and academics has helped to deal with the problems faced by libraries. The experiences of scientists in accessing information have caused them to initiate and put forward several proposals to the government for funding the acquisition of library resources. They have put in a lot of effort to convince the government and its agencies of the need for funding. These efforts will hopefully result in additional funding as well as in the sponsoring of various programs related to information dissemination, including funding for consortia programs.

The establishment and funding of several library activities through NISSAT has created momentum for the use of information technology for library development. Facilities have been improved to enable increased access, and there has also been an increase in the number of information resources for users. The training of users and professionals has become part and parcel of every library activity. The training must include not only internal staff but also be extended to other institutional staff. Training is an important component of many organizations' development, especially for the national-level organizations. Since technology-based programs have been innovative and new, the training programs have been important to enable both the users and professionals to become acquainted with new resources and methods. Staff and users are being trained to make use of the resources at their institutions and resources subscribed to under consortia programs. Thus, the training is becoming a continuous activity for members of consortium institutions. In addition to these programs, NISCAIR organizes short-term and long-term training programs for both Indian and SAARC participants. The short-term training programs (two to six weeks) are free for participants. INFLIBNET organizes programs for staff of various academic institutions in the automation of libraries, the use of e-journals subscribed to under consortia programs, and the development of databases. INDEST organizes programs for members in the handling of Web resources.

Resource-sharing activity in Indian libraries has mainly been limited to sharing of information and human resources. It is a matter of concern that the methods followed by libraries are very different from one another. No standard procedures have been followed, even by similar types of institutions. Due to this, several resource-sharing programs such as the sharing of cataloging data or database keywords have not been possible. For example, no one has taken the initiative to create an acceptable standard for a catalog format in India. The Bureau of Indian Standards has created a standard but many libraries are not even aware of this, and the standard now needs to be updated. Many university libraries, public libraries, and special libraries procure the same books, and they are being cataloged independently with local variations. There is no sharing of cataloging data among these libraries. Everyone knows that libraries are wasting a lot of effort cataloging the same books repeatedly, which may be in the same library system or

other systems. Most libraries are now downloading cataloging data from the Library of Congress catalog through the Internet. Some members of the Online Computer Library Center (OCLC) download from WorldCat. There is an Indian National Bibliography, and there are many other databases developed by other agencies such as INFLIBNET or DELNET. However, one finds that entries from these are either not downloadable or they do not follow a standard format. This is one of the most important areas where resource sharing is needed. The national-level organizations need to take up the creation of a national database with regular updates, which can be used for downloading catalog data by other libraries.

There is a need to seriously consider the formation of a national consortium by merging or combining all of the consortia programs. Most of these consortia are being funded by different government agencies; perhaps they could be formed into a national consortium so that e-journals and e-documents could be subscribed to with even better terms and discounts than what is being offered today.

It may be worth stating that recently, the Indian Parliament Library has opened its doors to the researchers, which is a landmark development in knowledge-sharing activity in India. Until now its valuable collection was accesible only to parliamentarians and government. Now researchers can access these valuable information resources. This step is likely to encourage and pave the way for other libraries to follow the footsteps of the Parliament Library, which will go a long way in the knowledge-sharing movement in India.

References

Arora, J., & Agarwal, P. (2004, February). Building digital libraries in a consortium mode: Towards a national consortium. In *International Conference on Digital Libraries 2004: Knowledge creation, preservation, access, and management* (vol. 1, pp. 292–311). New Delhi: The Energy Resources.

DELNET. (2005). Home page. Retrieved June 20, 2005, from http://delnet.nic.in.

Document Research and Training Centre (DRTC). (n.d.). *SDL: Search Digital Libraries.* Retrieved June 20, 2005 from http://drtc.isibang.ac.in/sdl.

ICICI Knowledge Park. (2005). *Virtual Information Centre.* Retrieved June 20, 2005, from http://www.vic-ikp.info.

Indian National Digital Library in Engineering Science and Technology (INDEST). (2003). Proceedings of the First National Workshop on ERIMS-INDEST Consortium organized at IIM, Lucknow, September 28–30. Unpublished document.

Indian National Digital Library in Engineering Science and Technology (INDEST). (2004). *INDEST Consortium.* Retrieved June 20, 2005, from http://paniit.iitd.ac.in/indest.

Indian Statistical Institute, ISI-BC Library. (2005). Home page. Retrieved June 20, 2005, from http://www.isiban.ac.in/library/index.htm.

J-Gate Custom Content for Consortia (JCCC). (2003). *JCCC@INDEST.* Retrieved June 20, 2005, from http://jccc-indest.informindia.co.in.

Kaul, H. K. (1992). *Library networks: An Indian experience.* New Delhi: Virgo.

Library and Information Science Gateway. (2005). Home page. Retrieved June 20, 2005, from http://www.lisgateway.com.

MALIBNET Annual Report 2004–05. (2005). Chennai: MALIBNET.

Manorama Year Book. (2005). Kottayam: Malayala Manorama.

Murthy, T., Cholin, V. S., Chauhan, S. K., & Patil, R. (2005). *UGC-Infonet: E-journals consortium: An Indian model bridging the gap between scholarly information and end user.* Paper presented at CALIBER-2005, Cochin, India, February.

Narayana, P., & Goudar, I. (2004). *A model for scientific and technical information consortium: A case study of CSIR.* Paper presented at Symposium on Consortia Approach to Resource Sharing: Issues and Policies, Bangalore, October 6–8.

National Information System in Science and Technology (NISSAT). (n.d. a). Home page. Retrieved June 20, 2005, from http://dsir.nic.in/division/nissat/nisobj.html.

National Information System in Science and Technology (NISSAT). (n.d. b). *National Information Centres (NICs).* Retrieved June 20, 2005, from http://dsir.nic.in/division/nissat/nisnat/nics/mnic.html.

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