

THE AVAILABILITY OF AUTOMATION FACILITIES FOR NETWORKING AND RESOURCE SHARING IN BANGLADESH: A STUDY ON SOME SELECTED LIBRARIES

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Introduction

The library movement in Bangladesh started during the middle of the last century, the inspiration being provided by the West. Establishing a library network and extension of its services to the people have been for long and still it is a living issue of the country. But due to lack of proper initiative by the government and concerned authorities, the scenario of whole library and information system of the country is almost traditional. At present the country is having various types of libraries and information centers which include Public, National, Academic and Special libraries. According to Khan (1996:1-2) 'over the last three decades, a good number of various types of libraries have been established in the country. As of today, Bangladesh has the following types of libraries: 22 university libraries, 11 university institute library, 2 national libraries and documentation centers; 1 national archives; 66 government and over 500 non-government public libraries; 1031 college libraries; 44 professional and technical college libraries and 664 special libraries.' But it is a fact that among the above mentioned libraries except a few university and research organization libraries, most of them are in paper only.

Very recently, in view of the changing attitudes of information user in getting specific information, a number of libraries and information centers of the country have taken initiative to establish a proper system for providing desired information to their user by using automation facilities.

Library automation is now most commonly used term for mechanization of library activities using data processing equipment. Though the library automation phenomenon started in 1936 by installing a 'punch card system' for circulation control of the university of Texas, but the introduction of computers in the library operations in 1960s changed many thing, and made possible a second era of library automation system (Kent 1975:

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338-9). The use of computer based systems in libraries and information centers is now common all over the world. Computers are used to assist in a variety of functions such as maintaining and providing access to the catalogue of items in the collection, managing the issuing and returning the items from the collection, the acquisition of new items for the collection, controlling the serial publications and allowing the retrieval of information from databases relating to bibliographic data, financial or numeric data or the full text of documents. The combination of computing and telecommunications for the acquisition, processing, storage and dissemination of vocal, textual, pictorial and numeric information is known as library automation or Information Technologies -IT (Tedd, 1993: 1-2)

Objective of the study

The study has been designed mainly to ascertain: the availability, strength and weaknesses of automation facilities and other similar resources required for networking and resource sharing among the libraries in Bangladesh.

Methodology

For ensuring representativeness from different types of libraries (academic, special, public and national) and considering the services and usefulness to the users, twenty five libraries of the country were purposefully selected and brought under the investigation. Considering the purpose of authenticity and reliability of data, the interview method based upon structured questionnaire was preferred over the other applicable methods.

Sample Design

Table 1 : Libraries and information centers brought under the survey

	Name	Year of establishment	Location
01	Dhaka University Library	1921	Dhaka
02	Bangladesh University of Engineering and Technology (BUET) Library	1961	Dhaka
03	Jahangirnagar University Library	1970	Savar, Dhaka
04	North-South University Library	1992	Dhaka
05	Chittagong University Library	1966	Chittagong

06	Rajshahi University Library	1953	Rajshahi
07	Shahjalal University of Science & Technology Library	1991	Sylhet
08	Khulna University Library	1991	Khulna
09	Bangladesh Agricultural University Library	1962	Mymensingh
10	Bangladesh Institute of Development Studies Library & Documentation Center (BIDS-LDC)	1974	Dhaka
11	Community Development Library	1980	Dhaka
12	Center on Integrated Rural Development for Asja and Pacific (CIRDAP) Library	1979	Dhaka
13	Bangladesh Academy for Rural Development Library	1959	Comilla
14	Bangladesh National Scientific and Technical Documentation Center Library (BANSDOC)	(1962)1972	Dhaka
15	National Library of Bangladesh	1975	Dhaka
16	National Health Library & Documentation Center(NHL-DC)	1974	Dhaka
17.	Diarrheal Information Services Center (DISC)	(1962)1978	Dhaka
18	Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) Library	(1956)1975	Dhaka
19	Institute of Post-graduate Medicine and Research (IPGMR)Library	1965	Dhaka
20	Bangladesh Atomic Energy Commission (BAEC) : Library	1964	Dhaka
21	Central Public Library	1953	Dhaka
22	The British Council Library	1952	Dhaka
23	USIS Library	1951	Dhaka
24	Agricultural Information Center (AIC)	1988	Dhaka
25	Fisheries Research Institute Library and Documentation Center (FRILDOC)	1987	Mymensingh

Survey

Information was collected using one set of structured questionnaire. Based on the analysis of the objectives of this study information on five broad categories of variables for libraries were identified. The variables(s) and indicators emerging out of the questionnaire for libraries and information centers are shown in Table-2:

Table-2 : Variable(s) and indicators(Lib. & Info. centers)

Type of variable(s)		Indicators
1	Institutional Profile	Names of the library and information centers, address, year of establishment, telephone, fax, telex, E-mail, nature of organization, name and designation of the head, parent body.
2	Infrastructural facilities	Hardware—computer hardware with configurations, reprographic equipment, audio-visual, others; computer software, status of facilities etc.
3	Information technology and services	Status of computerization—acquisition, cataloguing, circulation, serial control, available computerized databases, databases on CD-ROM.
4	Manpower	Staff structure with qualification, computer manpower, status of available manpower, requirements.
5	Networking and resource sharing	Inter-library loan, photocopy service, on-line and off-line search, organization for exchanging of information at national and international levels, importance of networking in the prevailing situation, areas for resource sharing, constraints of networking.

Sample

The following samples were selected for the study :

- Libraries which have either initiated the automation process or have plan to go for automation in near future;
- Libraries which have acquired minimum infrastructure required for automation and also have minimum manpower for the purpose.

The libraries which still are traditional in their functioning and are reluctant to catch up with the new technology have been excluded from the sample.

The SPSSWIN statistical package was used to enter, edit and analyze data. Findings of the study have been presented in tabular and figurative forms by using bivariate and multivariate techniques.

It is to be mentioned here that telecommunication facilities; access to internet and other advanced communication facilities constitute the information technology and these are pre-requisite for the library

automation of a country. An attempt has been made to review the existing facilities in connection with library automation process in the country.

A general overview of the existing facilities related with library automation process in the country

Telecommunication facilities

The country has a network of an extensive telecommunication system which has connected the capital city with other places within the country and major cities of the world through two earth satellite ground stations. "Presently, the telecom infrastructure of the country is mostly a combination of analogue and digital transmission lines, analogue and digital switches, satellite exchanges and has also several large-scale Trunk-Automated exchanges which form the backbone of the Nation Wide Dialing."(BANSDOC,1996:44). By the early years of the next century the whole country is expected to use the digital technology. Until very recently, the Bangladesh T & T Board was the sole authority in the telecom sector. However, portions of the telecom services have been licensed to the private sector, and a Telecommunications Regulatory Board has been established to take over the regulatory functions of the Bangladesh T & T Board. "The very low per capita telephone service (telephone density per capita is approximately 0.0032) is one of the major reasons for the delay in the introduction of data communication in Bangladesh. To access any information services by remote connection through a modem, it is imperative to have access to a telephone line."(BANSDOC,1996:45). The *telecom infrastructure of the country now avails with the significant help of the private sector, radio-trunking systems, cellular mobile, paging systems etc. and within the next two years, advanced services for data transmission such as VSAT and for lower bandwidth applications X.25 are expected to be introduced (BANSDOC,1996:43-45). Responding the demand of the day, the Bangladesh T & T Board has recently started offering the Internet Services in cooperation and complementary basis with the private sector.*

In addition to the basic services mentioned above, the Bangladesh T & T Board very recently established a Packet Switched Data Network (PSDN) in the country. The main nodes of this network have been set up in Dhaka, Chittagong, Khulna, Rajshahi, Barisal, Sylhet, Mymensingh and Bogra of

the country. Presently, subscribers from these areas will be able to exchange data at the rate of 1200 bps to 9600 bps through this network. It is expected that this service will be extended to other places of the country in near future. As a result of the introduction of PSDN service, different organizations of the country will get opportunity to exchange data at a very lower cost within the country and abroad. The available service of the data network is X.25 leased, X.28 leased and X.28 dial-up (*The Daily Star*, September 16,1996:2).

Internet facilities

Computer culture is catching up in the country. A few dynamic entrepreneurs specialized in computer and telecommunication have attempted to provide E-mail and internet services to the local users. With the aim to enter in the Global Village, Bangladesh T & T Board has given licenses to five organizations to install VSAT. Among these, at present Seven private companies are providing on-line internet services. Among them, Information Services Network (ISN) and Grameen Cybernet Ltd.; Proshika net; BD online and Pradesta Ltd. managed to lease their VSATs from BTTB while the other two—Agni and Kaifnet— have taken lines from ISN and Grameen Cybernet in order to provide internet services. Information Services Network (ISN) started functioning from 4 June, 1996 while Grameen Cybernet started from 15 July, 1996. Grameen Cybernet likes to identify itself as the best service provider in Bangladesh. According to them they have the world's fastest DIGITAL ALPHA services and the best routers available in the market. They have also installed 32 dial up lines to ease a user's access to internet without waiting. An individual or an organization in Bangladesh having necessary equipment i.e. a computer, a modem, and a regular telephone line, is required to be a member of ISN or Grameen Cybernet Host computer by paying entry-fee of Taka 10,000.00 (ten thousand) and other charges (varies between the two hosts). The member will then be provided with an ID number and a 'password' with which he will be able to connect his computer with the internet through his host. Those who do not have computers of their own can also avail of the internet services by using these computer or at the host computers at a fee. Charges which may vary from place to place. Agni and Kaifnet are both providing on-line internet services and off-line e-mail services. Agni charges the same fees as ISN. Kaifnet has not started commercial operation

as yet. There are eight off-line e-mail service providers in the country. Some of these are Pradesta, Drik-lay, Bdnet. However, Bangladesh has finally managed to get on the information highway. By this time several individuals and organizations have joined in the process.

Among the library and information centers of the country only Community Development Library (CDL), BANSDOC, DISC of ICDDR,B, SAIC, USIS, North-South University (NSU) Library, The British Council Library, CIRDAP Library, BUET Library, BIDS Library and Documentation Centre have joined in the internet so far and others like DU library and few NGO libraries planning to join very soon. SAIC and CIRDAP have their Home Page on Web-site.

Advanced communication facilities

Among the new technologies, computers, CD-ROMs, and E-mail have immense contributions in the field of communication. The status of computerization in libraries and information centers of the country is not satisfactory. A few libraries and information centers are using computer mainly for word processing work and partially for information storage and retrieval. The CD-ROM facilities are available only in a few libraries. Only 11 libraries have e-mail facilities and have access to internet up to this survey time in the country. Most of the libraries are using micro CDS/ISIS software. The DISC of ICDDR'B and AIC are the pioneers in creating bibliographic databases using the CDS/ISIS and Inmagic software. According to this study the survey result indicated that out of 25 libraries, only 16 per cent are using telex, 36 per cent using E-mail, 44 per cent using Fax and cent per cent are using telephone for communication. Among these libraries, Community Development Library, BANSDOC Library and DISC of ICDDR'B, the British Council Library, USIS, CIRDAP, BIDS-LDC are using all types of communication facilities. It is observed that most of the academic libraries are very poor in the use of tele and electronic media. Regarding the Computer facilities, 80 per cent of the surveyed libraries have been using computer and among these 30 per cent have possessed only one computer. The highest number (24) of computers are possessed by BANSDOC followed by the British Council Library, DISC of ICDDR'B and AIC of BARC. Most of the academic libraries either have a small number of computers or do not have any computer at all. Those libraries

having computers are mostly using CDS/ISIS library database software with other software packages. Regarding the computer manpower 72 per cent of the libraries have professional computer manpower and 28 per cent libraries do not have any computer manpower. About 94 per cent of the computer manpower do not have any degrees in the particular field but have training to run the routine functions. It is worth mentioning here that for the first time an ambitious plan for library automation of Dhaka University is recently taken up. It is learnt that the progress of automation has been running fast.

The technological facilities including computers with software, CD-ROM, Fax, Photocopies, Telephone, email and Internet available in the major special and academic libraries upto this survey time are presented in Table 3.

Table-3 :ADVANCED COMMUNICATION FACILITIES:

Sl. No.	Name of the Library and information center	Computer facilities with software and available databases	CD-ROM	FAX	E-mail/ Internet	Photocopy machine
01	Agricultural Information Center (AIC)	CDS/ISIS, Inmagic — 2 databases	√	-	-	√
02	Bangladesh Agricultural University Library	CDS/ISIS, Inmagic — 2 databases	√	-	-	√
03	Bangladesh Agricultural Research Institute Library	W. P. 5.1	-	-	-	-
04	Bangladesh Atomic Energy Commission Library	CDS/ISIS — 1 database	-	-	-	√
05	Bangladesh International Institute of Strategic Studies Library	CDS/ISIS — 1 database	√	√	√	√
06	BIRDEM Library	CDS/ISIS — 1 database	√	-	-	√

07	BANSDOC Library	CDS/ISIS — 4 database	√	√	√	√
08	CIRDAP Library	CDS/ISIS — 2 database	√	-	√	√
09	BPATC Library	CDS/ISIS — 2 database	√	√	√	√
10	Community Development Library (CDL)	CDS/ISIS — 2 database	√	√	√	√
11	Dhaka University Library	CDS/ISIS — 1 database	-	-	-	√
12	BUET Library	CDS/ISIS — 1 database	√	-	√	√
13	DISC, ICDDR'B	CDS/ISIS — 6 database	√	√	√	√
14	IPSA Library	CDS/ISIS — 1 database	-	-	-	√
15	BADC Library	W. P. 5.1	-	-	-	√
16	ERDOC	CDS/ISIS — 1 database	-	-	-	√
17	NSU Library	CDS/ISIS — 1 database	√	√	√	√
18	BIDS Library and Documentation Center	CDS/ISIS — 6 database	√	√	√	√
19	NHLDC	CDS/ISIS — 1 database	√	-	-	√
Sl. No.	Name of the Library and information center	Computer facilities with software and available databases	CD-ROM	FAX	E-mail/Internet	Photocopy machine
20	NIPORT Library	CDS/ISIS — 2 database	√	-	-	-
21	National Institute of Local Government Library	CDS/ISIS — 1 database	-	-	-	√

22	BRAC Library	CDS/ISIS — 1 database	√	√	-	√
23	FRILDOC	W.P. 5.1	-	-	-	√
24	Geological Survey of Bangladesh Library	W.P. 5.1	-	-	-	√
25	Jahangirnagar University Library	CDS/ISIS — 1 database	-	-	-	√
26	Rajshahi University Library	CDS/ISIS — 1 database	√	-	-	√
27	Khulna University Library	CDS/ISIS — 1 database	√	-	-	√
28	Chittagong University Library	W. P. 5.1	√	-	-	√
29	Shahjalal University of Science and Technology Library	W.P. 5.1	-	-	-	√
30	Bangladesh Forest Research Institute Library	CDS/ISIS	-	-	-	√
31	SAARC Agricultural Information Center (SAIC)	CDS/ISIS	√	√	√	√
32	USIS Library	CDS/ISIS	√	√	√	√
33	UNICEF Bangladesh Library	CDS/ISIS	√	√	√	√
34	The British Council Library	LIBSYS	√	√	√	√

Source : *BANSDOC Study, 1996 and Present Survey*

In this connection it may be mentioned that, there are a few libraries without e-mail facilities, can use their own institutional e-mail facilities.

Status of computerized files/databases in the library and information centers in Bangladesh

The organizational and institutional libraries of Bangladesh that have computerized their information up to June, 1998 mostly use the micro CDS/ISIS software are listed below with number of records approximately :

<u>Name of the library/information center</u>	<u>Number of records</u>
AIC	13,540
BANSDOC	4,212
BFRI	20,000
BIDS	22,000
BIRDEM	930
BTRI	3,558
BUET	5,000
ICDDR'B	7,500
CDL	6,800
NIPORT	3,900

Source : *BANSDOC, 1996:24 and present survey*

According to BANSDOC, it is observed that about 28 libraries of the country have CD-ROM facilities and offer services from the CD-ROM databases. But it seems that, the statement is contradictory with the present survey. It should be mentioned here that ICDDR'B with the help of some Asian organizations have been participating in a CD-ROM project, called AHEAD (Asian Health Environmental and Allied Databases). These organizations have been contributing their databases to produce the Asian CD. The AHEAD CD-ROM databases include information on periodicals articles, monographs, reference books etc. However, with the financial assistance from IDRC Canada, it is the first attempt to produce CD from Asia. Regarding the computer facilities in the libraries of the country it is observed that about 50 library and information centers of the country have either created or in the process of creating databases by using the personal computer. However, a few more libraries are also planning to install computer and CD-ROM in the near future (BANSDOC,1996:30-32).

Findings of the Study

This section is an attempt to evaluate the existing status of automation facilities available in the selected libraries and information centers in Bangladesh. A total of 25 libraries from different fields of specialization were surveyed. The overall findings of the study are presented below:

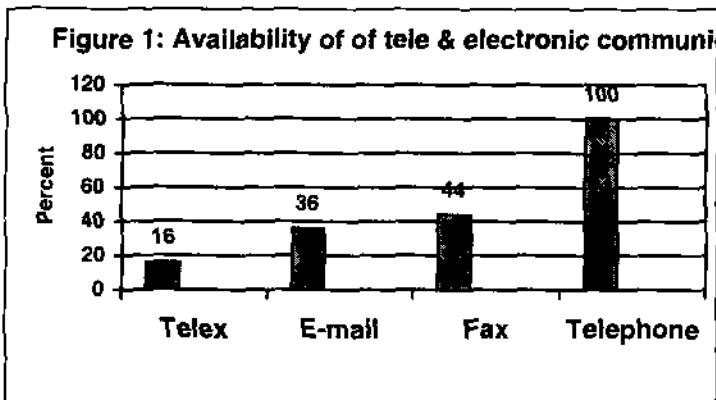
1. Availability of facilities

The study did not cover the physical facilities like the infrastructural development of the library. The section limits itself to the availability of tele and electronic communication, hardware and software facilities, and reprographic and audio-visual materials.

1.1. Availability of tele and electronic communication

There are various information transfer technologies in the world. The people and the institutions of Bangladesh are going very slow pace in entering the use of technology for networking and communication. There exist a knowledge gap among the users and the library authorities of Bangladesh about the role of information power in the world. The world's fast growing information technology as well as media communication have yet not touched adequately the library sector of the country. The survey result indicated that out of 25 libraries, only 16 per cent are using telex, 36 per cent are using E-mail, and 44 per cent are using Fax. All the libraries are also using telephone for communication (Figure 1). It should also be mentioned that, recently few libraries have access to internet.

Among the sampled libraries, Jahangirnagar University, Khulna University, BIRDEM and FRI libraries have been using only FAX and phones. About 44 per cent libraries are using only telephone while USIS, The British Council library, Community Development Library, DISC of ICDDR'B library and BANSDOC library are using all types of communication media. It is thus observed that most of the academic libraries are very poor in the use of tele and electronic media.



1.2. Availability of computer hardware and software

The computer is now an essential equipment for the libraries for information acquisition, processing, management and dissemination. It is observed that, eighty per cent of the libraries have been using computer and among them, 30 per cent have possessed only one computer. BANSDOC library possesses the highest number (24) of computers, followed by the British Council library, AIC, SAIC and DISC of ICDDR'B. Most of the academic libraries either have small number of computers or do not have any computer at all. Computer technology is passing its 5th generation of services in the world since 1960. Ironically, in Bangladesh, a middle class individual might own a personal computer, but established institutional libraries are not using computers. It may be said that the overall management failure in the systems may be the prime cause of this backwardness.

Regarding the availability of software among the libraries, almost all the libraries that have computers are using CDS/ISIS library database software. Other software packages such as word perfect, MS-WORD, fox pro, are used by 80, 75 and 40 per cent of the libraries respectively.

1.3. Availability of Reprographic and Audio-visual equipment

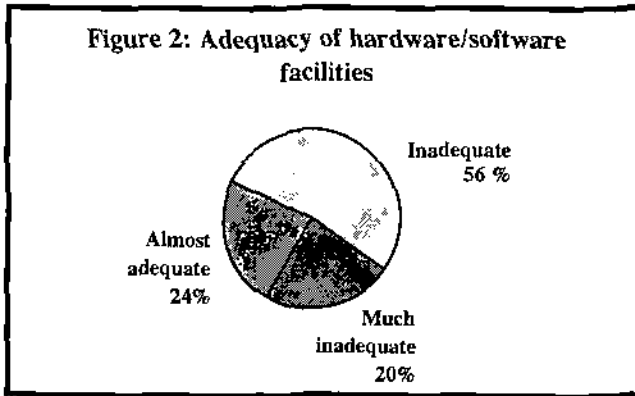
The photocopy machine is available in 76 per cent of the libraries and duplicating machines are available in only 44 per cent of the libraries. Six libraries do not have any reproductive machines and most of them are academic libraries namely, Rajshahi, Chittagong, Shahjalal and Khulna Universities. Other two are the national library of Bangladesh and BARD library. These libraries usually face problem to satisfy user demand and resource sharing with other libraries.

About 40 per cent of the specialized and other libraries have at least 4/5 types of reprographic and audio-visual equipment.

1.4. Adequacy of facilities

The overall responses show that about 24 per cent of the libraries indicated that their facilities are almost adequate. 20 per cent of the libraries said that their facilities are much inadequate. As a result, 56 per cent of the libraries face inadequacy in their facilities available at present (Figure 2). It is further

observed that most of the academic libraries are very weak by their set up of available facilities.



2. Status of information services

This section specifically reflects the use of computer in library and documentation activities. It is found that, 64 per cent of the libraries initiated computerization of their documents while 36 per cent have not yet started. Almost 50 per cent of the academic libraries have not started computerization. None of the libraries have computerized their circulation work. Of the libraries which have initiated computerization, about 44 per cent started recording acquisition, over 87 per cent computerized cataloguing and only over 12 per cent are doing serial control.

Computerized databases are available at 36 per cent of the libraries. It indicates very unsatisfactory performance of the libraries in Bangladesh regarding library automation. However, most of the databases exist with the health and agricultural specialized institutions. The performance of academic institutions in relation to modern information technology and operation is found to be extremely unsatisfactory. The available database in different libraries mentioned are : BBIB, MEDLINE, D-MONO, D-DOC, Lib.data, Per News, Science and Technology Abstracts, Scientists & Technologists of Bangladesh, CAS, BIDS, LDC, CCOD and Fish data.

CD-ROM database is available among 52 per cent of the libraries (*Table 4*). Most of the academic libraries do not have this database. The available CD-

ROM database includes : Rural development, POPLINE, PDQ, ULRICH Periodicals Directory, Public Affairs Information Service, Engineering, World Bank Publication, Medline, POPIN, DEVIN, INIS Automatic Index, AGRIS, Educational Information, ASFA and Medical Literature.

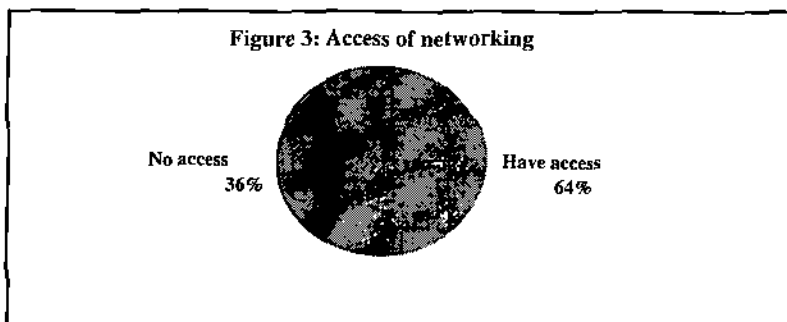
Table 4: Distribution of libraries by availability of CD-ROM database

Name of library	Availability of CD-ROM database	
	Yes	No
Central Public Library		√
The British Council Library	√	
USIS Library	√	
National Library of Bangladesh		√
Community Development Library		√
Dhaka University Library		√
Jahangirnagar University Library		√
Bangladesh Univ. of Eng. & Technology	√	
Rajshahi University Library		√
Chittagong University Library		√
Shahjalal University Library		√
Bangladesh Agricultural University Library	√	
Khulna University Library		√
North South University Library	√	
IPGMR Library		√
BIRDEM Library	√	
National Health Lib. & Doc. Center	√	
ICDDR'B Library	√	
AIC	√	
BANSDOC Library	√	
BIDS Library & Doc. Center	√	
CIRDAP Library	√	
BAEC Library	√	
BARD Library		√
FRI Library & Doc. Center	√	
Total	14	11

It is interesting to note that some libraries those have CD-ROM drives but they do not have CD databases and at the same time some have CD databases but do not have CD-ROM drives.

Networking and Resource Sharing

Sixty-four per cent libraries reported that they have networking with at least one national or international institute/organization. On the other hand, 36% libraries do not have either any access to networking and/or any plan to join shortly(Figure 3).

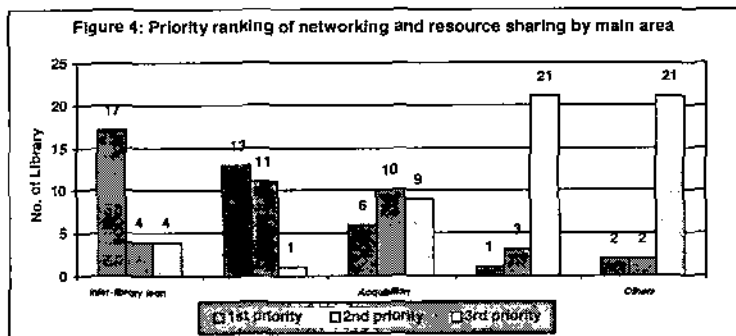


The libraries which joined with 5 networking systems reported that they have resource sharing activities, mainly with (over 62%) BANSLINK. But it is to be mentioned here that BANSLINK is still in embryonic stage. It is thus questionable how those libraries claimed that they have started resource sharing activities through BANSLINK? Facts remain that the above mentioned libraries only joined with BANSLINK as node and it will take time to function and operate the network. Of course there are few libraries joined with other networking system such as INRD, HELLIS, NAIS and DEVINSA. Moreover, 60 per cent of the libraries intended to join with INTERNET in near future and all the libraries have proposal for networking in the years to come.

Highest proportion (84%) of the libraries suggested that networking of libraries in Bangladesh is most useful. As a whole, none of the libraries underestimated the importance of library networking.

To identify the future intention about the library networking and resource sharing, a question was asked to the librarians about the main areas in which their priority of interest exists. There were 5 scale options for ranking

to access the important areas by the librarian. According to Figure 4, the highest priority areas are inter-library loan and 'document delivery service'.



Source: Based on author's Ph.D. thesis.

The second prioritized area is acquisition while circulation of the library materials was ranked as third. The librarians have given less attention to other services for networking.

The study reveals that none of the library is automated in truest sense. What is available in the libraries that they have just created databases of their own collection and developed some services using these databases. If we really want to establish an information network and start resource sharing activities among the libraries of the country, it is imperative to take necessary measures for fully automation of the libraries without delay.

Conclusion

Technology has been expanded to provide mechanical and electronic tools to automate library and information systems. Library system is such an information system that is increasingly becoming basic requirement for any work in the field of education and research. Over the past hundred years, automation of library systems advances a lot in the developed countries, but unfortunately in Bangladesh advancement in library automation is not prominent. The barriers identified for these conditions are mainly lack of legal sanctions by the concerned authorities, adequate financial supports, skilled staff, basic legislative support, proper policy and technological facilities.

Library service is efficient when it can improve control over collection, improve the existing services (from the view point of quality, user friendliness, regularity etc.), introduce new services, share the resource among the libraries with same goal, avoid duplication and use the services of the existing staff effectively. In modern time, manual method restricts the libraries from their better utilization. So the library automation is necessary to support the end user of any library a high and efficient level of service. Bangladesh being a developing country can not be lag behind from this process. However, to improve the prevailing poor services in the field of library automation, care should be immediately taken to provide necessary administrative and financial support needed for the automation of the library system of country.

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