Automation Scenario of Some Leading Agricultural Libraries of Bangladesh: An Overview

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ABSTRACTS

Paper provides an overview of the application of IT in leading Agriculture Universities in Bangladesh. Presents on tabular form various IT tools use by these libraries and status of automation of in house function. Efforts have been made to highlight the challenges faced by libraries in Bangladesh and recommends the appropriate steps.

KEYWORDS: Agricultural Libraries - Bangladesh Library Automation, Information Technology use in Libraries

0. INTRODUCTION

Traditional library operation system is laborious and time consuming. So to get rid of it and to save the time of the reader automation has been introduced in the libraries. Knowledge and information have traversed through various media from Babylonian clay found in the third Millennium BC to present electronic era. In an automated system, the retrieval process becomes easier, faster and comprehensive. At present modern library and information centres play a vital role in information generation, collection, storage, process and transmission. With the advent of science and technology users may use the library, sitting that respective work place.

With the rapid changing circumstances information professionals need keep a track with the changing situation. Now we

are in information age, in every field of knowledge, we see the rapid changes taking place throughout the world. Information generation creates tremendous pressure on libraries. To cope with this libraries should have to be equipped as potential information centres to cater with this growing technology and meet the demand of the potential users. Therefore, an effort has been made in this paper to show the present situation of the library automation of some leading agricultural libraries in Bangladesh.

Management of information involves storage, retrieval and dissemination. Developments in computer and telecommunication technology have promoted effective resource sharing, co-operative processing of information and on-line retrieval. Access to information has also become easier, faster and cheaper by using computer technology [1].

1. LIBRARY AUTOMATION CONCEPT

Library Automation refers to the processing of certain routine works of the library, with the help of computers and other allied machineries. It relieves the library staff from many day to day administrative or clerical functions. Though, it is observed that most of the leading agricultural libraries and information centres of the country have developed the processing of databases by using personal computers. These libraries, also have started using e-mail and internet facilities too.

From last three decades, libraries have been moving towards automation of information system, by electronic cataloguing and technical processing then by circulation and reference services. Computers, Audio, Video, Fax and Telecommunications etc. are rapidly merging into the information products of today and will come in many `flavor' and `color` in future. Library automation in Bangladesh is actually at the initial stage. [2]

2. COMPONENTS OF LIBRARY AUTOMATION

Most commonly known house keeping operations are acquisition, serial control, cataloguing and circulation. Depending on the type of library all or some of these functions are computerized according to their priority. Circulation control is usually given first priority in a Public Library, while serials control in a Special Library, acquisition in a University Library. However, cataloguing is important for any library and its computerization must be one of the ultimate aims of the automation program. Following are the components of a Automated Library System:

- Users
- Information
- Hardware
- Software

3. COMPUTER BASED INFORMATION SYSTEMS

Computer-based information systems represent the appropriate use of computer software for collecting, maintaining,

processing and retrieving records and search results. Several benefits can be derived from the computer-based information systems such as: (i) reducing time for searching major key fields (ii) large storage capability. A computer-based information system consists of hardware, software, people, procedures and data, which act together to process data into information. The computer can process following library operations speedily [3]

a.   **Acquisition:** Duplicate checking, ordering, claiming, cancellation of orders, receipt processing, payment, fund accounting, vendor accounting, control of currency, statistics and report compilation.

b.   **Cataloguing:** Duplicate card checking, operation of authority file/subject heading list, sorting, automatic generation of added entries, generating the periodical accession lists, developing centralized and cooperative cataloguing system.

c.   **Circulation Control:** Registration of members, charging and discharging of documents, updating the records, preparation of reminders, information retrieval etc.

d.   **Serial Control:** Sending subscription letters and maintaining subscription file, renewal/cancellation according to need, accessioning, sending reminders if necessary, claims if require request for replacement, check in routing, prepare list, shelving, and binding etc.

e.   **Documentation and Information Retrieval:** Indexing, abstracting, compilation of union catalogue, bibliography and literature searching and print out of queries according to need.

4.   IMPORTANCE OF COMPUTER IN LIBRARY AUTOMATION

Now we are in the age of Information Technology (IT), can't dream the existence of any field without computers. Computer has become an integral part of Library and Information Services. Computers are used for correspondence, preparing reports and presentations, data entry and analyses, system simulations, desktop publishing, accessing the web pages, sending and receiving email and over all information management system (MIS). But our authorities have not yet realized the importance of computer for rendering proper services. Information itself has no value until and unless the users used it properly in proper time. To retrieve data or information quickly, computers are used. Networking, Electronic Mail, Video-Conferencing, On-line searching etc. are the next emerging uses of PC and Optical Disks (CD-ROM). Digital Versatile Disk (DVD) also plays important roles here for reference users, bibliographical databases and information retrieval systems.

5.   AUTOMATION AND THE CHANGING CONCEPT OF TECHNICAL SERVICES IN LIBRARIANSHIP

Electronic systems offer new opportunities to find solutions to space and preservation problems of the library. The ability of librarians to provide information instantly gives new dimensions to reference service and information dissemination. In addition to the traditional functions of acquiring, making ready for use, and preserving library materials, the short-term future areas and responsibility that will require the attention of technical services professionals are the closing of current catalogue and the accompany conversion of manual files; further development of the design of online catalog; further

exploration of automation potential to acquisition processes, serials control, circulation and inter library loan control; and the analysis of management data that can be gathered by the computer for such purposes as budget control collection development. Technical services professionals will also continue to participate in setting up network standards and accessing network potential for purposes of bibliographic access and technical processing requirements.

6. AGRICULTURAL LIBRARY AUTOMATION & COMPUTERIZATION: BANGLADESH SCENARIO

A few library and information centers in bangladesh have facilities like Computers, CD-ROM, Fax, E-mail and Internet. Automation status including database packages, CD-ROM databases etc, telecommunication facilities such as Phone, Fax, E-mail, Internet services provided by library and information centers in the country is given in the Table 1.

Table 1

Scenarios of Selected Leading Agricultural Libraries of Bangladesh

Institute / Library Name	Database Package Used	No of Computer, Printer, Database Name & Records	CD-ROM Database (Year)	Phone (Ph)/ Fax/ Email, Internet
Agricultural Information Centre (AIC), BARC, Farmgate,Dhaka	CDS/ISIS, Inmagic, MS Access	LAN with 10 Terminals PC- 12, Printer-8 (4 laser, 4 dot matrix) NAIS –12,000 LIB –4884 PER –989 ISSUE –219	AGRIS (1973-2000), AGRICOLA CABI FAOSTAT TEEAL (1993-2000)	Ph: 8115353 Fax: 880-2-813032 Email: laic@agni.com Web: docbarc@grameen.com
Bangladesh Agri. Res. Inst. Library (BARI), Joydebpur	MS Access, Visual Basics, Oracle	LAN with 10 Terminals PC- 11, Printer-4 (2 laser, 2 dot matrix) BARILIB-355	AGRIS (1973-2000), AGRICOLA CABI (1973-2001) AGRINDEX	Ph: 0681-9252570 Fax: 880-2- Email: biis@bttb.net.bd Web: barinet.org
Bangladesh Agri. Uni. (BAU) Library., Mymensingh	CDS/ISIS, Inmagic, MS Access, Fox Pro	PC- 11, Printer-4 (2 laser, 2 dot matrix	AGRIS (1973-2001) AGRIS (1973-2000), AGRICOLA CABI (1973-2001) Agrindex	Ph: 088-091-52352 Fax:880-091-55810 Email: Web: baulib@royaten.net
Bangladesh Fishery Res. Inst.(BFRI) Library, Mymensingh	CDS/ISIS, MS Access	PC- 2, Printer-2.(1 laser, 1 dot matrix) FISH Database NAIS Database	AGRIS, AGRINDEX, AGRICOLA, CABI, ASFA(1978-99)	Ph:: 091-62627-9 Ext.111 Fax: 880-91-55259 E-mail: frihq@bdmail.net

Bangladesh Forest Res. Inst. (BFRI) Library, Chittagong	CDS/ISIS	PC- 2, Printer-2.(1 laser, 1 dot matrix)	TREE, AGRIS, FOREST, SEEDS	Ph:031-212164 Fax:031-210901 Email:
Bangladesh Inst. Nuclear Agriculture (BINA) Library, Mymensingh	CDS/ISIS	PC- 1, Printer-1 (dot matrix)	Na	Ph:091-54401 - 2 Fax::088-091-54091 E-mail:bina@bdmail.net
Bangladesh Livestock Res. Inst. (BLRI) Lbrary, Savar, Dhaka-1341	CDS/ISIS	PC- 1, Printer-1	Na	Ph:880-2-7708320-1 Fax: 880-2-770325 Email: dgblri@bangla.net
Bangladesh Rice. Res. Inst (BRRI) Library, Joydebpur	CDS/ISIS, MS Access	PC- 4, Printer-2 (dot matrix) LIBMIS-488	CABI(1973-2001), Plant Gene (1973-2001), Crop (1973-2001), Pest (1973-2001), Soil(1973-2001), AgCon(1973-2001)	Ph: 9333098,9257401-5 Ex.476 Fax: 880-2-9350122 Email: brrihq@bdonline.com
Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU) Library	CDS/ISIS,MS Access	PC-1, Printer -1	AGRINDEX	Ph: 9252020/9252850-2 Fax: Email: bsmrau@bttb.net.bd
SAARC Agricultural Information Centre (SAIC), BARC, Farmgate, Dhaka	CDS/ISIS, MS Access	PC- 15, Printer-8 (3 laser, 5 dot matrix)	CAB ABSTRACTS (1990-2001); BIOLOGICAL ABSTRACTS (1995-97); AGRICOLA (1970-2001); FSTA (1990-2002/04) and a CAB spectrum of other CD's like PLANTGENE CD(1989-1999), BEAST CD (1989-1999); VET CD(1973-1999); SOIL CD (1973-1999); TREE CD (1973-1999); CROP CD (1973-1999); PARASITE CD (1973-1999); HORT CD (1973-1999).	Ph: 815353 Fax:880-2-9124596 E-mail:saic@bdonline.com http://www.saic-dhaka.org

Source: Information collected using email and through personal contact.

From Table 1, we can get an idea that all the selected libraries uses different database software to maintain library databases and also most of the libraries uses different CD-ROM different databases. Among the CD-ROM software packages, AGRIS and CABI are by used maximum numbers of libraries. Most of the libraries uses e-mail services and only few libraries renders Internet services to its users. It's a good news that all the selected libraries uses telephone, fax and email facilities for the communication purposes.

6.1 AIC Library

In 1973, Bangladesh Agricultural Research Council (BARC) was established to develop human resources, planning, priority setting, coordination monitoring, reviewing and evaluation of research programs of the National Agricultural Research System (NARS) institutes to accelerate food production including fish and livestock. The Agricultural Information Centre (AIC) consists of two sections: i. Library and Reprography ii. Documentation and Publication. It serves as the national agricultural information centre of Bangladesh and custodian of nationally produced agricultural literature. It provides library and information services to facilitate the development of effective agricultural research and management in Bangladesh through improved capacity to access and manage agricultural information, maintains national and international agricultural databases and pursues development of information system to keep the scientists of NARS institutes, universities and others informed of advances in their discipline.

AIC as a national centre contributes Agricultural Information of Bangladesh and also to the International Information System for Agricultural to the National Sciences & Technology System (AGRIS) database of Food Agricultural Organization (FAO) and in exchange gets all the FAO's CD databases. It is a depository library of FAO and other international organizations. The library keeps 15 daily newspapers and preserved agricultural related articles in hard and microfiche forms. It brings out News Article Bulletins, Current Contents List of Journals and Accession Bulletin of Books and Monographs twice a year.

In NAIS database lowers more than 12,000 records, which is the largest database in Bangladesh and also having databases like AGRIS (1975-2000), CABI, AGRICOLA, FAOSTAT which contains a collection of data on agriculture, fisheries and forestry etc. on CD-ROM. It procures CDROM base journals entitled "The Essential Electronic Agricultural Library (TEEAL)" which includes 161 agricultural related journal articles with full text from 1993-2001.

AIC publishes an international standard journal entitled "Bangladesh Journal of Agriculture" and its publications include scientific monographs, bulletins, technical papers, annual reports, bibliographies and directories. It renders email and broadband Internet facilities at AIC to communicate and transfer information more rapidly and efficiently.

6.2 BARI Library

In 1908 Agricultural Research Laboratory (Dhaka Farm) was established located at present Shere-e-Bangla Nagar. This research laboratory went through a number of changes and in 1966 it was renamed as Agriculture Research Institute (ARI) and shifted to Joydebpur about 35 km north of the capital city, Dhaka. Its name again changed as Bangladesh Agricultural Research Institute (BARI) in 1976. The institute operates with 3 major wings: a. Research Wing consists of 15 divisions, 6 research centres, 6 regional stations and 24 research sub-stations, b. Support Service Wing and c. Training

& Communication Wing, with 641 scientists serving in various positions.

Dissemination of information and transfer of technology are accomplished through such as publications as Journal, Newsletter, Leaflets, pamphlets, booklets, and reports on various research activities of the institute. The Library serves as a centre of books, journals, references, and other materials [4].

6.3   BAU Library

Bangladesh Agricultural University Library came into existence as East Pakistan Agricultural University Library in 1961.With a view to cater the information needs of teachers and students as well as extension personnel of the country, the library has been providing various services such as reference services, CAS, SDI, Inter library loan, CD-ROM search services from various databases. The library possesses 9 computers, 4 printers (1 laser, 3 dot matrix), 1 scanner (Epson 610U).

6.4   BFRI Library (Fishery)

The Bangladesh Fisheries Research Institute (BFRI) was set up as a Fisheries Research Institute in 1984 by the Government, situated at Mymensingh about 120 km north of the capital city, Dhaka, with 4 research stations, 4 sub-stations and various divisions.

BFRI established a Library and Documentation Centre (BFRIL DOC) in 1987 at its headquarters to ensure the need of setting up a formal system for documentation of all technical information in the field of fisheries research in Bangladesh. There are also other 3 libraries in the sub stations, act as a central library. Up till now library has collected over 5,000 copies of technical and general books, bulletins and monographs and 110 titles of scientific periodicals.

BFRI publishes a Fisheries Newsletter quarterly since 1993. An international standard fishery journal entitled, Bangladesh Journal of Fisheries Research is being published twice a year since 1997 [5].

6.5   BFRI Library (Forest)

The Bangladesh Forest Research Institute (BFRI) was set up as a Forest Products Research Laboratory in 1955 by the Government of the then Pakistan

Up till now library has collected over 11,000 copies of books, bulletins and monographs. It regularly subscribes or otherwise collects 83 titles of scientific periodicals. An internationally abstracted forestry journal entitled, Bangladesh Journal of Forest Science is being published from BFRI twice a year since 1967 [6].

6.6   BINA Library

The Bangladesh Institute of Nuclear Agriculture (BINA) was established by the Bangladesh Atomic Energy Commission in 1972. Earlier name of BINA was INA (Institute of Nuclear Agriculture) and shifted in the campus of Bangladesh Agricultural University, Mymensingh in 1975, about 120 km north of the capital city, Dhaka. It has mainly 2 wings: i. Research Division comprising 8 research divisions, 5 sub-stations and an annex farm, ii. Administration & Support Service comprising administration, accounts, stores, procurement, general services, electronics, library and a planning cell with a total manpower of 392, of whom 96 are scientists.

BINA established a Library to ensure the need of all technical information in the field of nuclear agriculture. Up till now library has collected over 5,000 copies of books, bulletins and monographs. It regularly subscribes or otherwise collects 83 titles of scientific periodicals. An internationally abstracted journal entitled, "Bangladesh Journal of Nuclear Agriculture" by BINA twice a year since 1967 [7].

6.7   BLRI Library

The Bangladesh Livestock Research Institute came into being in 1984 at Savar 20 km away from Dhaka to take care of livestock problems at the national and farm levels and also to train up scientists in the appropriate field of research. BLRI has 5 research divisions including a support service division, and two regional stations.

BLRI Library has about 3000 technical and general books, 250 scientific journals and 350 research reports. The library has been receiving 65 national and international journals and newsletters regularly for ready reference to research workers. The library keeps 6 national daily newspapers, 4 weekly and one monthly magazine to gather general information. The library provides current contents services by keeping an updated accession list. It has information links with several national and international organizations in respect of livestock and agricultural research. [8]

BLRI's publication include scientific monographs, bulletins, leaflets, technical papers, research reports, annual reports, newsletter, brochure and workshop proceeding. It has over 45 institutional publications and a journal entitled "Bangladesh Journal of Livestock Research".

6.8   BRRI Library

In 1970 Bangladesh Rice Research Institute was established at Joydebpur, about 120 km north of the capital city, Dhaka. The major achievement of BRRI has developed 41 high yielding modern varieties (MVs) of rice. The institute is well equipped with research facilities including laboratories, greenhouses and experimental fields. The institute operates with 18 research divisions and sections and 3 support service divisions, with a total manpower of 662, of whom 228 are scientists.

Up till now BRRI library has collected with over 15,000 copies of books, bulletins and monographs. The Library subscribed 69 foreign journals and available about all local journals. At present library processes about 500 journals received as gift and an exchange basis. It started available CDROM data base services since 2001. In the year 2002 up to the middle of November, library provided 451 number of database searches to its scientists.

6.9   BSMRAU Library

The former name of Bangabandhu Sheikh Mujibur Rahman Agricultural University Library was IPSA

(Institute for Post Graduate Studies in Agriculture). It was established in 1983.The name of the library was changed to its present form in 1997.It provides computerized database of research titles and abstracts, photocopy services, microfilm and microfiche facilities to the users. The library has a good collection of 12000 book and 2000 volumes of journal with back issues. The library possesses one computer and one printer.

6.10   SAIC Library

The SAARC Agricultural Information Centre (SAIC) has been functioning since January, 1989 as the first regional institution of SAARC with the main objective of sharing the information mutually for the advancement of agriculture, livestock, fisheries, forestry and allied discipline to the researchers, planners, developers, policy makers and extension workers of the SAARC regional countries.

SAIC has developed a strong informatics based infrastructure to cater the scientists of this region to keep pace with the latest development in information technology for quick information retrieval, access and use. It has produced and collected audio visual media products such as films, CD's, microfilms, microfiches etc. At present SAIC renders services using various CDROM databases (table 1).

SAIC has initiated a programme of providing CD ROM database search services through email to the SAARC regional scientists engaged in research and development activities in agriculture and allied fields by providing related keywords or topics by sending an email to the Director, SAIC at the following email address the scientists or researchers will get the material's abstracts and references of paper through return email free of cost (saic@bdonline.com or saic@citechno.net).

SAIC publications serve million of people of this region. Since 1991, SAIC has completed 20 programme of activities and disseminated them to the member countries in the form of various databases, bibliographies, reports, publications, audio-visuals, microfilms, websites etc. Quarterly SAIC Newsletter is one of the widely circulated publications of SAIC to promote agricultural research, development and technology transfer in this region. Recently SAIC has launched website, to know agricultural information of SAARC region. You can visit this site any time by clicking on your PC at this web address: http:/saic-dhaka.org [9].

7.   PROFESSIONAL TRAINING

To achieve the desirable level services, library professionals and staff needs computer training to develop their computer skills. It is observed that the equipments and systems are installed in many organization, but very little training is given as part of the Installation. The individuals lacking the following tasks [10]

· **how to use equipment effectively and to understand what they are doing;**

· **how to operate the system easily;**

· **at what point to ask for further help;**

· **how information is indexed and when the authoritative and validated information can be found.**

8.   CONSTRAINTS

There are several constraints, which create problems in the gradual development of library automation in agricultural libraries of Bangladesh. These are as follows:

· **Incompatible data format, computer hardware and software for electronic communication**

· **Inadequate skilled manpower for developing technology based information**

· **Insufficient budget for library and information centre**

· **Absence of advanced training facilities for professionals**

· **In efficient need assessment of each client.**

· **Lack of communication and cooperation among the various institutions engaged in automation and**

· **Lack of prior studies before embarking upon automation. [11]**

9.   RECOMMENDATIONS

The following factors should be considered to build up a computer based library services in the agricultural library and information centres of Bangladesh:

· **To develop a standard data format for collecting and maintaining information**

· **To identify all pertinent field of agricultural information published around the country**

· **To install computer hardware, software, E-mail and Internet facilities in the libraries**

· **Organize and provide training on information and communication sciences to the library personnel**

· **All agricultural libraries and information centres should share their resources and cooperate in collecting and exchanging documents**

· **To gear up library automation facilities and to develop a unique information services library staffs should not be neglected and they should be encouraged by giving timely promotion.**

· **To Provide easy access to these documents to the users maintaining simple procedures.**

· **BARC should take development projects to uplift agricultural libraries of Bangladesh**

·   **Professional association, BARC and Agricultural Universities should organize conferences and seminars at regular intervals and employers should encourage their library staffs to attend and participate in these activities.**

10.   CONCLUSION

Information plays a vital role to acquire knowledge. It is one of the main objects to accelerate agricultural research and advancement. The agricultural scientists and researchers require best information from wherever it can be found to achieve this goal automation of library is necessary. Internet brings the world to a Global Information Village. It is our utmost duty to equip our libraries, information and documentation centres with the available latest information technologies. So, that we can provide services to users according to their need with dignity and honor. Without a strong and responsive information base, quality research can't be attained and the necessary advances in the field of agriculture are restrained. To render speedy and prompt services to the users, without any delay, we should provide E-mail, Internet and On-line information retrieval systems in the library.

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