Chapter VIII

A MODEL PLAN
Chapter VIII

A MODEL PLAN

Introduction

Information is the prime resources for any kind of development of any country. The library and information centres are primarily responsible to meet information needs of users (Mannan, 1997:209). The academic institutes largely depend on libraries for their information requirements. Libraries play a vital role in supporting the academic and research activities and providing information services to the academic community of the respective institutions. Libraries also provide an important link in their quest for information. The higher educational institutes’ library occupies the central place in meeting the diverse and growing needs of educational programme at the students’ and researchers’ levels. Without libraries no higher educational institutes can run their academic activities. Libraries’ participation in the educational mission by providing appropriate information services accelerates the progress of learning and research process (Malwad, 1995:100).

It has been observed that the university libraries and its information services are currently available in Bangladesh are not satisfactory. In view of that an attempt has been made to propose a suitable plan for establishing modern university libraries in Bangladesh in terms of infrastructural facilities, economic change, social developments, technological innovations, environmental impacts, teaching and learning (especially in relation to e-learning, ICT, accessibility and working with academic departments), research methodology, effective use of ICT and e-learning, widening participation and improving the students’ experience, staff development, knowledge transfer, resource planning, quality issues, and overseas links (McNicol, 2005:504).

The proposed model plan of a private university library may contain 5,000 students, 200 faculty members, and 100 staff members. The plan may include the following components for making a modern private university library in Bangladesh:

- **Planning and Designing**
- **Creating Facilities**
- **Activities**
- **Services**
- **Administration**
Planning and Designing

It has been observed that lack of space is the greatest challenge facing by organizations and libraries, particularly, in Bangladesh where number of population is very high and the required living land is very limited. Everyone is running out of it. The information explosion, budget restrictions, the high cost of space, and expansion of collection have placed considerable burden on libraries, specially, on higher learning institute libraries.
A noted European architect, H. Faulkner-Brown (1987:17-45), conducted feasibility studies on space and identified ten criteria to be considered for new Library. He says that a library should be:

1. **Flexible** – with layout, structure, and services which are easy to adapt;
2. **Compact** – for ease of movement of readers, staff, and books;
3. **Accessible** – from the exterior into the building and from the entrance to all parts of the building, with an easy, comprehensive plan needing minimum supplementary directions;
4. **Extendible** – to permit future growth with minimum disruption;
5. **Varied** – in its provision of reader spaces, to give wide freedom of choice;
6. **Organized** – to impose maximum confrontation between books and readers;
7. **Comfortable** – to promote efficiency of use;
8. **Constant in environment** – for the preservation of library materials;
9. **Secure** – to control user behavior and loss of books; and
10. **Economical** – to be built and maintained with minimum staff and financial resources.

Designing a library that is attractive, cost-effective and user friendly involves a number of things for planning considerations. According to Roberta Freifeld (1991:5), the following factors may be considered:

1. **Beginning** – what and how to measure the collection and the equipment in which it is housed.
2. **Evaluating the building** – considering floors, walls, ceilings, windows, columns or pillars, electrical systems, air-handling systems, and how they relate to the design of the library.
3. **Blueprints and floor plans** – to consider when laying out a library and how to use blueprints and floor plans in the design process.
4. **Equipment and furniture** – what types of shelving and furniture are best for the collection needs.
5. **Ergonomics** – the human factor; how work environments can affect productivity and morale.
6. **Technology** – what new technological products are available and how they affect the library design.
7. **Resource sharing** – how to get the most resources with the least amount of space.

**Beginning**

Before we calculate correctly that how much space we will need, we must know how much collection of housing we have, as well as how much and what types of materials need to be accommodated. Measuring the collection housing will allow us to determine how much space the equipment actually occupies on the floor. For measuring purpose, we may measure things such as recording the height, width, and depth of all shelving and the number of rows per shelving unit. We may consider existing shelving will often be moved from one location to another location. We may count all equipment,
cabinets, pieces of furniture, vertical files, newspaper files, cases for photographs, blueprints, microforms, film, CD-ROMs, video-tapes, and periodicals display. Particular furniture may be made in detail for planning purpose. Exact collection and measurements provide information for justifying the need for increased space and equipment. These measurements will help us to determine what will fit where and help us to locate the collection on floor plans before and during a move, renovation, or redesign/ reconfiguration. Determining the space required for future collection growth will enable the new space configuration to work. To determine how fast the collection is growing, identify the total number of items added to the collection during the past year. Ensure greater accuracy by identifying the total number of items added during the past five years. Then average that number, which will help to make provision for future expansion (Freifeld, 1991:7-12).

**Evaluating the building**

According to Freifeld (1991:15-22), evaluating a building for its use or partial use as a library is becoming more and more critical for librarians and architects. A proper evaluation of the prospective library space will cover functional/ technical and aesthetic considerations. Here we will describe functional/ technical issues as floor assessment (especially floor load capacity), walls, ceilings, windows, columns, pillars, electrical system, ventilation, and fire safety considerations.

To understand **floor load** librarian needs to be aware of the concepts on *dead load and live load*. The weight of the building which does not move and always remains the same is called dead load. On the other hand, the live load is the weight of the items or people that move or can be moved around the building. It includes books, equipment, furniture, fixtures, and people. During the calculation of the load, the weight of the people must be separated from other components of the live load.

Load capacity of the floor is a major issue when **high-density mobile shelving** is used in the library. Since this equipment, for mobile shelving system, can accommodate nearly double the volume of a conventional shelving system in the same area, the floor must be able to hold twice the load. Still now there is no mobile shelving system in any library of Bangladesh. If the library building is not made to hold twice the load of each floor in Bangladesh, this mobile shelving system could be avoided rather to introduce the normal shelving system. Bolstering allows the building to support the additional weight. Major components of the building’s superstructure are the lintels, girders and beams that bind the floors and wall together. The vertical columns of the building need to be able to carry this added weight. A structural engineer may be consulted for more information on these topics, if required.

During evaluation, consider the current and expected future use of **walls and wall space**. Some walls are moveable and some are solid. Ceiling height in users’ areas should be ten feet, while eight-feet-
high ceilings work in staff areas. High ceilings mean greater noise level, as well as increased heating and cooling costs. Low ceilings have disadvantages, ceilings lower than eight feet limit shelving options. Lighting brightness may also become a problem.

**Windows** disrupt continuous wall space and affect a building’s lighting and heating requirements. On the human side, windows enhance the environmental and provide more comfortable space for patrons. It is better include locations and characteristics of skylights and plate-glass walls.

**Columns and pillars** serve a variety of functions; they may be load-bearing structural support, a decoration, or an instrument for wiring and air-handling systems. The location of columns affects lay out, space, visibility, and security.

**Electrical power** affects space lay out and configuration. Electrical wiring, circuits, switch locations, plugs, outlets, electrical closets, location of generators, and so on are very important for planning library building. All these provisions should be made available during planning as well as construction of the building. Professional electrical engineers may be consulted for proper planning.

We must consider **lighting / air-handling** relationships in the space planning process. Many lighting fixtures can be installed as part of the heating, ventilating, and air-conditioning system. Air may circulate through special holes in or around the light fixtures. Considering all heating, ventilating, and air-conditioning system; architect seriously should think about the lighting system of the library.

National codes of **fire safety** may be adopted during planning of any library building. The library should have more than one entry and exit. One is for regular use and another one is for occasional use.

**Blueprints and floor plans**

Freifeld says (1991:28-40) that Library is an equipment - and furniture-concentrated. To maximize efficiency and effectiveness, the library should be attractive, usable, and comfortable. Five major factors are involved in planning a library. They are:

1. **Collection space for book stacks, file equipment, or shelving, newspaper and journal storage and display equipment.**
2. **Staff space for work stations, technical processing areas, reserve section, reference desks, and circulation desk.**
3. **User space for reviewing- area carrels, chairs, lounges, microfilm / microfiche reader, printer work stations and chairs.**
4. **Internal circulation and traffic flow within the library, which translates into easy access to materials, staff, equipment and furniture; and**
5. Space for support functions, such as photocopy machines and mail handling.

Collection of space is the top priority. The collection of reading materials is the heart of any library and must be given sufficient space for current requirements, as well as future growth and expansion.

It is essential that the space planner must consider the building structure, floor load capacity, available usable space, non-assignable space, and individual user and staff needs and requirements (Freifeld, 1991:24-30).

Cohen says (1979:66-67), non-assignable space is the space that can’t be used for library purposes – corridors, stairwells, elevators, rest rooms, mechanical rooms, and such. Non-assignable space also implies non-usable corners. It is better to keep not more than 25% of non-assignable space in the library. Too much non-assignable space interprets into lack of control and may also require additional staff members – besides excessive walking.

Space requirements for staff areas are difficult to simplify. Some studies indicate that fifty to sixty square feet for each professional employee (entry level officer of the Library) is adequate. It provides a desk, chair, file cabinet, and aisle space. However, because of the high space costs of Bangladesh, actual in-use standards may be as low as thirty square feet per clerical worker. Space requirement increases as we go for managerial ladder. For example, a supervisor (section head, assistant librarian level) would have 80 square feet, department manager (deputy librarian level) 100-120 square feet, and chief librarian/library director, 200-230 square feet.

Staff members’ workstations must be placed in such a way, so that desks, file cabinets, chairs, and book trolleys can be run correctly on each floor. We must make sure to allocate space for office supplies and special functions such as binding. We also should remember to allow space for bathrooms, lounges, a kitchen, a circulation desk, book trolleys, and other special purposes.

Twenty percent seating arrangement should be made on the basis of total enrolled in the University. The type and size of chairs have an impact on the amount of space required. Obviously, armchairs take up more space than chairs without arms. If the university does not have enough space, too much working space can be a serious problem. Be sure to allow enough space, but should not misuse it.

Heavy traffic areas or areas housing the book collection (bookcases/stacks) should be designed as squares or rectangles because these shapes are flexible and easiest to work with. Placing stairs and elevators next to each other is an effective use of space. Stairs and elevators should relate in multilevel
libraries. In multilevel library, the main entrance / exit should be located on the first floor in the most important user area. The first floor should contain the most important user services.

Accessibility is important for all libraries. If a library is not accessible or delivery service is not efficient, there is no significance of having library in the university. Private university library should have open access system to shelves, so the students will be able to get direct access to the shelves as well as to desired materials.

Equipment and furniture

Needs and usage of academic library users, particularly for students and faculty members, should be considered when selecting furniture for the private university library. Furniture should be made available for staff members also. Furniture must be evaluated considering durability, flexibility, comfort, and efficiency, and for its future use. Chairs are manufactured in materials such as wood, plastic, metal, or a combination of materials. Wood chairs are the most durable and comfortable furniture. Reading chairs should be used for reading areas, executive chairs and office chairs should be used for staff members’ room and computer chairs for computer tables. A table must be measured, marked, and placed carefully on a layout of the library. Each table should have a furniture record that notes its condition, composition, shape, manufacturer, size and seating capacity. Size of the reading tables may be varied because of locations inside the library. In that case, librarian will decide about measurement of reading tables. Chief executive’s table, other executives’ tables, computer tables and side desks of each should maintain a universal standard as per ranking of officers. Printers can be placed in computer table. Carrels, sometimes, are more functional and appropriate than tables. It takes less space and very useful for faculty members and researchers. Carrels can be wired to accommodate all of these activities, such as it can have individual lights, telephones, and overhead shelves for books. A carrel’s surface should be at least twenty-four inches deep by thirty-six inches wide. Staff will use desks for technical services, circulation, and reference services. University library should use standard side desks and secretarial desks for staff those perform clerical jobs. Wooden desks should be purchased for reference, circulation and executive personnel. If wooden desks are used heavily, they should have high-pressure laminate tops or weighty glass covers. A circulation desk should manufacture with having all provision of circulation functions and services. The circulation desk should be protected with a laminate or heavy glass or other resistant material. Workstations should be made available in the library. Library collection should be housed in variety of equipment. Equipment should be chosen for its serviceability and suitability for the materials to be housed. All equipment such as photocopier, colour photocopier, electric typewriter, PCs, CPUs, keyboards, mouse, UPS, laptop, image scanner, server, laser printers, colour printer, card printer, telephone, fax, e-fax, hub, several terminals for OPAC search, multimedia, web cam, RFID
technology, and Wi-fi device, should be made available to accommodate all the materials that library has. There are many shelving options for libraries, selection of equipment depends on the use of the materials on the shelves. Standard wooden and steel shelving should be used for the materials to which patrons have access. Wooden shelves may be most expensive rather steel shelves are less expensive. Shelves can also be purchased with built-in lighting. Open access shelving system is better than closed access system. Patrons may have their own choice in open access system. But in closed access system patrons may not have their own choice. Since most of the libraries are moving towards automated system so there should not be any provision for catalogue cabinet (Freifeld, 1991:41-75).

**Ergonomics**

Ergonomics is the relationship of humans to their work environment. It involves reconciling the essential factors in an office to produce comfortable and productive work environment. There are some components of ergonomics that include system analysis, job analysis, time and work studies, the proper tools and hardware for the staff members, human physiology: behavioral responses of staff to their work environments, and external factors that affect staff both physically and psychologically, i.e. light, sound, colour, shape, décor, and appearance (Freifeld, 1991:77). Ergonomics also deals with how people interact with machines, such as keyboard arrangement, printer location, and type of computer screen affect productivity and job satisfaction of staff.

**Technology**

As information technology advances and expands its applications, dependence of the university libraries is increasing on technologically based resources and services. IT based library services should be made available for its users because of the convenience, durability, faster and integrity. Electronic university library must be planned differently to accommodate state-of-art library services. Electronic-based library resources require different kinds and amounts of space than their paper counterparts. Information can be stored on this media than on paper. The initial cost for creating the electronic library is high. But, cost savings are realized in terms of limited space use, the time spend in organizing library materials, and the time use in processing paper-based acquisition, in subscribing journals, indexes and abstracts, periodicals, and other bulk information (Freifeld, 1991:93-95).

Considering space, technologically advanced university library should include the location of computer hardware, namely, terminals, modems, printers, plotters, server, and many other peripherals. Also locate storage space for the supplies, reading materials, directories, and telecommunications equipment.
The rapid development and introduction of information technologies, libraries and information services have widely been expected to lead to sweeping changes in ways that libraries are organized and managed (De Klerk, 1989). The change has been both rapid and revolutionary, and the future will bring even more rapid and radical changes in gathering, processing and disseminating. J. Hartley and others (1990) stated that recently, however, information technologies have become widely available. Microcomputers, word processors, electronic mail, facsimile transmission, satellite communication, laser, digital disc, etc. are developed to cope with the large demand of information seekers. However, the countries of the developing world, including Bangladesh, are still hesitating in some cases to adopt these new technologies in their libraries and information systems due to limitation of budgets and skilled human resources. At the same time this is also true that currently there are many libraries in Bangladesh, particularly, some of the topmost private university libraries are very much willing to adopt the new IT system for providing smooth and faster services as well as management of their respective libraries. The university libraries which have not yet introduced any IT system; these libraries should, immediately, be introduced and installed with IT facilities and systems by which they can provide faster and better library services.

Access, communication and transmission of information are the key elements of information dissemination. Considering the role of IT, the developments of communication technology have made it possible now to transmit information from one corner of the earth to other at the speed of light. A number of communication networks that extend to all parts of the world have come into existence. Satellite communication technology allows millions of people to keep in touch with each other even though they are geographically dispersed over distances of thousands of kilometers. Recently developments in technology have resulted in great communication networks and globally flooding of data communications. Data communications is simply the collection and distribution of data in digital form electronically from one location to another. Data is transmitted from computers to terminals and even to other computers. Use of data communication in computer and data processing systems is growing rapidly in the field of human knowledge and all spheres of Research and Development (R & D) in socio-scientific and technological aspects (Sattar, 1997:128).

**Library cooperation**

Library cooperation is one of the important factors to provide library services to the users at the right time. So, cooperation among libraries and participation in library and information networks and consortia enables libraries to expand their collections without allocating additional space. The appeal of the network approach is enhanced now by electronic technology. The electronic library is a fact of life. University library services are dependent on the technological support provided by computers, telecommunication systems, networking system, micrographic equipment and audio-visual devices. This technology is the basis of improved networks and resource sharing programs which should be
made available in university libraries. Networking has several advantages, i.e. timely access to a greater base of information for organization employees or other library patrons, and significant savings in acquisitions, administrative overhead, and work hours spent maintaining, sorting, and disposing of, and storing the collection. There are two kinds of networks, one is internal and another one is external (Freifeld, 1991:107). Most of the public university libraries and top most private university libraries in Bangladesh have sizeable collections in their fields benefit from participation in regional and national databases.

Collections are shared through existing interlibrary loan (ILL) programmes or through the creation of interlibrary loan projects. The growing information technology has expanded the options that the libraries have for sharing information resources. The potential of ILL programme is now being realized because of dramatic improvements of reading materials available in digital form and the development of information technology for information transfer. Several new technologies have been developed and tested in library resource sharing programme. Some of these technologies have greater potential for the immediate future than others, such as telefacsimile (fax), electronic mail (email), Local Area Networks (LAN) and consortia. Email, LAN, and consortia play an important role in distributing and sharing resources among the respective libraries.

There was no library consortium in Bangladesh before 2007. In the past, UGC had taken many initiatives for library cooperation for the benefits of universities. Since 1980, there have been a number of vain attempts by UGC for library cooperation but UGC could not succeed in any attempt. In 2006, an initiative has been taken by the University Grants Commission (UGC) of Bangladesh to form a Digital Resources Consortium for university libraries in Bangladesh for sharing integrated library resources including e-resources and computer databases. A 4-member committee has been assigned at UGC to draft a concept paper on forming consortium in Bangladesh. The implementation of this initiative will greatly help solving in accessing and using information resources, in higher education and research institutions in Bangladesh (Uddin, 2006:490-3).

In 2007, one consortium formed in Bangladesh is named Bangladesh INASP-PERI Consortium (BIPC) by the participation of major public universities, private universities and a few research institutions, which is coordinated by Bangladesh Academy of Sciences (BAS). Members of this consortium are enjoying benefit through the use of the same. No university library can fulfill their services without any cooperation of other libraries.

Creating facilities

In the 21st century library and information institutions are going through a transition and radical change. In the last century the total traditional library concept has been changed with a challenging shifting process from traditional library to IT based modern library. The innovation of numerous
amazing technologies and the advancement in the field of information and communication technology forced library professionals to shift the traditional library concept to modern one. Once the library was considered as the store house of books, but now it has changed its dimension and accommodated whole knowledge. The new view is to make library more than an institution, user oriented and user friendly. All types of libraries and information centres are trying to adopt all possible measures including installation of new technologies, introduction of various new services and improving both of interior and exterior designs and accommodating rooms for all kinds of flexibilities.

All over the world thousands of libraries and information centers are initiating various programmes to cope with the changing trends of information needs. They are trying to accommodate all possible facilities and services. Various types of libraries are taking steps according to their purposes respectively. The libraries are considering their target on users, communities, various levels of users, characteristics of information need and partners/patrons.

**Facilities to be considered for university library**

A university library should orient various types of facilities for its users’ community. Total library system including its resources (whatever the form: physical or electronic), services, skills of staff, infrastructural environments, furniture, ICT environment etc. can be considered the following as library facilities:

- Infrastructural facilities
- Information Communication Technological (ICT) facilities
- Environmental facilities

![Facilities of proposed model library](image)

**Figure 16: Facilities of proposed model library**
The above-mentioned categories are described below-

**Infrastructural Facilities**

The library should have its own building and should create all types of facilities for providing various services to the users’ community. With the view to ensure the highest level of quality services and facilities all possible infrastructural installation is must. The infrastructural facilities for the university library are described below.

- Library should have separate building, reading room, study space, quiet study room, group study room, discussion room, separate working space for staff members according to hierarchy, pigeon-hole area, supply of safe drinking water for users, presentation and meeting room, new arrival display area, special sitting arrangements for faculty members, separate washroom for male and female, separate washroom for staff members, whole library should be air-conditioned and should have with plenty of light, several fire extinguishers and first aid box, storage area for back issues of periodicals, installation of CCTV to reduce the pilferage, etc.

- All kind of furniture such as circulation desk, bookshelf area, book shelves, file cabinets, book trolleys, CD and DVD cabinets, study carrels, conference tables, study tables, chairs for users, news clipping section, reference area, newspapers corner, liberation war corner (bookshelf area for special purpose), maps and atlases corner, new arrivals display board, journals shelf area, etc.

**Information Communication Technological (ICT) facilities**

All library facilities, of whatever size, will need to incorporate ICT and online services. For providing these, all kinds of technical equipment should be made available in the library to facilitate IT based library services.

- This includes photocopier, one colour photocopier, electric typewriter, IT area and server room, PCs, UPS, laptop, image scanner, server, laser printers, one colour printer, card printer, separate cyber corner for users, Internet connection with sufficient bandwidth, Local Area Network, Wide Area Network, Metropolitan Area Network, E-mail services, provision of direct dialing system from telephone in meeting the emergency requirements, fax, e-fax, hub, several terminals for OPAC search, Institutional Repository (IR) system, library website where help menu (for getting access to electronic resources of the library) should be made available, multimedia facilities, web cam, RFID system, Wi-fi and Wi-max technology, networked computer systems and workstations with
Uninterruptible Power Supply, etc. Most of the ICT facilities described here are available in Bangladesh.

**Hardware and software:**

In the process of applying the latest ICT to traditional library management, a careful consideration during installation of hardware and software is a must. Regarding this the following things should be considered-

- Installation of latest hardware and ICT peripherals.
- Installation of an integrated online library automation system which is compatible with vernacular data, MARC21 format of bibliographical data, ISBN13 etc. international standard.

The hardware and software compatibility and upgradation are also remarkable facilities for the library.

The following applications should be made available and should be supported by IT services:

- File management and virus checker
- Information services and mail (email, web browsers)
- Microsoft office (Word / Excel / Access / PowerPoint)
- EndNote and reference manager
- Library software
- Statistics (SPSS)

To make it more user friendly, a link could be made for use of electronic resources of the library.

**Security Issues:**

Security issue is an important issue for any institution. As library stock-holdings are public goods, or assets of the organization concerned, they have to be protected from theft or any other destruction. Now this could be mostly done electronically. At the entrance of security gates, a special detector with electronic device should be installed which can detect books, videos or CDs, which have not been processed or issued. More and more libraries are investing in self-service computers which can ‘check out’ stock automatically. However, in some cases security gates send out the wrong message to users. In that case, we should prefer to find other ways of preventing theft through the use of CCTV.
and security staff, as well as individual security cases for books, videos, CDs and DVDs. Security system should be handled carefully, otherwise it may create the wrong effect.

**Environmental facilities**

The total library environment can be categorized into two parts. One is working environment and another one is reading environment.

**Working environment**

Good working environment should be ensured for the greater interest of smooth operation of the library. Function wise responsibilities should be assigned to each staff member for performing their task duly. Interpersonal relationship skill among all staff members should be strengthened. All logistic support should be provided to all staff members including IT facilities. Understanding among all staff members is one of the important factors for enjoyable working environment. In order to make decent working environment, all staff should have job satisfaction. Team work acts as a vital tonic for making a good working environment.

**Reading environment**

In order to have a good reading environment the library should have all types of reading materials and all types of library services. It includes good-looking circulation desk for check in and check out, separate working space for the staff, adequate space for any user of the library, study table for eight persons, study table for four persons, individual carrel for faculty members and researchers, cyber corner for searching online journals and library database, separate periodicals display area, study chairs, open access to the shelves, and silent inside the library.

*According to Dr. Alan Bundy a university library should have the following facilities-*

- general print, audiovisual and electronic resources
- readers advisory and reference services
- local history resources and services
- large print books
- interlibrary loans
- support to flexible learning university students
- multicultural collections
- Users’ community support
• provision for the students and faculty members those who have disability
• literacy support
• study and research facilities
• internet/electronic training facilities and programs
• maintaining the local authority's website
• meeting rooms
• photocopiers and scanners
• word processing facilities
• reading groups
• generous parking provision
• Computers’ support

Activities

Library activities mean what the library actually does for its users. Every university library has its own aim to provide services of reference and lending materials appropriate to the needs of the faculty members, students and staff members of the institution. These needs can vary from university to university in respect of courses offered and the research undertaken by the respective university. Section wise activities, i.e. **acquisition, processing, circulation, reference, serial, audio-visual and IT**, can be assigned for university library as follows:

**Acquisition activities**: acquisition is one of the most important and challenging jobs among all functions in university libraries. Here, books mean not only physical books but also electronic books. Timely delivery of books to the users is dependence on the timely acquisition of books. Keeping 120 days in hand, the acquisition programme can be made for any university library. If the concerned authority has international credit card, the acquisition formalities for books or e-books could be completed within shortest possible times, i.e. 12-15 days for print books and five days for electronic books. IT based acquisition system should be developed in all private university libraries for better, efficient, and effective acquisition system. All functions of acquisitions should be integrated with the library software. For that purpose one separate module in library software should be created where all components of acquisition system will exist. The components of acquisition system are as follows:

Requisition form for reading materials, sending and receiving requisitions through email, compilation of list to be prepared by using library software, checking of library database to know the actual status of reading materials in the library, searching the Internet for comparing the latest bibliographical information, checking prices with the publishers’ catalogue or through Internet, preparing preference list of vendors, finalizing the book list and obtaining approval from the chairperson of the library.
**Figure no. 17: Different activities of proposed model library**

<table>
<thead>
<tr>
<th>Acquisitions</th>
<th>Processing</th>
<th>IT-based Circulation</th>
<th>Reference section</th>
<th>Serial Section</th>
<th>Audiovisual and IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requisition form for reading materials</td>
<td>Stamping of books</td>
<td>Book Search</td>
<td>Literature searching</td>
<td>Organization of print journal</td>
<td>Requisition and installation of PC</td>
</tr>
<tr>
<td>Sending and receiving requisition</td>
<td>Making accession</td>
<td>Book issue and return</td>
<td>Digital Library</td>
<td>Continuation of subscription to online journals and databases</td>
<td>Selecting library software for automation</td>
</tr>
<tr>
<td>Compilation of list of books</td>
<td>Cataloguing and classification of books</td>
<td>Borrower status</td>
<td>Institutional Repository</td>
<td>Taking care of newspapers, newsletters and annual reports</td>
<td>Selecting vendor of library software</td>
</tr>
<tr>
<td>Checking of library database</td>
<td>Writing particular information inside the book</td>
<td>Fine count</td>
<td>Online public Access Catalogue</td>
<td>Sorting periodicals for binding and repairing</td>
<td>Support vendor to provide software</td>
</tr>
<tr>
<td>Checking prices with the publishers</td>
<td>Data entry in library database</td>
<td>User blocking</td>
<td>Full text article online journal services</td>
<td>Indexing : Readers guide to periodicals literature</td>
<td>Verifying the requirements of the software</td>
</tr>
<tr>
<td>Preparing preference list of vendors</td>
<td>Checking book information</td>
<td>Users clearance</td>
<td>Consortium</td>
<td>Maintenance of gift and exchange publication</td>
<td>Looking after automation program</td>
</tr>
<tr>
<td>Issuance of purchase order</td>
<td>Typing of book label</td>
<td>Renewal of library card</td>
<td>Different Online Databases</td>
<td>Rendering services to readers</td>
<td>Taking care online journal databases</td>
</tr>
<tr>
<td>Delivery of books by the vendors</td>
<td>Printing barcode and preparing book cards</td>
<td>Creation of new library card</td>
<td>Networking and Resource Sharing</td>
<td>Shelving and re-shelving of journals</td>
<td>Oversees the cyber corner and e-books</td>
</tr>
<tr>
<td>Receiving of book by the university library</td>
<td>Ready for shelving and use</td>
<td>Barcode generation</td>
<td>Indexing and Abstracting</td>
<td>Maintenance of news clippings</td>
<td>Looking after workstation</td>
</tr>
<tr>
<td>Payment of bill in favor of vendors</td>
<td></td>
<td>Uploading of photographs</td>
<td>Content Analysis</td>
<td></td>
<td>Maintenance of hardware of PCs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User’s hunt</td>
<td>Electronic alert Services</td>
<td></td>
<td>Establishment of consortium network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Circulation report</td>
<td>CAS</td>
<td></td>
<td>Supervision of audio visual materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SDD</td>
<td></td>
<td>Looking after the WiFi system</td>
</tr>
</tbody>
</table>
committee, issuance of purchase order, delivery of books by the vendors, and receiving of books by the university library.

The above-mentioned components of acquisition may be described as follows:

Requisition form for reading materials: All universities should have prescribed IT based or web based requisition form for reading materials by which faculty members, searchers, and staff members; and in some cases students can send their requisitions to the library. After receiving these requisitions all will be incorporated in acquisition module of library software, which will help for further and quick process.

Sending and receiving requisitions: All requestors should use the web based requisition form and after filling out that form should send to the respective library section for taking necessary actions. Deadline of receiving requisition forms by the library should be mentioned in the said forms so the acquisition process can be handled in better approach. Alternatively requisition form may be available in Intranet network systems so the requestors can be received and the form can be easily sent through email to the respective desk of the library.

Compilation of list of books: Compilation of list of books should be started after receiving all requisition forms from the patrons’ end. All requisitions should be compiled in one place, i.e. in the acquisition module of library software. List should be prepared department wise and alphabetically.

Checking of library database: Library database should be checked to know the actual status of reading materials in the library whether the reading materials have or not. Also should check to avoid the duplication of reading materials since every library has space limitations.

Searching Internet for comparing the latest bibliographical information: Bibliographical information of listed books should be checked through different search engines of Internet for verification of the said books whether these books have latest bibliographical information or not.

Checking prices with the publishers’ catalogue or through Internet: Prices of listed books should be checked with the publisher’s catalogue to verify the prices of vendors. If the publisher’s catalogue is not available, different bibliographical list of vendors available in the Internet should be checked for authentication of prices of the said books to be ordered in near future.

Preparing preference list of vendors: the preference list of vendors should be made on the basis of the past performance of the respective vendors to ensure the timely delivery of reading materials to the library. Performance of the vendors includes cost, timely delivery, service charges, sincerity, and
good dealings with the respective library. Preference list of vendors may be incorporated with the module of the library software and that list should be prioritized during purchase of books for university library.

Finalizing the book list and obtaining approval from the chairperson of the library committee: The book list should be finalized and get approval from the chairperson of the library committee before issuing the purchase order.

Issuance of purchase order: After completing all formalities purchase order should be issued in favour of respective vendors through email. If any vendor fails to receive the purchase order through email in that case provision should be there to receive the order by hand.

Delivery of books by the vendors: Sixty days time should be given to the vendors for the supply of books to the library. If the vendor fails to supply books on time, the vendor may be given 15 days additional time to supply the said books. The delivery time may be reduced if the shipment or delivery could be made through DHL or Fedex both have express services although these are expensive. Regular acquisition services should be made by regular mail services but emergency acquisition services could be maintained by DHL or Fedex Ltd Bangladesh. If the vendor fails again to supply these within the additional period, the scope of punishing the respective vendor should be there.

Receiving of books by the university library: Ordered books should be received by the university library as per work order. After receiving the books, those should be checked physically. Recording option of receiving books should be made available in the module of library software. Processing jobs would be started after completion of all formalities of acquisition.

Payment of bill in favour of vendors: After completion of acquisition of reading materials, bill along with the list of books should be processed through the acquisition module to the accounts section for payment. During processing of receipt, tracking of budget should be kept in proper path. So the payment of bill could be arranged duly.

**Processing activities:**

Some part of processing jobs should be done manually and some of them should be done automatically. The following steps are involved with processing jobs:

Physical checking of books: The first step of processing books is to check missing pages of the respective book, print quality, page quality, hard binding/paper binding, ISBN with the ordered books, etc. This process should be done manually.
Stamping of books: Different types of stamps should be put inside the book for determining the ownership of respective book; such as official round seal, receiving seal, date seal, and accession seal. These jobs should be done by manually.

Making accession: Accession should be made in the accession register in writing book information against the accession number; such as - accession date, author, title of the book, place, publisher, edition, source, price, volume, ISBN, etc. These jobs could be done manually as well data of the said book could be entered into the library database which is developed through the use of library software.

Cataloging and classification of books: After accession, subject of the said book should be determined for giving classification number of the same which makes easier to find the books from the shelves. Standard classification scheme should be followed during classification, such as Dewey Decimal Classification (DDC) scheme or Library of Congress classification scheme. Cataloguing code should be maintained duly as per Anglo American Cataloguing Rules (AACR) revised edition.

Writing particular information inside the book: Particular information of the book should be written in a particular page of that book, such as accession number, date, price, source, call no., etc. One particular page of the book should be identified for writing accession number which could be kept secret due to security of the book. Only library personnel will be acquainted with that page.

Data entry in library database: Data and book information should be entered into the database to maintain the accuracy.

Checking book information: After entering data in the database, worksheet of book information should be checked by getting a print out. If anything is found wrong, correction should be made immediately.

Typing of book labels: Call number should be typed in book label and pasted them on the spine of the book. Typing work could be done by the use of computer.

Printing barcodes and preparing book cards: Barcodes and book cards should be generated through the use of computer. Barcodes should be pasted on the title page and the back end of cover page of the respective book. Due date slip should be pasted on the inside page of back cover of the said book.

Ready for shelving and use: After completion of all processing jobs, books are forwarded for shelving and ready for use.
IT-based circulation activities

Circulation activities will be started after finishing the processing jobs. Circulation desk is the mirror of the library as it involves much work for operating library efficiently. The following components are involved with IT-based circulation jobs:

Book search - Users would be able to find their desired books by searching the library database. There are different fields of reading materials in the database to make the search easy, such as; title, author, corporate author, description, broad subject headings, key words, narrow subject headings, publisher, ISBN, supplier, call numbers, accession number and master file number of the database, etc. Search can be done by any one of the items mentioned above.

Books issue and return - Books or any other library materials could be issued to users as well as returned to the library through the mechanism of library database.

Borrower status - The database should allow users to see the information about library materials borrowed by the user. This information can be checked by the name and designation of the users, by title, date of borrowing and returning as well as the overdue.

Fine count - The library database should automatically count fine if any student fails to return the library material on time. Fine for overdue materials should be generated automatically and remind the users through email to give his/her penalty to the library.

User blocking - If any user fails to submit fine for overdue, the database should have the option to block the user’s part so the user would not be able to borrow materials from the library for the next time. The database should also allow having the option to block the respective user who will be leaving the university.

Users’ clearance – If any user’s has any overdue, s/he will not be allowed to get the clearance from the library as the database keeps the record of the respective user. If the user does not get the clearance from the library, final payment of faculty member or staff member will not be given. Similarly no student will get his/her transcript from the registration office.

Renewal of library card – In every semester, each student has to renew the library card by showing his/her latest money receipt. Without renewing the library card, a student is not permitted to issue any reading material from the library.
Creation of new library card – To borrow library materials from the library, all students should become a member of the library. Otherwise they can not borrow any book from the library. For that the respective student should fill out the library card for becoming a member of the library. The information on the card is used for membership, the same information will be used to make user’s profile in the library database of the respective student by which a user would be able to transact reading materials from the library.

Barcode generation – For maintaining user’s profile in the database, barcode generation for each user is a very important job of the database. A unique ID number is given against each user to be read by the barcode reader.

Uploading of photograph - The database should have the option to allow showing user’s photograph in his/her profile. So, the transaction could be made smoothly.

Users’ hunt – User’s hunting should be another option of the database to find out any user to locate as well as to contact him/her when needed. The search can be done by different fields, such as; user’s name, user’s Id, department, designation, user’s level, and user’s type, etc.

Circulation report - As the database contains all the information about circulation activities, so the circulation report could be generated by the help of the database which is very useful for library management.

Reference section

This is very important section among all the sections the university library has. This section is a hub of all activities of a library. Reference section should be organized in such a way so that all types of services could be provided to the users, such as Internet facilities, workstation, search facilities of library databases, encyclopedias, dictionaries, directories, handbooks, thesis, dissertations, reports, assignments, maps, rare books, etc. These facilities mentioned above should be made available in any reference section of any private university library. Reserved book services can be provided by the reference section as all reference and related reference books are preserved in the reference section.

As higher learning institute the university is always busy with research. They always need the facts and figures of recent developments in their subject of interest. Development of various techniques of library profession like literature searching, digital library services, Institutional Repository (IR) services, Online Public Access Catalogue (OPAC), full text article online journals services, a good number of different online databases, consortium, networking and resource sharing, indexing,
abstracting, contents analysis, data processing, Current Awareness Services (CAS), and Selective Dissemination of Information (SDI) services, made it possible for the libraries to provide pinpointed and exhaustive information services to the users. Advent of computer, communication and information technology, and Internet facilities have helped us a lot to collect and provide necessary information from anywhere in the world, if required. Modern university library should take the advantage of IT facilities and opportunities to feed the faculty members with appropriate information for promoting the research on various fields.

**Serial section**

Serial section should be made functional and responsible for i) organization of print journals, ii) continuation of subscription to online journals and online databases, iii) taking care of newspapers, newsletters, and annual reports, iv) sorting periodicals for binding and repairing, v) indexing: readers’ guide to periodicals literature, vi) maintenance of gift and exchange publications, vii) rendering services to readers, viii) shelving and re-shelving, ix) maintenance of news clippings, x) miscellaneous. Every component of serial section is very significant and vital for research purpose. It has to be maintained duly, otherwise research work of the respective university will be hampered.

**Audiovisual and IT section**

University libraries should have the provision of keeping audiovisual materials in meeting the requirements of students, faculty members, and staff members. Stock of audiovisual materials may include films, overhead projection transparencies, wallcharts, videotapes/cassettes, work of art, CD and DVD players, television, radio, CDs, DVDs, hearing tool, and etc. This area will help students a lot to have a clear picture and explanation about the area where he works, such as the student can have theoretical idea; can hear something, if required; and can view something, if needed.

It has been observed that the librarians of Bangladesh have fully understood the importance and use of Information Technology (IT) in libraries are essential. IT plays an important role in managing libraries of Bangladesh. This IT will help in discharging professional duties efficiently and effectively. Without IT no libraries would be able to provide quick and faster services to the user’s community. IT has several functions in library. The following jobs are involved with IT:

- Requisition of Personal Computers in consultation with the IT section of the university
- Installation of computers in different areas of the library
- Assist management in selecting library software for automation
- Help authority in selecting vendor of library software
- Support vendor to provide the requirements of library software
- Receive software from the vendor in verifying the requirements of the same
- Assist installing library software
- Help in sort out the problem of library software
- Look after online journal databases
- Keep track of online journals subscription, such as renewal of online journals
- Take care of e-books
- Oversee the cyber corner
- Maintain all PCs in the library
- Coordinate with the IT section of the university
- Look after the Wifi system
- Take care of workstations dedicated for searching library database and online journals
- Maintain hardware of PCs and update them, when required
- Create Institutional Repository (IR) for the university
- Establish consortium network for resource sharing
- Communicate with modern world for updating
- Supervise audiovisual materials

The above-mentioned job should be done by audiovisual and IT section of the library for smooth operation of the university library.

**Services**

The mission of any university library is to support the university community in developing lifelong skills in innovative and analytical thinking, research and information literacy, and by providing distinctive collections, services, facilities and programs. The library would provide an array of distinctive facilities to library users with the help of state-of-the-art techniques and technologies (East West University, 2007 summer).

The nature and efficiency of services provided vary from library to library. The intensive services made available by some of the special libraries can not be provided by university libraries over a whole range of subject interests without increasing the number of professionals in the library. However, with the emerging of ICT sector and coming of computers, university libraries are now in a position to provide a variety of services over a wide range of area, which were not possible before.

Usually, the university library should perform the following services for its users’ community:
• All kinds of reading materials should be acquired, organized, and displayed in classified order using the techniques of classification, cataloguing, and shelf arrangements. Acquisition, classification, cataloguing and organization should be set up with IT facilities along with the use of library software for smooth management of work mentioned above.

• Circulation work in the library should be planned in providing lending services of books, periodicals and other reading materials, so that faculty members and students would be able to make use of them at their convenience. Circulation module of library software should contain issue, return, borrowers’ status, fine generation, reminder to users, and semester-wise blockage system for students, etc.

• Documentation services should be provided to the readers where they may have pinpointed access to the information and data they need through the use of Internet and computers.

• Reader’s guidance service should be provided for efficient use of the library materials. Soft copy of readers’ guidance should be made available in the web site of library of the respective university. So the readers are able to notice it directly and can use library accordingly.

• The library holdings should be extensively displayed and disseminated for use by the largest number of users electronically. Dissemination of library holdings can be done through manual system, if required.

Broadly, there are two principal services, which the library renders to its patron, i.e. (a) circulation services and (b) reference services (Sahai: 288-9).

According to M.A. Gelfand (1968:36), those are commonly performed in a university library fall into the following categories: administrative services, technical services, readers’ services, and special services.

Administrative services: This service should be performed by the university librarian or his deputy. All management related jobs should be carried out by the higher authority of the respective library. Different types of software can be used for faster and better management of the respective library.

Technical services: Technical services should comprise the functions of acquisitions, cataloguing and classification, binding, photocopy, data entry jobs, creating barcode, preparing book card and book pocket, maintaining library database, compiling subject wise collections, stock verification, weeding
out of reading materials, institutional repositories, making digital collections, and lending operations. All these technical jobs should be done through computers.

Readers’ services: This service should include the functions of circulation, reserve book section, open shelf access, rental collections, journals services, reference, library hours, bibliographical services, CAS, SDI, inter-library loan, document delivery services, literature search services through Internet, full text article from online journals, networking services, and information services. This service is related to the processing job of reading materials, which could be achieved by the use of information technology for providing better and faster services.

Special services: This service may include arrangement of orientation programme, seminars, lectures, symposia; conducting information literacy training programme, lectures on library services, training on basic library resources, etc.

No library can keep its existence in the society without its services. The most important service that a library, should always perform for its users, is to have least inconvenience for them in their usage of collections.

Administration

Library is an institute within the institute. It has its own administration to run smoothly. Administrative activities include: preparing and administering library budget; selecting, training and supervising the staff; planning library development; creating and administering policies and regulations; maintaining relations with university faculty members and officials; participating in meetings of faculty and other university organizations; developing and supervising book collection policies and procedures; participating in the planning and equipping of new library facilities and in the alteration of existing facilities; preparing reports and memorandum; conducting surveys and analysis of services; classifying library positions; maintaining personal records and recommending promotions; transfers, salary adjustments and dismissals; participating in library conferences and professional associations; ordering supplies and equipment; maintaining financial records when required; monitoring IT based library services; publicizing library resources and services (Mostafa, 2004).

Administration is an important job for any library of any university. If we run administration smoothly, we should require carrying out above-mentioned responsibilities properly. We should have IT facilities and special types of software in managing e-governance in the university. These IT facilities and software would help us in making decision quickly and expedite to implement the job.
There are four basic important aspects of library administration, i.e. *library building, budget, staff and patrons*. We should have these four elements for the greater interest of library administration. Librarian of the university plays a key role in library administration. The librarian acts as a coordinator within the university. The librarian should try to reduce the gap between university management and library management.

The below mentioned organogram could be followed for smooth management of library services. A total 37 skilled human resources are required for operation of a modern university library.
Library Officials : 23
Support Staffs : 14
Total : 37

**Figure 18: Proposed Organogram for Model Library**
Automation

Using computers to assist in processing information is the goal of any automation. Computers have traditionally been used in the management of libraries in many ways. Traditional library automation has been dealt with only cataloguing of bibliographical information of reading materials, i.e. initially attention had been paid to storage and retrieval of information only. But those were not the standard of library automation. Rather integrated automated library management systems come with standard modules including acquisition, processing, circulation, cataloguing, serials controls, reporting, etc.

Automation is one of the important IT based library activities by which we can manage and run our library efficiently and effectively. Automation means dependency on machine which has remarkable influence at our work place. With the help of machine people perform their job comfortably, quickly and ultimately it increases peoples’ efficiency and effectiveness. In case of library, the term “automation” basically means computerization of library activity. Computer influences all fields of human activity. Sharma (1995), stated in his book that “the invention and increasing use of computers in various fields of human activity is witness to the fact that the computer is considered to be essential component for all-round development. Computers’ entry and its continuance in almost all fields of human endeavor is due to its invincible qualities, viz., the splendid speed to act in nano-second, the superb capabilities to do unmanageable and impossible looking things, the unlimited capacity to store ocean of information on to tiny storage mediums, immense capability to perform repetitive jobs without fatigue, the radical power to sort, arrange, retrieve and disseminate information almost instantaneously, etc. Day by day it is becoming more and more indispensable for the society and has swayed all fields of human activities. Its use in the library is the need of the day and its application will certainly increase the use and utility of libraries.”

We need automation in the university libraries for the following reasons (Sharma, 1995):

- To create an effective customized software solution incorporating web application
- To integrate acquisition and circulation without data duplication or redundancy
- To create Internet web application for the teachers/students to interact with the library database from any where which provide necessary information
- To create an environment for single point of entry into the library database
- To incorporate bar code reader for issue/return of the books at the library
- To provide customized reports for the management
- To increase storage capacity
- To organize vast information easily and quickly
- To disseminate information efficiently
To make resource sharing easy and quick
- To avoid waste of time in repetitive works
- To accommodate increasing work load with the available frame
- To increase communication facility
- To empower access to information
- To ensure timely access to learning resources
- To open avenue of better education
- To save time of library personnel and users
- To increase performance of individual
- To facilitate marketing of library services
- To benefit the organization/institution and society (Chowdhury, 2002).

Different areas of library automation

The following areas and tasks of the university library should be computerized:

Administration and maintenance

- Making employee’s directory
- Duty charts
- Duty roster for weekend/holidays
- Recording of different committees
- Preparing library rules and regulation
- Maintaining periodical statistics
- Maintaining periodical reports
- taking stock verification
- Maintaining leave record of employees
- Internal office order/memo

Acquisition

- Vendor directory
- List of books recommended
- List of books approved
- Placing orders to vendors
- Receiving list of reading materials
- Making accession
- Integration of acquisition data with other library service modules of library software

**Classification**

Though selection of notation is done manually, but the computer can support in choosing the respective key word. Stored classification number would be able to show what is/are the key word(s) involved with same notation done before for the similar types of books.

**Cataloguing**

- Integration with acquisition module
- Printing catalogue cards
- Searching a document from different angles
- Preparing reading list on the basis of catalogue
- Establishing open access catalog with user friendly menus

**Circulation**

- Integrating with acquisition and cataloging modules
- Issuing and returning of library materials with use of ID number for materials and borrowers
- Imposing maximum limit of materials to be issued to a particular borrower
- Maintaining different category of borrowers with different borrowing limits
- Upholding blockade system for different types of users
- Generating fine system for overdue books and other reading materials
- Over riding the maximum limit, if necessary
- Giving gentle reminder through e-mail for returning books in time
- Charging/discharging with barcode
- Introducing inter library loan

**Serial control**

- Input of bibliographic detail of periodicals
- Output on various forms (such as consolidate list, subject wise list, frequency wise list, country of origin wise list, etc.)
- Editing, addition, deletion etc.
- Searching a particular issue
- Issuing reminder in respect of missing issues
- Inputting articles’ information
- Searching articles from different ways

**Documentation**

- Current Awareness Services (CAS)
- Selective Dissemination of Information (SDI) services
- Preparation of subject bibliography
- Electronic alert services

**Reporting**

- Generation of reports, which will help in managing the library in better approach
- Compilation of new arrivals from the database
- Stock taking report generated from the database
- Prepared defaulter list of borrowers, etc.

**Electronic access**

- In house digitization
- CD library
- The Internet
- Subscription to electronic journals and different databases
- Web page maintenance

**Networking**

- Local Area Network (LAN)
- Metropolitan Area Network (MAN)
- Wide Area Network (WAN)

Through the mechanism of networking system the concerned university should share files, folder to and from any destination (Chowdhury, 2002).

**Library software**
On the basis of one’s need and ability in terms of resources and skill, the area for automation will be considered. Library Software is one of the important issues of library automation. This software may be purchased from reputed vendor or develop internally. There are many tested Library Software in the market. Internationally reputed software is very expensive. If we would like to have readymade software in hand quickly, we should purchase reputed library software. These softwares being already been tested, there is little possibility to disturb at the implementation phase and needs little maintenance initiative. Some vendors in Dhaka developed Library Software for some organizations or universities. Those are yet in test phase. But these Bangladeshi library softwares are comparatively cheaper. Dhaka University Library procured internationally reputed software which is costly. In house development of software takes time; it can take one year or more. The software development process should go through system analysis, programme development, testing, implementation and maintenance. So, skilled manpower is needed not only for development but also for the maintenance (Chowdhury, 2002).

In the meantime some libraries, such as libraries of Independent University, Bangladesh (IUB), North South University, East West University, BRAC University, BUET, American International University, etc., developed their own customized software by which they created their specific databases as per their respective needs and these databases are working properly.

Other software

Operating software for server: Windows 2000 server, Novel, Linux, Unix, etc.
Database software: MS Access, Oracle, FoxPro, dBase, etc.

Hardware requirements

Whatever software we take that should be installed in a computer. Now-a-days personal computer is very popular. Depending on the area of computerization, number of computers and work load, one library needs to plan for hardware procurement. Number of computers to be procured depends on the load of usage, facilities available and space of the library. Dedicated computers may be needed for catalogue or OPAC. Library having busy circulation unit will need separate workstations or PCs. Naturally, in a large library, every section, in fact almost all persons of a section, needs independent PCs. The CD/AV section (if any) should have multimedia computers. All PCs should be connected through local area network (LAN). Star topology in LAN gives better performance. So at least one server will be needed to dominate the LAN. A large library may have several servers to perform
specific job by a specific server, such as database server for maintaining central database. Star topology needs hub or switch which connects computers through cables. Of course some other accessories, i.e., network card, connector, etc., will also be needed for LAN. For better security one library may decide to use Unix operating system; in such case Unix machine should be procured.

Some other hardware may also be needed. Barcode reader or chips technology for circulation is essential for automated charging/discharging system. Scanner for scanning internal resources may be procured with a cost of Tk. 9,000.00. CD writers are a useful addition for library. Library can make backups, save different databases and make copies of CD-ROMs for internal use with the CD writer. University library may keep their records and photographs on CD-ROMs (Chowdhury, 2002).

**Connecting with ISP**

The Internet is now-a-days becoming an important, probably integral, part of a library. For the internet connection one library needs to have connection with the Internet Service Provider (ISP). Broadband connection proves efficiency over the dialup connection. All should consider higher bandwidth for establishing cyber café section in your library.

**Power support**

Power failure is a normal phenomenon in our country. The country is facing severe power shortage; in that case we need to live with this problem. UPS (Uninterruptible Power Supply) is a solution for a short period. Power back up for a long period IPS (Instant Power Supply) may be installed with UPS. Rahim Afroz of Bangladesh is producing IPS (Chowdhury, 2002).

**Security**

For securing libraries, all libraries should introduce the Integrated Book Protection System. This system installs sensor at the exit door of the library and affix labels inside the cover page of the books.

**Skilled Human Resources**

Computerized system is not a substitute of human resources. It is just a tool for managing library activities in faster way. Success of computerized system depends upon how effectively it is used by the people in performing their activities. These people should be trained properly. A very good system might also collapse due to mishandling of the system. Without appropriate personnel the system...
output cannot be maximized. In fact before procuring or developing a computerized system people working in libraries should become familiar with computers and computerized database system. This familiarity will help the library to procure or develop and install appropriate system. The system then can be run with a very little disturbance. Sustainability of the system depends on efficient, effective and skilled manpower. Of course, appropriate and logical salary and status should be ensured to have the skilled manpower for the sake of sustainability of the system (Chowdhury, 2002). A total 37 skilled staff members are required for managing smooth library services.

**Limitations**

There are some limitations of computerized system that may still remain in spite of best efforts taken in the development process. Information technology is growing very fast. So even the most advanced system may bear some risk of becoming outdated. Though flexibility is an important characteristic of computerization system yet it takes some effort to change the system. So it might put some obstacles to any change process in the organization. Innovativeness and intuition of persons based on experience are very important for development. But computer lacks this ability which is the hallmark of a successful person. The other limitation of computerization is data entry, which is a slow manual operation. In spite of all the progress made in the field of information technology, we are still away from truly paperless office (Mishra, 2000).

The library automation makes us faster to provide speedy and accurate information and services. The process is still running to accommodate more state-of-the-art techniques for making more digital library in the university community of Bangladesh.

**Digitization Programme and Institutional Repository (IR)**

Digitization programme and institutional repository is a new concept after a robust development of Information, Communication, and Technology (ICT) sector in the last decade of 20th century. After emerging ICT, a lot of development in terms of telecommunication, electronic communication, and networking facilities, has been made globally. According to Khan (2006:4), the idea of digital library initiated with modernization of libraries with electronic devices. The term ‘digital library’ has synonymously been used for meaning ‘automated library’, ‘electronic library’, and ‘virtual library’. This has tremendous impact on the traditional role of library and information centres. The terms ‘virtual library’, ‘electronic library’ and ‘digital library’ have become a reality.

In the ICT sector something unusual happened in the continuation of networked information revolution at the end of 2002, shifting the dynamic among individually driven innovation, institutional
progress, and the development of disciplinary academic and scholarly practices. The development of institutional repositories (IR) emerged as a new approach that allows universities and research organizations to apply serious, systematic influence to accelerate changes taking place in scholarship and scholarly communication (Lynch, 2003).

Institutional repository may be considered as the beginning of digital library and it could be considered as an extension of library services besides other traditional and automated library services. For references services, digital library plays an excellent role in providing faster and quick services to the users’ community. Generation of new knowledge, effect of technological changes in communication, many technology trends and development efforts all came together to make institutional repositories strategy possible.

**Defining Institutional Repository**

An institutional repository is a new method for capturing, collecting, managing, disseminating, and preserving scholarly work created in digital form by the constituent members of an institution. In a position paper, The Scholarly Publishing and Academic Resources Coalition (SPARC) examined the strategic roles of IR, which played and outlined the viability and long-term impact of institution-based digital collections that preserve the research and intellectual output of an institution. IR adheres to an open access model, by centralizing and preserving the knowledge of an academic institution and making it accessible to anyone with internet access. An effective IR of necessity represents collaboration among researchers, librarians, information technologists, archivists, records managers, administrators and policymakers (Anuradha, 2005).

**Why we need IR for Universities**

We need institutional repositories to bring together and preserve the intellectual output of a laboratory, department, university, research organization or other entity. The inspirations and commitments are to change the process of scholarly communication that has also started serving as strong motivators. Computers have been present everywhere on campuses since the late 1980s. Scientists, researchers, faculties, students and support staff of an institution or organization are comfortable with the power of online communication. Faculty members, scientists and researchers would like to store their own materials and have them available on personal or institutional web sites. The development of the Internet, web sites, and more powerful search engines, have allowed us to think in practical terms about the establishment of central facilities for storing, archiving, preserving, and making intellectual and creative materials available. Repositories may be limited to one field, one department, one institution, or a consortium of several institutions. Collaborative programme for
building institutional repositories may be considered as cost effective. If a group of members or a consortium work together and share their resources through Internet, it reduces costs for each member while increasing access to digital materials. Repositories in universities and research organizations may include preprints and post-prints of journal articles, technical reports, white papers, research data, theses, dissertations, work in progress, important print and image collections, teaching and learning materials, proceedings of the meeting and materials documenting the history of the institution or organization.

**Benefits of IR**

The benefits we may have from institutional repositories are as follows:

New role of institution’s library increases as a potential partner in university and research organization. Longtime preservation of intellectual output, proceedings and administrative documents of respective organization is one of the most important aspects of institutional repositories. Wider and rapid dissemination of resources may be possible through institutional repositories. IR may treat as a solution to the problem of preserving institution’s intellectual output. The space that required by the physical documents will be saved. IR increases the accessibility to knowledge assets such as numeric, video, audio, and multimedia datasets. IR gives an opportunity to provide better services to institution’s learning community. There is an option for exposing institution’s intellectual output to researchers all over the world who would not otherwise have access to it through traditional channels. It acts as a new boost to learning communities outside of the Institution. It is a scope in maintaining control over Institution’s intellectual property. The libraries of other universities and research organizations will be benefited through demonstration and sharing the experience of institutional repositories. Trained library personnel will be made available for the library which is in fact a long-term benefit. IR will enhance the image of institution’s prestige. In the long run cost will be saved by establishing IR.

**Prospective Research Organizations in Bangladesh for Building IR**

All public and private universities and a number of research organizations are the prospective research organizations in Bangladesh which might have the ability to organize IR in their respective organization. Public universities have their own publications and a number of unpublished documents but lack of infrastructural facilities, budgets and skilled IT persons in the university libraries are the main reasons for not reaching their desired goals regarding IR. Private universities started their academic activities since 1992. Top ranking private universities are well equipped in respect of IT
facilities and skilled human resources. But comparing to public universities, the private universities have less resources. However, private university libraries, particularly top ranking universities, are more progressive in organizing electronic resources rather than public universities. The collective efforts for making IR in Bangladesh will definitely bring excellent results.

**Hybrid Library**

This is the age of information explosion. In this age, library is not only a library as it used to mean in the past, but it is more than the housing of a variety of different materials under one roof and the development of a new service concept. Along with all these changed and developed concepts, the libraries of this age are moving towards a so called ‘Hybrid Library’ concept. The libraries of this concept are required to exist concurrently the ‘traditional library system’ and ‘IT based library system’ under one umbrella. Khan quoted in his paper (2006:4), a hybrid library is a library where both “digital and printed information resources co-exist and are brought together in an integrated information service accessible locally as well as remotely.” Since Bangladesh is located in developing countries, so considering that context, all university libraries of Bangladesh should maintain hybrid library system.

**Wrapping up**

Bangladesh is one of the potential developing countries where education is the vital sector for producing skilled human resources in Bangladesh. Libraries play a pivotal role in educational institutes in respect of organizing and disseminating library resources since long. Recent addition of IR performs an important role in giving a new shape of our library. In that case, the open access movement and institutional repositories could contribute significantly to economic growth by broadening the market for scholarly publications and research results, especially in science and medicine. Lower access costs would broaden usage. Economist Joel Mokyr found in his studies of knowledge creation and dissemination that lower access costs brought knowledge to people who used that knowledge as the basis of invention and innovation (Mokyr, 2002). He also pointed out that ideas and knowledge may be expensive to generate, but inexpensive to use once implemented. The future will bring greater innovation and technologies through open access and institutional repositories.

**Resource Sharing**

Library cooperation, resource sharing and networking are used interchangeably as synonymous terms for collaborative efforts of information exchange among libraries. Library cooperation and resource sharing have become most essential for the proper functioning of libraries. Cooperation among the
libraries may be undertaken in various areas of fields. A survey was made by the British Library Research and Development Department and identified the following fields of resource sharing (Mannan, 1997:21-22):

-- Exchange of users (referral)
-- Exchange of materials
-- Exchange of information for users
-- Contribution to Union catalogue
-- Exchange of information on acquisition
-- Exchange of periodical holdings list
-- Exchange of bibliographies
-- Exchange of information on staff
-- Exchange of information on staff training
-- Exchange of information on services
-- Exchange of management information
-- Joint acquisition of materials
-- Subject, specialization
-- Cooperative disposal of unwanted items
-- Cooperative production of service tools
-- Cooperative storage of materials
-- Cooperative reader instruction
-- Cooperative staff training
-- Cooperative building programmes
-- Cooperative administrative services
-- Cooperative bibliographical services
-- Cooperative binding
-- And Cooperative transport scheme, etc.

Library cooperation is “making the maximum amount of literature available to the maximum number of users without a proportional increase in expenditure. The term library cooperation also signifies a planned system of operation whereby the library resources and functions are shared by a number of libraries to ensure user’s access to more documents and services he requires and planned library budget and allocation of funds to provide maximum service in individual libraries at less cost” (Mahapatra, 1983:18).

Mannan (1997:23-24), has stated in his thesis that there are three levels of library cooperative activities which are as follows:
Library cooperation – any activity between two or more libraries to facilitate, promotes, and enhance library operation, use of resources and service to users.

Library consortia – a specialized type of cooperative library activity usually restricted to a limited geographical area, number of libraries, type of library or subject interest and having some degree of information of administration and procedures.

Library network – a specialized type of library operation for the development of cooperative programmes and services, including the use of computers and telecommunications, and requiring the establishment of a central office and a staff to accomplish network programmes rather than merely coordinate them.

After analyzing different aspects of library cooperative or resource sharing programmes it is found that no library in the world can claim that they are self sufficient in its resources. Every library / information centre big or small has to depend on other libraries to supplement its resources to meet the information needs of its clientele. The dependence on one another has been primarily due to the following factors:

-- A large number of literatures;
-- High cost of reading materials;
-- Interdisciplinary growth of literature; and
-- Scarcity of library funds.

If we analyze the above-mentioned factors, it is found that every library needs a large number of literatures, but the cost of those literatures is very high. We also know that every library has its own limited budget. Since the budget is limited, so no library would be able to fulfill its resources by the limited budget. In that case every university library must have the option of library cooperation or resource sharing. So, the university library would be able to satisfy their users by its resources. Library cooperation also implies what can not be done individually or separately that can be done through cooperation.

As stated by Kaula, the objectives of resource sharing are to maximize the availability of materials and services and to minimize the expenses (Kaula, 1986:4). It is true and applicable for all types of libraries in developing, under developed and developed countries. Bangladesh is located in developing countries. So all university libraries should have some programmes on resource sharing or library cooperation by which they can meet up the users’ requirements.
Facilities and Services for Users with Disabilities

All universities of Bangladesh should have the option to create facilities and services for the users with disabilities. As disabled persons are the parts of our society. In order to create an efficient and effective library facilities and services for the disabled, university libraries need professional librarians and professional staff who are up-to-date and are aware of the latest developments about facilities and services provided for the disabled persons. That will have the extreme effect on their services.

As stated by Kishore (1999) in her paper, it should be a collective responsibility to promote quality services by achieving a good insight into the problems faced by the disabled persons. Library staff must recognize that some disabled persons have no control over their behaviours and must be competent enough to handle difficult situations. The library staff must be prepared to give individual attention for understanding disabled persons and their communication mode. This communication mode is very important for providing library services to disabled persons by the library staff. For that reason, the following features may be considered as fundamental for creating and developing library services for disabled persons.

a) Training of library staff, b) Developing user assistance schemes, c) Offering special services

a) Training of library staff

Professional library services depend largely on the continuous upgrading of staff through training on a regular basis. It could be fortnightly, monthly, or seasonal training. Special training requirements can be determined by the library management and training officers depending upon the skills and training needs of the individuals. Once the need has been assessed the method of training can be planned. A guideline for a very simple and effective training plan is given below that could be implemented without any difficulties:

Objective:
The objective of the training is to familiarize with important aspects of disability and disabled users in a library environment.
Structure:
A week-long training course of lectures, discussions and practical work can be held. The practical training could be held in small groups giving each group an opportunity to work with all types of disabled users.

Materials:
A training manual can be organized with the resource package that could be used for the training purpose.

Contents:

-- Concepts on disability: visits to hospitals, centres for the blind and other kinds of handicapped persons.
-- Developing communication and counseling skills.
-- Professional library services, single line of command, concentration of effort, time bound work, field orientation and linkage with research.

Review:
In training and work review session, staff of all levels can report and discuss their successes from which lessons may be drawn.

b) Developing user assistance schemes

The library staff should be competent enough to create an efficient and effective user assistance scheme for the disabled persons. Once the library workers are trained they will feel that it is their responsibility to provide quality services to the disabled persons. How the assistance can be given to the disabled persons, that schemes may be considered as follows:

-- Provide the disabled users with reading lists and catalogues, high demand materials and lecture tapes.
-- Deliver books and other documents from library shelves.
-- Photocopy library materials and enlarge them for the partially blind.
-- Extend loan periods or modify other lending rules on an individual basis.
-- Accept telephone requests and provide reference services.
-- Conduct orientation tours and information skills sessions.
-- Provide audio visual equipment.
-- Assist in the use of computer aided learning equipment such as CD-ROMs, optical disks, etc.
-- Provide access to library facilities by ensuring that directional signs are labelled at appropriate locations with large, simple and clear messages.
-- Help with numerous bibliographic citations.
-- Instruct on how to use available library technologies located at workstations
-- Keep special parking spaces in the campus for the disabled persons.
-- Arrange restrooms on all floors of the library wherein patrons with disabilities can be accommodated.

c) Offering special services

Different types of disability require different types of specialized services.

-- Library services for the blind must enable them to have access to equipment such as Braille printers, Braille embosser and tape duplicators, Kuzweil reader (a text-to-speed reading machine with synthesized speech output), closed circuit TVs for magnifying regular text, PCs with CD ROMs, Powermacs with CD ROMs, large print tape writers, special track tape recorders, computers that are having adaptable equipment such as voice eyes.

-- Services for speech and hearing impaired users must include TTD communications (a device also known as TTY-text type telephone) for those requiring library questions answered on telephone. Librarians should also familiarize themselves with American sign language which is considered to be the common language of the deaf community.

-- For the physically challenged users, the library facilities must be barrier free to wheel chairs and other mobility devices and ensuring that all devices including door handles are designed for easy operation.

-- Since reading is a common problem for the persons who are suffering from mental disability, they may enquire assistance in identifying the materials of both the print and electronic types of documents. They can be served by helping to locate and retrieve materials. They may require help in turning catalogue cards or entering commands on the computer. People who are suffering from mental illness such as schizophrenia should be motivated to read books on self-development and may need constant counseling to use library resources to overcome their depression. This is termed as "bibliotherapy", that is, using books for therapy (Kishore, 1999).
- Webster's students braille dictionary and audio books should be made available in the disabled students study area.

- The library should have state-of-the-art computers for disabled students, featuring Microsoft Office, internet applications, access to electronic research databases, Adobe Reader, and course specific applications. JAWS (screen reading software) and ZoomText (text enlarging software) should be made available from any computer of the respective university. The workstation is located on a table that can be adjusted higher or lower and should be accessible by a wheel chair.

Libraries and library staff can thus play a significant role in bringing hope to the miserable conditions of the disabled world. Adequate budget might be required in order to maintain the above-mentioned library services and subsequently expand them to fit the latest technological advancement.
References


*Francis, Miksa. The cultural legacy of the “Modern library” for the future.* [www.ischool.utexas.edu/~miksa/five.html](http://www.ischool.utexas.edu/~miksa/five.html) [http://fiat.gslis.utexas.edu/faculty/modlib.html](http://fiat.gslis.utexas.edu/faculty/modlib.html) visited on 04 September 2008


Uddin, Md. Nazim; Chowdhury, M. Hossam Haider. 2006, Developing a Digital Resources Consortium for university libraries in Bangladesh: proposed role of UGC. Proceedings of the 9th