
Scenario of Automation and Networking of Library and Information Centres (LICs) of North Eastern Region of India: An Evaluative Study

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Abstract

The North Eastern India is not lagging behind which has also experienced the changes in the library automation and networking activities, which is possible mainly due to inclusion of 12 university libraries for financial assistance under INFLIBNET Programme, which made possible the initiation of Information Infrastructure Development of University Libraries and Database Creation Work for Library Automation & Networking. Besides that other institutions of national importance in NE Region are getting financial assistance from their respective parent bodies and funding agencies like AICTE, ICMR and ICAR. This paper describes the present scenario of library automation and networking of University / Institutional Library and Information Centres of the Region. The survey findings mainly cover various aspects of library automation and networking, multimedia application and use of CD-ROM databases, OPAC and Internet Services, Creation of in-house databases of books, serials, theses, projects and experts, computer based library and information activities and services like in-house operations like acquisition, circulation, retro-conversion, serial control, information retrieval and dissemination, CAS, SDI, bibliographical services, On-line search of databases, OPAC, Web OPAC, Manpower development in IT era etc.

Keywords : Information & Communication Technologies (ICTs), Library Automation, Library Networking, INFLIBNET, Library and Information Centres (LICs), India

0. Introduction

The Library and Information Centre is an important component of any educational institution, which is the hub of the teaching, and learning activities where students, researchers and teachers can explore the vast resources of information. In the traditional libraries users have to spend more time for searching a small piece of information and for that they have to depend mainly on the library professional or library staff. But in the age of Information Communication Technology, computers are being used for day-to-day house keeping activity of the library, which saves the time of the end users, and library professionals also and at the same time avoid duplication of work and make the library service smooth and effective (Sinha, 1990).

The automation and networking of many universities, national institutions and other institutions of higher learning has been initiated by the national agencies dealing with information and library networks like NICNET, INFLIBNET, DELNET, CALIBNET and other metropolitan and city networks which have started developing various bibliographic databases of their holding. NICNET and ERNET have made e-mail/Internet service available to the academic as well as in Government sectors. Some of the metropolitan and city library networks like ADINET, MALIBNET, CALIBNET, MYLIBNET, PUNENET, BONET etc. have also been initiated and couple of them have started functioning and providing various on-line services through these networks (Sinha and Bhattacharjee, 2003).

The impact of IT is also evident on the activities of many LICs associated with universities and other institutions of the national importance. Thanks to University Grants Commission for establishing

INFLIBNET which have been playing an important role since its inception for initiating the automation and networking activities of library and information centres of universities, colleges, R&D laboratories, and various institutions of higher learning. So far 142 universities have been covered under the INFLIBNET Programme which have been funded with non-recurring grant of Rs.6.5 Lakhs for infrastructure development, purchase of computers and peripherals and recurring grants for five years to support the salary of information Scientist, data entry work, telephone charges for Internet use, and maintenance of the systems (Sinha and Bhattacharjee, 2003)

The present study covers the status and implementation of automation and networking activities in the Universities libraries located in North Eastern Region which are being funded under the INFLIBNET Programme and other LICs associated with the institutions of higher learning of national importance. The finding of the study shows that to what extent the fund for library automation has been utilized and what is the current status of computerisation of library activities and services in LICs of North Eastern India. What types of computer-based services, use of E-mail/ Internet, on-line databases, multimedia CD-ROM databases are made available to the users of LICs of North Eastern India.

1. Objectives of the Study

Followings are the main objectives of the present study:

- To find out the present status of computerisation in Universities/Institutional Libraries/LICs located in N E Region;
- To evaluate the source of fund available for library automation and networking or computerisation;
- To find out the initiative taken by the LICs for computerisation of library and information services in N E Region;
- To examines the status of IT infrastructure (hardware and library application software) available in university libraries/institutions of N E Region;
- To find out the computerized services being offered in these libraries;
- To examines the status of library networking, membership of data networks;
- To evaluate the use of Fax, Telex, E-mail/Internet Services by the university community;
- To find out use of multimedia/ CD-ROM databases and On-line databases services in LICs of N E Region;
- To find out the status of the creation of in-house bibliographic library databases of books, serials, theses and experts taken under the initiative of INFLIBNET;
- Evaluate the role of INFLIBNET and other library networking agencies for rendering financial and logistic support automation and networking activities.
- To evaluate the need of manpower training for implementation of Library Automation and Networking Programme;
- To find out the role of various agencies for organising computer training programmes for Library and Information Professionals; and
- To identify the role of University Authority and Senior Library Professionals for deputing the library professionals for IT training.

2. Review of Literature

Except few preliminary studies carried out by few library professionals like Singh and Garg (2002 A & B), R.P. Kumar and Pupindra Kumar (2002), Lakshmana Moorthy and Karisidaappa (2001), Kulkarni, (2002),

the comprehensive study relating to the status and applications of Information Technology in university/ institutional libraries of India in general and North Eastern Region in particular is not available. Therefore, the present study has been undertaken. For getting background information, literature available in primary, secondary and tertiary sources of information have been consulted. Some published paper in the application of IT in library services has also been consulted for current trends available in the area of IT application.

3. Methodology

The present paper is based on the part of the comprehensive survey carried out by the author which aims to focus on the status and application of Information Technology in the library and information services in University/ Institutional Libraries of India.

In the present paper the information is based on the responses received from the questionnaires which were distributed to various universities and institutions and also some information collected from the secondary sources of information like Hand Book of Indian Universities, Hand Book of Library and Librarians in India, Directory of Social Science Library and Information Centres in India etc. Besides that the researcher collected some information by visiting the respective web sites, visit of libraries under study, and interview of some library professionals working in these libraries.

3.1 Tools Employed for the Study

The pre-structured questionnaire has been used for the present study. The data collection has been supplemented by the primary and secondary sources, interview and the direct observation of the investigator.

- Questionnaire

Keeping in the view of above aims and objectives a questionnaire has been designed on the basis of some previous studies published in the professional journals and professional experience gained by the author himself. The questionnaire was divided into few parts comprising of library background, information infrastructure, library automation, computer based library activities and services, network facility, networking of library, use of E-ail/Internet facilities and manpower development aspects.

- Visit of Library, Direct Observation and Interview of Library Professionals

The author visited various University /Institutional Libraries and noted the facilities and services being offered by these libraries. In some libraries library and information professionals were interviewed for having in-depth information for planning and implementation of library automation and networking project for their respective libraries.

3.2 Scope and Delimitation of Work

The scope of the present work covers mainly the library and information centres associated with libraries of Central / State Universities, Deemed Universities, Agricultural Universities Libraries and the Institutions of National Importance located in North Eastern States of India. The present paper is part of comprehensive research work conducted by the author. The present study has been delimited to the University/Institutional Libraries of North Eastern Region only. Therefore the sample of the study is small which comprises of 15 university/ institutional libraries only.

4. Data Analysis and Interpretation

In the present day of information age every one is taking about Information Technology (IT) and digital resources. Libraries and Information Centres have started using computers for its day to day activities and have also been adopting the state-of- the-art Information Technology for making the library and information services faster and effective. The computerisation of library operations facilitates the easy access to the information, saves the time of the professionals as well as users and avoids duplication of housekeeping operations. But the process of computerisation of library activities needs proper planning, selection of hardware/software, awareness of use of IT among the professionals and users, trained manpower and willingness of the authorities for implementing the automation and networking of library activities.

5. Important Findings

(A) LIBRARY BACKGROUND : INFORMATION TECHNOLOGY

5.1 Types of University/Institutions

- Out of 15 universities /institutions selected for study, 6 universities belong to Central Universities (40 %), 5 are State Universities (33.3 %), and one each (6.7 %) belongs to the Central / State Agricultural Universities, Medical Universities/institutions, IIT, and NIT (erstwhile REC).

5.2 Year of Establishment of University/Institutions

- Maximum 46.7 % universities /institutions have been established during 1991 to recent, which is followed by 40.0 % universities established during 1961-1990. In between 1900 and 1960 only two universities (13.3 %) came into existence.
- The finding suggested that the growth of higher education in North East India during Independence was slower in comparison of post Independence and the rapid growth was recorded during 1961 onwards.

5.3 Distribution of Universities /Institutions in North Eastern States

- Assam is having maximum numbers of universities/institutions (7 = 46.7 %) which is followed by Manipur (2 = 13.3 %) and in remaining six states, only one university/institution (6.7 % each) of higher learning is located

5.4 Status of Air-Conditioning of Library

- 26.7 % university libraries are centrally air conditioned where as the Database Lab/Computer Room of 13.3% % libraries are air-conditioned only and 6.7 % library is partially air-conditioned. Whereas the facility of air-conditioning is not available in 53.3 % university libraries.

5.5 Source of Fund for Computerisation

- For computerisation 66.7 % universities are funded from the INFLIBNET, which is followed by 13.3% universities each, by parent body and ICAR and only 6.7 % from ICMR which shows that INFLIBNET is a major funding agencies for library automation and networking of university libraries of N E Region.

5.6 Year of Commencement of Computerisation of University/Institutional Libraries in North Eastern Region

- In 66.7 % libraries, computerisation has started during 1996-2000, which is followed by 20.0% libraries where computerisation has started during 2001- onward. In only one library computerisation has started during 1980 – 1985.
- During 1986 to 1995 computerisation has not started in these university libraries. The computerisation has been started only after the initiative taken from the INFLIBNET Centre from 1996 onward and the progress is encouraging.

5.7 Status of Computerisation of University /Institutional Libraries in North Eastern Region

- The computerisation has been started in 93.3 % libraries and only one (6.7 %) library has not started computerisation but that library is willing to computerise in near future.
- Survey result shows that out of 15 libraries, only 26.7 % libraries are fully computerised whereas 33.3 % libraries are partially computerised and in 33.3 % libraries computerisation has initiated and only 6.7 % library is willing to start computerisation of library activities and services which indicates that the fully computerised housekeeping operations is still initial stage and in coming future most of the libraries located in North Eastern Region would be fully computerised /automated for day to day transaction.
- Survey results for various library activities shows that out of 15 libraries, 40 % libraries have started computerised Acquisition of reading materials and computerised Cataloguing has started in 80.0 % libraries whereas computerised Serial Control and Library Administration has started in 60.0 % and 66.7 % libraries respectively. Computerised Circulation Services and Financial Transaction has started only in 26.7 % and 20.0 % libraries respectively which is not encouraging and indicates that university libraries located in North Eastern Region have initiated the ground work of computerisation but computer based library services are still in infancy stage.

5.8 Status of E-Mail/Internet Connectivity and Internet Service Providers in North Eastern Region

- Survey result shows that out of 15 libraries, maximum 26.7 % libraries preferred for Internet Service Providers to BSNL for E-mail/ Internet connectivity, followed by 20.0% libraries each which are connected through NICNET and ERNET respectively whereas VSNL is giving E-mail/Internet services to 13.3% libraries
- 6.7 % each is connected through other agencies whereas 6.7 % library is not having E-mail/ Internet connectivity. In fact in 20.0 % libraries, the facility of E-Mail/Internet Connectivity is not available. The library may be accessing E-Mail/Internet facilities from Internet Café.

(B) INFORMATION TECHNOLOGY INFRASTRUCTURE

5.9 Information Technology Infrastructure: Hardware Facilities

Survey results indicate the availability of various Information Technology Infrastructure in the university/ institutional libraries of N E Region, which are given below:

- Minicomputer is found only in only 6.7 % libraries;
- Personal and multi-media computers with CD-ROM drives are available in 93.3 % university/ institutional libraries whereas 80.0 % libraries are having many computers of Server and Nodes configuration;

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- 80.0 % libraries are having facility of additional computer terminals to access In-House Library Databases through OPAC Terminals;
 - Storage capacity wise or speed of processor wise analysis shows that 73.3 % libraries are having Pentium I-IV system whereas only 26.7 % libraries are having old machines like PC 386 and PC 486;
 - Bar Code Generators and Scanners are available in only 40.0 % libraries whereas the CD-NET facility is available only in 33.3% libraries;
 - Gist card for data creation of language collection is available in 73.3 % libraries;
 - Printers are available in more than 60 % libraries. Dot Matrix Printer is available in maximum number of libraries (86.7 %), which is followed by Laser Printer (73.3 %) and Ink-Jet or Desk Jet Printer (60.0 %) libraries.

5.10 Information Technology Infrastructure: Audio-Visual Facility

Audio-Visual Aids are important gadgets for teaching –learning. For accessing Non-Book materials these gadgets are used. Out of 15 libraries:

- Television, VCP/ VCR facility is available in 46.7 % libraries;
- CD/VCD Player and Over Head Projector are found in 53.3 % libraries;
- Microfilm reader, Micro-Slide Projectors and Microfiche and Micro-cards are available in only 13.3 % libraries; and
- Voice-Input Device and Film Projectors are available in 26.7 % libraries.

5.11 Information Technology Infrastructure: Software

- Operating System software and Office Management Software (MS-Office) and Library Application Software is available in 93.3 % university/institutional libraries; Networking software is available in 80.0 % libraries whereas Programming Language Software is available in only 13.3 % libraries.

5.12 Information Communication and Reprographic / Photocopying Facilities

- Telephone and Photocopying facilities are available in all (100.0 %) libraries whereas Reprographic and Telex is available in only 33.3 % and 26.7 % university libraries respectively, Fax, E-Mail and Internet facility is available in 86.7 % university libraries while Teleconferencing Device is available in only 20.0 % libraries.

5.13 Facility of Electronic /Digital Information Resources

Survey result highlights the Electronic/ Digital Information Resources available in libraries under study. Out of 15 university/institutional libraries:

- Only 26.7 % libraries hosted their web sites for displaying information related to university;
- The facility of Audio-Visual Collection is available in 80.0 % libraries whereas access to In-House Databases through OPAC is available in 60.0 % libraries; and
- Non-Book Materials (Electronic/ Digital), Access to CD-ROM Databases and On-Line International or Indian databases is available in 73.3 % libraries.

(C) LIBRARY AND INFORMATION SERVICES

5.14 Status of Manual / Computerised Library and Information Services in University/Institutional Libraries of North Eastern Region

Survey result shows the status of manual and computerised library and information services being offered by the university/institutional libraries of North Eastern Region which indicates the following that out of 15 libraries:

- Inter-Library Loan Services are available in 33.3 % libraries only;
- The facility of Fax, E-mail and Internet Services are available in 86.7 % libraries;
- Bibliographic and On-Line Search Services are available in 60.0 % libraries;
- Reprographics, Photocopying services and Computerised Printing Services are available in 86.7 % libraries;
- CAS and SDI Services are available in 66.7 % libraries;
- Reference Services are available in 73.3 % libraries;
- Abstracting and Indexing Services are available in 46.7 % libraries;
- Consultancy Services are available in 53.3% libraries;
- OPAC Service is available in 53.3% libraries;
- Access to CD-ROM Database Services are available in 66.7 % libraries
- Access to On-Line International Databases is available in only 20.0% libraries.

5.15 Status of On-Line Public Access Catalogue in University /Institutional Libraries

- The facility of OPAC service is available in 60.0 % libraries;
- 40.0 % libraries are having its OPAC connected to Library LAN whereas only in 13.3 % libraries, the OPAC is connected with campus LAN and in 6.7 % library OPAC is connected with Internet;
- Remaining 40.0% libraries are not extending the facility of OPAC service to its reader, which indicates that the concerned libraries have to concentrate on Data Creation Work so that the facility of OPAC may be made available in remaining libraries at the earliest.

5.16 Status of Retro-Conversion in University /Institutional Libraries of North Eastern Region

- The university /institutional libraries of North Eastern Region are also having substantial collection of reading materials which ranges from below 50,000 to more than 200,000;
- University Libraries are creating their In-House databases of Books, Serials, Theses and Reports;
- The survey result reveals that out of 15 libraries, maximum 40.0 % libraries are having documents ranging from 50,001 to 100,000 for retro-conversion which is followed by 26.7 % libraries for 1 to 50,000 documents, 13.3 % libraries for 100,001 to 150,000 documents and 6.7 % each for 150,001 to 200,000 and more than 200,000. While one library 6.7 % has not responded;

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- While creating databases for books, and serials libraries have adopted certain criteria for Retro-conversion. Some libraries have taken current documents or some taken backlog for Retro-Conversion (RC). The Survey result reveals that out of 15 Libraries, 33.3 % libraries have taken current documents (Last 1- 2 years) for RC, which is followed by 20.0 % libraries each for last 3-4, and 5-7 years documents respectively taken for RC whereas 20.0 % libraries have taken more than 8 years old documents for RC and only 6.7 % library has not responded;
 - Survey result indicates that maximum number of libraries have taken current documents for RC.

5.17 Methods Adopted for Data Entry Work

- 53.3 % libraries have appointed part time Data Entry Operator which is followed by 20.0 % libraries which have given the task of Data Creation to the commercial vender on contract basis;
- 13.3 % libraries have appointed permanent Data Entry Operators /Computer Assistant while 6.7 % library has taken the work of data entry both by library staff and on contract basis and only 6.7% library has not responded.

(D) ACCESS TO CD-ROM AND IN-HOUSE AND ON-LINE DATABASES

5.18 Acquisitions of CD-ROM/ Subscription of CD-ROM Databases

- Survey result shows that out of 15 libraries, 60.0 % libraries have acquired or subscribed CD-ROM Databases for their library users whereas 40.0 % libraries are not subscribing the CD-ROM Databases; and
- 40.0 % libraries are acquiring less than 5 number of CD-ROM Databases which is followed by 13.3 % libraries for 5-10 CD-ROM Databases and more than 10 CD-ROM Databases are subscribed by only 6.7 % library.

5.19 Status of Access of In-House and On-Line Databases

- 46.7 % libraries are giving the facility of accessing In-House and On-Line Databases through OPAC and Internet whereas 40.0% libraries are not having such facility of accessing In-house and On-Line databases. While 13.3 % libraries have not responded.

5.20 Access of Services of INFLIBNET by the University/Institutional Libraries of North Eastern Region

- INFLIBNET is providing various types of information services to the academic community of India, which can be accessed from the <http://www.inflibnet.ac.in>. The services offered by the INFLIBNET are Bibliographic Databases Services, CD-ROM Databases Access Services, On-Line Databases Services and most popular Document Delivery Services (DDS). These services are being also utilised by the academic community of North Eastern Region through Internet or other means.
- Survey results shows the access of INFLIBNET Services by the library users of North Eastern Region which indicates that out of 15 libraries, the users of 40.0 % libraries are accessing all services being offered by the INFLIBNET Centre and the library users of 20.0 % libraries each are accessing Document Delivery and Bibliographic Services respectively whereas the library users of 20.0 % libraries are not accessing any services of INFLIBNET.

5.21 Preference of Using Various Databases by the Library Users

- The library users of universities under study have their own preferences for using the various databases available at their locations and at INFLIBNET;
- The survey finding clearly reveals that the library users of 20.0% libraries prefer to use all databases and services being offered by the INFLIBNET;
- Whereas the users of 13.3 % libraries prefer to use CD-ROM Databases, In-House Databases and both CD-ROM and In-House Databases respectively and only 20.0 % libraries have not responded.

5.22 Provision of Computer/ OPAC/CD-ROM Terminals for Library Users

- For accessing Internet, OPAC and CD-ROM and INFLIBNET Databases, library users require additional computer terminals. 80.0 % libraries are providing computer terminals to the library users to access various computer-based services whereas 13.3% libraries are not having such facilities and 6.7 % has not responded.
- The number of computer terminals made available by the libraries to their users for accessing to various databases and services, varies from library to library. The survey finding indicates that 60.0 % libraries are giving less than 4 computer terminals to the users, 13.3 % libraries are giving 5 to 8 computer terminals to their library users, and only 6.7 % is giving maximum numbers of computer terminals (17-20) to the library users whereas 20.0 % libraries have not responded.

5.23 Use of Computer Terminals

- Survey result indicates that 40.0 % libraries are using computer terminals for all purposes like E-Mail/ Internet Services, accessing CD-ROM Databases and OPAC facilities whereas the library users of only 13.3 % libraries each are using computer terminals for E-Mail / Internet services, CD-ROM Databases and E-Mail/ Internet Services, OPAC and CD-ROM Database services respectively and 20.0% libraries have not responded.

5.24 Library Network Facilities

- LAN within library is available only in 33.3 % libraries whereas Campus LAN is available in 26.7 % libraries. Networking of library computers have not started in 40.0 % libraries.

5.24.1 Availability of Networking Device: Hub

- Hub is an important component for connecting library computers in LAN. Survey result reveals that 16 Port Hub is available in maximum number of libraries whereas only 13.3 % libraries each are having 8 port and more than 16 port hub for networking of library computers in LAN. In remaining 40.0 % libraries hub is not available which may be due to that the library has not gone for networking.

5.24.2 Availability of Library Networking Device: Cable

- For library networking (LAN) cable is also an important component. 60.0 % libraries are using various types of cable for LAN whereas 40.0 % Libraries are not networked.
- CAT 5 cable is used by maximum number (40.0 %) of libraries, BMC is used by only 13.3 % libraries and Optic Fibre cable is used by only 6.7 % library.

5.24.3 Numbers of Computer Terminals / Nodes Connected to LAN

- 60.0 % libraries are connected with LAN whereas 40.0 % libraries computers are not connected in LAN.
- In LAN computer terminals or nodes are available for library housekeeping operations and library services. More than 10 terminals are available in 26.6 % libraries whereas less than 10 computer terminals or nodes are available for library operations and services in 33.3 % libraries

(E) HUMAN RESOURCE DEVELOPMENT

5.25 Human Resource Development in IT Environment and Deployment of Employee for Computerisation of Library Services

- For effective utility of computer systems available for library house keeping operations and library services, computer trained workforce is essential for successful running of computer based library services. University libraries are deputing their employees to various training programmes being organised by various agencies like INFLIBNET, DELNET, ILA, IASLIC, NISCAIR, NISSAT, DRTC, university libraries, etc. for acquiring working computer skills. The competent human resources are deployed to different section for smooth running of library activities and services. The university libraries located in North Eastern Region also depute their library employee for such training programme.
- The survey result shows that 80.0 % libraries have deputed their employees for computer training whereas remaining 20.0 % libraries have not initiated such steps for computerisation of library services.

5.25.1 Appointment of Library Employee of Computer Background

- 80.0 % libraries have appointed library staff having working knowledge of computer handling whereas only 20.0 % libraries have not initiated such steps.

5.25.2 Appointment of Information Scientist under INFLIBNET Programme

- Survey result indicates that 46.7 % libraries have already appointed Information Scientist under INFLIBNET Programme.
- 46.5 % libraries are under the process of appointing Information Scientist or System Analyst or person having computer background whereas only one library 6.7 % have not started the process of appointing such category of library personnel.

5.25.3 Number of Computer Professional Appointed

- 66.7 % libraries have appointed computer professionals and remaining 33.3 % libraries have not appointed any computer people for library activities.
- 40.0 % libraries have appointed two computer professionals and 13.3 % libraries appointed only one computer professional whereas 6.7 % libraries each appointed 3 and 4 computer professionals respectively.

5.25.4 Appointment of Part Time Data Entry Operator for Library Automation

- Under INFLIBNET Programme Recurring Grants for Data Support has been provided to each funding university for database creation and library automation activities. For utilizing grants available for data

support, 60.0 % libraries have appointed part time data entry operators whereas 40.0 % libraries have not which may be due to the fact that some libraries other than university have not been included under INFLIBNET Programme.

5.25.5 Number of Appointment of Part Time Data Entry Operator under INFLIBNET Programme

- The number of appointment of part time data entry operators depends upon quantum of work for data conversion and availability of grants. Survey result shows that maximum number of libraries have appointed less than five number of Data Entry Operators and only one library (6.7 %) have appointed more than 5 data entry operators.
- Whereas 40.0 % libraries have not appointed any such category of personnel for automation of library activities.

5.25.6 Involvement of In-House Library Professionals for Data Creation and Computerisation of Library

- The library professionals of 80.0 % libraries are involved in in-house data creation work whereas the library staff of remaining 20.0 % libraries have not deployed their in-house staff for data creation of library records.

5.25.7 Provision of Basic and Advanced Training to Library and Information Professionals Posted in Library

- 53.3 % libraries have deputed their library professionals for attending computer training for less than five times whereas 20.0 % libraries each have deputed their library professionals for 6- 10 and 11-15 times for attending training programmes on computer application in library activities.
- Only one library (6.7 %) has not deputed its staff for computer training.

5.25.8 Number of Library and Information Professionals Trained for I T Application in Library Services/ Library Automation and Networking

- Less than 4 numbers of library professionals are given computer training by 73.3 % libraries and more than 4 number of library professionals are given computer training by 20.0 % libraries for automation of library activities and services whereas only one library has not deputed any staff for such training.

5.25.9 Agencies for Computer Training

- Survey result indicates that INFLIBNET has arranged training for the library and information professionals of 73.3 % libraries and for the remaining 20.0 % libraries, besides INFLIBNET computer training are provided by the other agencies like NISSAT, ILA, and INSDOC (NISCAIR) etc. whereas one library has not responded.
- Therefore INFLIBNET Centre is emerged as a main training centre for IT application in library activities.

5.25.10 Number of Computer Training and Workshop Organised by the University Libraries

- Survey result indicates that out of 15 libraries under study, 80.0 % libraries have organised in-house computer training programme for its library staffs whereas 20.0 % libraries have not arranged any such training programmes for their library staff.

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- Number wise analysis shows that maximum number of libraries (66.7 %) have organised less than 5 training programmes where as only 13.3 % have organised more than 5 training programmes for their library and information professionals.
 - The result indicates that most of the libraries are taking computerisation of library activities seriously and encouraged their staffs by giving necessary computer skills through organising computer training and workshops for implementation of the computerisation of library activities.

6. Problems, Suggestions and Recommendations

While implementing the computerisation programme of library activities and services, various types of problems are encountered. Sinha and Bhattacharjee (2003) have rightly highlighted the important problems in their paper and suggested solutions for implementation of automation and networking of university libraries in North Eastern Region which are relevant to quote here as under:

- Lack of proper guidelines and planning for computerisation of library activities;
- Late implementation of library automation activities;
- Non-availability of latest database server and nodes with high storage capacity;
- Cumbersome purchase procedure for acquisition of computer systems;
- Irregular power supply;
- Non-availability of heavy duty UPS to sustain data entry work
- Lack of qualified professionals for part time data entry work in less remuneration;
- Delay in the appointment of Information Scientist and part time data entry operators under INFLIBNET Programme;
- Regularization of the post of Information Scientist;
- Non-availability of good library application software in low price;
- Lack of compulsory training to other library staff for data creation work;
- Untimely release of fund from the UGC for data support;
- Setting up standardization for Data Creation work;
- Availability of less number of library professionals at senior and junior level.

7. Suggestions for Successful Planning of Automation and Networking of Libraries

Some of the problems which are coming across for automation and networking of university libraries may be common in nature and other university libraries of North Eastern Region might face the problems, which Assam University Library is facing. But we have to accept the challenges for modernisation of university libraries located in the North Eastern Region despite many problems exist in this remote area which other university libraries located in mainland are not facing.

On the basis of the experience acquired during the implementation of automation and networking of library activities and services located in this region, following solutions are suggested which may enhance the implementation of library automation and networking project in limited time. The probable solutions are as follow:

- Before implementation of computerisation of library activities, the respective library should draw a action plan and flow chart for step by step implementation of INFLIBNET Programme

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- Hardware and software (including library application software) should be acquired as per the latest configuration and with high storage capacity;
 - Although INFLIBNET is arranging workshop for senior library professionals for implementation of library automation programme, opinion from the experts who have already computerised the library activities and services, may be taken for successful implementation of the computerisation of library services;
 - Library professionals at senior level should visit computerised library to have better idea of computerisation of library operation and services;
 - As per the guidelines of the INFLIBNET Library Automation and Networking Committee is constituted in each funded university for making policy decisions for early implementation of the INFLIBNET Programme for Library Automation and Networking of Library Services. But it has been observed that in that committee people having little or no knowledge of computer have been included as member whereas Deputy Librarian, Assistant Librarian and Information Scientist are not been included in this committee who are the main component of implementing the programme. Therefore the INFLIBNET and concerned university should think over it to include other library and information professionals as member of Library Automation and Networking Committee so that the library automation programme may be implemented successfully.
 - Easy purchase procedure should be adopted for acquisition of hardware and software so that system with required latest configuration can be purchased for library automation and networking;
 - Irregular power supply should be corrected by installing high capacity 5 KVA or more powerful UPS with stabilizer to sustain data entry work;
 - Remuneration of data entry should be enhanced so that the qualified professionals for part time data entry work may be available from Guwahati/ Shillong or from other neighboring states.
 - UGC / parent university should also made available higher amount for data support or give sanctioned post of data entry operators to each university for implementing the programme successfully;
 - University should appoint Information Scientist and part time data entry operators immediately as the fund under INFLIBNET Programme is available.
 - State University /Central University should take necessary steps for regularization of the post of Information Scientist;
 - User friendly good library application software should be made available either from the concerned university or by the INFLIBNET;
 - Intensive compulsory training to senior library and information professionals as well as other library staff for data creation work should be provided by the university or arranged by the INFLIBNET.
 - Although INFLIBNET has introduced regional training called INFLIBNET Regional Training Programme in library Automation (IRTPLA) for the library professionals working in a particular region, but university is not deputing its library staff compulsorily. Therefore it is suggested that maximum number of library staff should be deputed for attending short and long term training programme being organised by INFLIBNET, INSDOC (NISCAIR), ILA, IASLIC and other university or institutions for giving maximum exposure to work in IT environment.
 - UGC and INFLIBNET should take care of timely release of fund for data support maintenance and salary of Information Scientist; and
 - The Standard for data capturing given by INFLIBNET should be followed strictly and the any change in standard may be communicated to the libraries under the INFLIBNET programme.

Thanks to UGC, which has taken a nice step for merging of INFLIBNET Programme into Non-Plan in Xth Plan period. This steps will certainly encouraged the universities, which are under the process of

implementing the library automation and networking programme. Now the respective university will regularize the post of Information Scientist under Non-Plan Grants and finish the remaining task of implementing the programme and its further maintenance.

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