Status of ICT Applications in the Higher Educational Institutional Libraries of Sikkim: A Preliminary Survey

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Abstract

The Information and Communication Technology (ICT) has played an important role in the library and information centre and changed the concept of libraries. The application of ICT is much essential for libraries and information centres because these centres are carrier of information which is useful for everyone. Use of ICT in library and information centres has become more important in the age of information explosion and widespread use of digital information resources. ICT in libraries helps in performing their routine operations and services most efficiently. Libraries are subscribing e-journals, CD-ROM databases, online databases, web based resources and a variety of other electronic resources for its users and all this is possible with the help of ICT applications. The first part of paper describes about the higher educational institutions and their libraries whereas the second part of the paper highlights the status of ICT infrastructure and computerisation of libraries in the higher educational institutions of Sikkim.

Keywords: ICT Applications, Higher Education-Sikkim, Academic Libraries - Sikkim

1. Introduction

Information technology has changed the human life as seen in our daily life, business, education, research & development, etc. Information technology helps us to transfer electronic data or information from one place to another, one person to another, one organisation to another, one educational institution to another institution across all the boundaries. ICT includes technologies that provide access to information through telecommunications and focuses on communication technologies, i.e., Internet, wireless networks, cell phones, and other communication media. The ICT has played an important role in the library and information centres and changed the concept of libraries. The application of ICT is much essential for libraries and information centres because these centres are carrier of information which is useful for everyone. Use of ICT in library and information centres has become more important in the age of information explosion and widespread use of digital information resources. ICT in libraries helps in performing their routine operations and services most efficiently. Libraries are subscribing e-journals, CD-ROM databases, online databases, web based resources and a variety of other electronic resources for their users and all this is possible with the help of ICT applications.

1.1 Higher Educational Institutions in Sikkim

Sikkim is a landlocked Indian state located in the Himalayan mountains. The state is bordered by Nepal to the west, China's Tibet Autonomous Region to the north and east, and Bhutan to the east. The Indian state of West Bengal lies to the south (http://www.sikkim.gov.in/portal) with the population of 6,19,000 (2012) covering an area of 7,096 km². It is one of the famous tourist destinations of

North-East India. Sikkim has been included as eighth state of the North-Eastern Region of India in 2000.

Sikkim has been growing rapidly in terms of higher educational institutions scattered across the state. Presently, Sikkim is having one central University and four private universities. The Sikkim University (Central University) was established in 2007. The four private universities are, viz. Sikkim Manipal Institute of Medical Sciences; ICFAI University; EIILM University; and Vinayaka Missions Sikkim University.

Besides this, Sikkim is having seven (07) General Degree Colleges, namely, Sikkim Government College, Tadong, Gangtok; Rhenock Government College; Damber Singh College, Gangtok; SHEDA College, Deorali, Gangtok; Palatine College, Pakyong; Government College, Geysing and Namchi Government College, Namchi). There are three (03) B.Ed. Colleges, Government B.Ed. College, Soreng; Harkamaya College of Education and Loyala College of Education, Namchi). There is also one D.I.E.T, Gangtok, one Law College (Sikkim Government Law College, Gangtok), one Pharmacy Institute (Himalayan Pharmacy Institute, Majitar, East Sikkim); and one Industrial Training Institute, Rangpo. In addition to the above, there are six (06) Technical Institutes like CCCT, Chisopani, South Sikkim ; ATTC, Burdang, East Sikkim; Sikkim Manipal Institute of Technology, Rangpo; Institute of Hotel Management and Catering, Gangtok; National Institute of Technology, Ravangla and CAEPHT, Ranipool.

Sikkim Government College, Tadong is the oldest one, established in the year 1970; and Industrial Training Institute, Rangpo the second oldest was established in 1975. Sikkim Manipal University was established in 2004, followed by EIILM University in 2006, and Vinayaka Missions Sikkim University in 2008.

1.2 Uses of ICT for Modernisation of Library and Information Centres

In the academic libraries, ICT applications are used in the major sections of the library for smooth and efficient housekeeping operations. These are:

Acquisition: The impact of ICT in collection development is very prominent in any higher education library. With the help of web, acquisition work has become much simplified. Order placing, duplication checking, price checking, etc. are done effectively using ICT techniques.

Technical: Establishing links to the most frequently used library catalogues help the librarians for authority work. With the help of OPAC, it is now very convenient for the technical staff to assign call numbers to the newly added books. IT has reduced the volume of work done in catalogue card preparation.

OPAC: ICT has revolutionized the practice of cataloguing in the library. With the help of OPAC users access the holdings of the library catalogue at their desktop across the campus. It reduces the cost of maintaining a catalogue.

New Addition Alert Service: Technical section can provide new additions alert service to the users including the staff. List of new additions in the library is compiled and e-mailed to user community regularly. This service has major impact of ICT in technical section.

Circulation: The use of technological devices such as computers, barcode scanners and software in circulation helps in performing the routine operations easily and quickly. Transaction processes of the collections in the library become faster. In ICT environment, the library heavily depends upon telephone, Internet and e-mail for checking availability, reservation and renewal of books.

Reference: Reference section has both, printed and multimedia reference sources. In the reference section, queries are answered through telephone. For ready reference services library staff uses Internet and e-mail facility.

Electronic Information Services: Electronic services are also provided very efficiently with the application of ICT. This section offers following services to the user community:

Online Search/Literature Search :The implementation of ICT has created an environment for searching and retrieving the documents from the databases. The advantages of online searching over manual include speed, accuracy, convenience, accessibility to combine concepts, specific search, modification of search strategy, etc.

CD ROM Search**:** CD-ROMs are another outcome of ICT. In library, CD-ROM databases are increasingly used as an important medium for storage and dissemination of information.

Developing Local Databases**:** Computerized databases provide easy and user friendly access to the information resources**.** Library utilizes ICT for creating and sharing databases of its holdings through CD-ROMs, VCDs and other multimedia resources.

Document Delivery Service: No library can afford to procure every piece of information published across the world because of financial and other constraints. Data exchange between different systems and media such as coaxial cables, satellite communication, etc. have promoted resource sharing among the libraries. ICT has helped in the emergence of various networks in the LIS field.

1.2.1   Advantages of ICT Application in Library Housekeeping Operations

ICT reduces labour and saves a lot of time of the staff and users too. LAN is used to link a variety of different communication devices. LAN provides cost effectiveness in various services. It allows secured resource sharing in the library. Internet and e-mail system enable the students and scholars to access information that is remote and worldwide communication. Professional communication among library and information science societies has become easy with the help of e-mail.

1.2.2   Disadvantages/Limitations of ICT Application in Library Housekeeping   Operations

Impact of ICT also has various problems in online publishing. In case of e-journals and online databases, the library loses their access after stopping the subscription. The publishers do not give access to the issues which were earlier subscribed. Besides these, ICT has following general disadvantages:

- ❖ Expensive
- ❖ Need expertise
- ❖ Socio technical issues
- ❖ Information insecurity
- ❖ More technology dependence
- ❖ Less use of human brain

2. Objectives

The objective of this study is to know the status of ICT infrastructure used in the libraries of higher educational institutions of Sikkim. We have tried to explore following basic aspects related to institutional libraries of Sikkim:

- ❖ To assess the status of ICT application as a tools for the modernisation of libraries;

- ❖ To find out the basic ICT infrastructural facilities available in the libraries of higher educational institutions of Sikkim;

❖ To examine the status of library automation in higher educational institutions libraries; and

❖ To suggest ways and means for improvement of existing information resources and services and implementation of ICT application in libraries of higher educational institutions of Sikkim.

3. Scope and Delimitation of the Study

There are twenty five higher educational institutions in Sikkim which have been included in this study. The study has been further delimited to the status of ICT infrastructure and computerised services in the central university, private universities, government and private colleges of Sikkim state.

4. Literature Review

For the present study, primary as well as secondary sources of information have been examined. For this, efforts have been made to find out the previous works which have already been undertaken in Sikkim or entire North East India and to find out the gaps to explore further. Some of the published papers pertaining to ICT application, library automation and networking, ICT awareness, internet literacy, etc. have been examined and presented in brief as below:

Sinha, Bhattacharjee and Bhattacharjee (2013) in their recent study of college library users of Barak Valley found that majority of users are not aware of N-LIST services but most of the users feel electronic documents are very useful and they find difficulties in reading them due to lack of ICT infrastructure.

Sharma and Mudhol (2011) studied the status of college libraries in Karnal (Haryana) pertaining to the library collection, membership, library finance, networking, automated system, Internet facilities and other library services provided in these libraries. The study is based on the survey of college libraries located in Haryana and presents the ana-

lytical and comparative study of physical infrastructure, ICT facilities, and services.

Sinha (2004, 2010) also studied the status of ICT infrastructure in the 15 university libraries of North-East India, mostly central universities except few state universities. He has discussed the problems faced by the LIS professionals of North-East India for the implementation of the automation project despite full support from the UGC/INFLIBNET which has been regularly imparting training for LIS professionals of North-East India, organising PLAN-NER (The convention for Planning of Library Automation and Networking for North Eastern Region) on regular basis.

Bansal (2010) in his research paper, which deals with emerging ICT to modernize college libraries, pointed out various applications of ICT in library services to meet users' needs in present scenario. Use of ICT is essential to modernize the libraries. He stated very clearly that ICT is beneficial for mechanization of traditional libraries and all their functions. ICT also helps in storing, preserving, retrieving and disseminating information in economical ways to the users. In his paper, he has suggested that applications of ICT in college and academic libraries is growing fast and ICT only helps in removing the barriers of information handling. Modernization of libraries is must and for this purpose ICT is the best tool.

Singh and Pinki (2009), in their paper, highlight the skills required for LIS personnel in technology driven environment. Academic libraries are facing challenges which are arising due to applications of ICT and digital revolution. In the paper, authors discussed the impact of emerging changes in the academic libraries. It is suggested that there is a need to acquire the skills required for the applications of technology. The authors insist that there is a need to acquire new sets of skills to manage technological issues to survive in this technology based environment.

Sinha (2008) has pointed out the scope of ICT applications and Internet use for providing better library services for the users as well as in the library activities in his study. Importance of the ICT is gaining value in the LIS profession due to benefits and there is a need to automate the libraries.

Krosky (2007) in his paper points out that the use of internet and web technology is more popular and these are very helpful in developing academic libraries. He says that the web has changed the face of libraries and even an ordinary user can use it for the global conversation and exchange of views instantly. The net which was used for browsing information, is now used for the sharing of resources also. With the help of new web tools, users are exchanging knowledge and also able to create, collaborate, socialize, and share data with any one at less cost. Social bookmarking is the need of present age to share the data by maintaining repositories on Wikis, building historical and cultural collections through media sharing applications. He is of the opinion that there is a need to develop academic libraries using modern tools and technology.

Kaliammal and Sarasvady (2007) mentioned that several recent initiatives and development programmes offer due importance and focus on providing information and communication technology (ICT) system as an enabler and access to information. From information management view point, we can emphasise that providing information and enabling ICT systems, is a major effort in bridging the gap between knowledge have and knowledge have-not. This is because the ability to use information resides in capacity and capability to create knowledge from such information.

The emergence and application of ICT has changed the nature of libraries; from traditional library system to automated libraries; from automated libraries to digital libraries; from digital libraries to virtual libraries and now the same will ultimately result into 'The Universal Library" in the future. According to

Kawatra, P.S. (2000) " Digital Library is really a transitory phase towards The Universal Library – a vast distributed information and active advice repository accessible from anywhere with an increasing improved indexing, extraction and summarization techniques. It will be a library without walls or national boundaries".

Seetharama (2006) in his paper discusses about the proper exploitation of new technologies in library is no longer a matter of choice but a matter of survival in an era of rapidly changing technology and global knowledge society. Today, the success of a modern library is increasingly dependent on the most effective utilization and strategic management of new technologies in libraries. It is believed that the versatility and power of information technology which includes accommodation of increased workload, achievement of greater efficiency in improving existing services, ability for generation of new services, facilitating cooperation and in providing for an integrated approach without regard to format, location or medium through which it is served, which can light heartedly be called "one-stop information shopping", can stand in good stead in the quest for quality and productivity in information services and products.

5.   Research Methodology And Research Design

The present study was based on the preliminary survey using questionnaire as well as collection of data from the secondary sources of information, i.e., Institutions Websites/Home page, Annual reports, etc. This study is a part of research work being carried out for the Ph.D. research work by the first author and this study is in the initial stage of work. The study covers limited areas of library's collection and services, development of ICT infrastructure, etc. The findings of this study would be helpful in designing the questionnaire and hypothesis for the comprehensive survey of higher learning institutions of Sikkim state.

6. Data Analysis and Interpretation

6.1 Background Information of Colleges/Universities and Institutions

6.1.1   Establishment of the Higher Educational Institutions in Sikkim

There are twenty five higher educational institutions in Sikkim and all of them have excellent libraries attached to them. Complete information about the higher educational institutions, their year of establishment, type and affiliation has been presented in the Table 1.

Table 1: Status of Higher Educational Institutions in Sikkim(N=25)

S. No.	Higher Educational Institutions	Estd.	Status (Government/Private)	Affiliation/ Approval
	Central University			
1.	Sikkim University, Gangtok	2007	Central University	UGC, MHRD
	Private Universities			
2.	ICFAI, University, Gangtok	2004	Private University	UGC
3.	EIILM University, Jorethang, Sikkim	2006	Private University	UGC
4.	Vinayaka Missions Sikkim University	2008	Private University	UGC
5.	Sikkim Manipal Institute of Medical Sciences, Tadong, East Sikkim	2001	Private College	SMU
	State Government Colleges			
6.	D.I.E.T, Gangtok	2003	Government College	HRDD, NCTE
7.	Rhenock Government College, Rhenock	2005	Government College	Sikkim University
8.	Sikkim Government College, Tadong	1972	Government College	Sikkim University
9.	Namchi Government College, Namchi	1996	Government College	Sikkim University
10.	Sanskrit College, Geyzing	1999	State Govt.	Sikkim University
11.	SHEDA College, Deorali	1983	State Govt.	Sikkim University
	Private Colleges			
12.	Damber Singh Degree College, Deorali	1994	Private College	Sikkim University
13.	Palatine College, Pakyong	2004	Private College	Sikkim University
14.	Sikkim Manipal Institute of Technology	1997	Private College	SMU
	B. Ed. Colleges			
15.	Sikkim Govt. B.Ed. College, Soreng	2009	Government College	Sikkim University
16.	Loyala College of Education, Namchi	1997	Private College	Sikkim University
17.	Harkamaya College of Education, Tadong	2003	Private College	Sikkim University
	Government Polytechnic Institutions			
18.	Advanced Technical Training Centre, Bardang, East Sikkim	1999	Government Polytechnic	AICTE
19.	Centre for Computers & Communication Technology, Chisopani, South Sikkim	1999	Government Polytechnic	AICTE
20.	Industrial Training Institute, Rangpo	1975	Government Polytechnic	NCVT
	Technical Institutions			
21.	Himalayan Pharmacy Institute, Majhitar, East Sikkim	2003	Private Institute	Sikkim University
22.	College of Agricultural Engineering and Post – Harvest Technology, Ranipool, Gangtok, Sikkim	1993	Central Government Institution	Central Agriculture University, Imphal
23.	National Institute of Technology	2009	Central Government Institution	MHRD
24.	Institute of Hotel Management, Catering Technology Applied Nutrition, Gangtok	2001	Government Institution	NCHM, New Delhi
	Law College			
25.	Sikkim Government Law College,	1980	Government College	Sikkim University

❖ **Central University:** There is one Central University in Sikkim which has been established in the year of 2007.

❖ **Private Universities:** In the state, there are four private universities which have been established under the state legislative act under the Private University Act.

❖ **State Government Colleges:** There are eight state government funded colleges which have the affiliation with the Sikkim University (Central University). Earlier these institutions were affiliated with North Bengal University, Darjeeling.

❖ **Private Colleges (Self Financed)**: There are seven private colleges which are self financed colleges in Sikkim.

❖ **Agriculture College:** One college which is affiliated with Central Agriculture University, Imphal.

❖ **Government Polytechnics:** There are three polytechnics which are under the state government control and running their diploma level course and also affiliated with AICTE, New Delhi.

❖ **National Institute Technology:** The institution has been established in the year of 2009 which is under control of MHRD, Government of India.

6.2 Year-Wise Distribution of Establishment of Higher Educational Institutions

Data presented in Table 2 shows the number of higher educational institutions, establishment year and affiliating bodies which reveals that most of the institutions came into existence after 1970. Thirteen

of these higher educational institutions were established during 2000 to 2010, which is followed by 08 (32.0 %) higher educational institutions which were established during 1991 to 2000, whereas 04 (16.0 %) institutions were established during 1970 to 1980. The survey findings reveal that maximum number of institutions of higher learning were established during 2001 onwards.

There is only one central university which was established in the year 2007. There are many state government colleges and institutions established by the state, central and private establishment. The details are depicted in Figures 1, 2 and 3.

Table 2: Year Wise Distribution of Establishment of Higher Educational Institutions of Sikkim (N25)

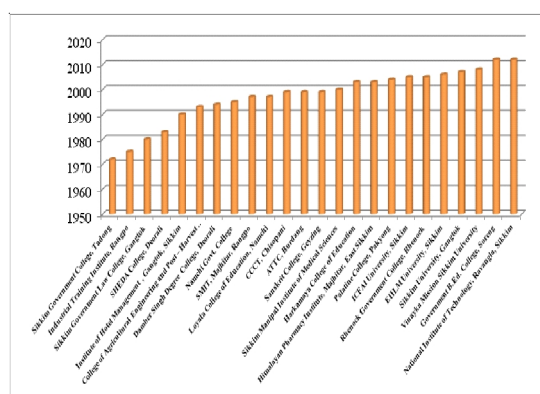| Year of Establishment of Institutions, Colleges, Universities	No.	Percentage (%)
1970-1980	03	12.00
1981-1990	01	4.00
1991-2000	08	32.00
2001-2010	13	52.00
Total	25	100.00

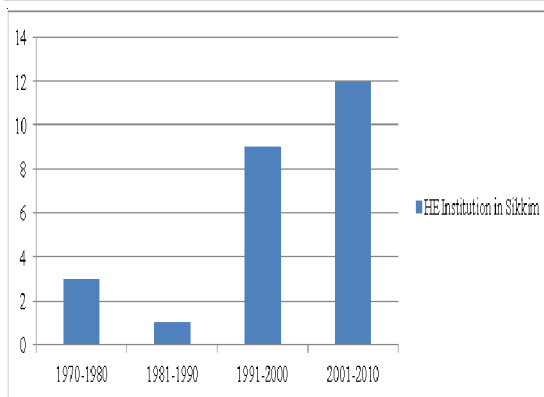**Figure 1 : Year-Wise Growth of Higher Educational Institutions in Sikkim**

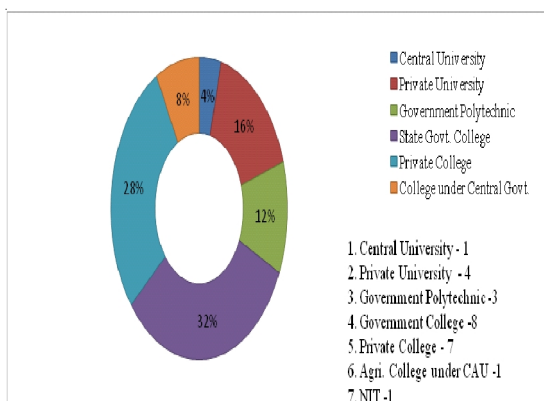**Figure 2: Growth of Higher Education Institutions in a decade in Sikkim**

Figure 3: Types and Number of Higher Educational Institutions in Sikkim

6.3   Library Automation in Libraries of Higher Educational Institutions of Sikkim

The library software plays an important role in the success of ICT in libraries. The computer operating system and networking software indicate the quality and performance of technology being used by the library. Efficient library application software performs the effective operations and procedures of the library, while multi-functional, integrated, modular, and multi-user, multi-security, and user-friendly library software are found more useful to the libraries. (Table 3)

Institution- wise analysis as shown in Table-3 reveals that out of twenty five higher educational institutions in the Sikkim , only twelve institutions are using the library software for their library housekeeping operations. Three institutions have SOUL, four institutions NIT, CCCT, ATTC, CAEPHT are using Libsys, one institution EIILM University is using e-Granthalya, Sikkim University has SLIM-2 with RFID system, Sikkim Manipal Institute of Medical Scieneces & Sikkim Manipal Institute of Technology are using Easylib and two institutions ICFAI and Himalayan Pharmacy Institute are using Library Manager and Vinayaka Missions Sikkim University have their own in-house developed software. There are eleven institutions that have not any library software for their library operation or for library database creation.

Table 3: Institution-wise Status of Library Automation and Availability of Library Software in Higher Education Institutional Libraries of Sikkim (N=25)

Sr. No.	Higher Educational Institutions	Estd.	Library Software	Library Automation Status
1.	Sikkim University, Gangtok	2007	SLIM-21	Fully
2.	D.I.E.T, Gangtok	2003	N/A	N/A
3.	ICFAI, University, Gangtok	2004	Library Manager	Partially
4.	EIILM University, Jorethang, Sikkim	2006	e-Granthalaya	Fully
5.	Vinayaka Missions Sikkim University	2008	In-house	Partially
6.	Rhenock Government College, Rhenock	2005	N/A	N/A
7.	Sikkim Government College, Tadong	1972	SOUL	Partially
8.	Namchi Government College, Namchi	1996	N/A	N/A
9.	Damber Singh Degree College, Deorali	1994	SOUL	Partially
10.	Palatine College, Pakyong	2004	N/A	N/A
11.	Sikkim Manipal Institute of Technology	1997	EasyLib	Fully
12.	Advanced Technical Training Centre, Bardang, East Sikkim	1999	Libsys	Fully
13.	Centre for Computers & Communication Technology, Chisopani, South Sikkim	1999	Libsys	Fully
14.	Industrial Training Institute, Rangpo	1975	N/A	N/A
15.	Himalayan Pharmacy Institute, Majhitar, East Sikkim	2003	Library Manager	Partially
16.	College of Agricultural Engineering and Post – Harvest Technology, Ranipool, Gangtok, Sikkim	1993	Libsys	Fully
17.	National Institute of Technology	2009	Libsys	Fully
18.	Sikkim Manipal Institute of Medical Sciences, Tadong, East Sikkim	2001	Easy Lib	Fully
19.	Loyala College of Education, Namchi	1997	N/A	N/A
20.	Harkamaya College of Education, Tadong	2003	SOUL	Partially
21.	Sikkim Govt. B.Ed. College, Soreng	2009	N/A	N/A
22.	Sikkim Government Law College, Gangtok	1980	N/A	N/A
23.	Institute of Hotel Management, Catering Technology Applied Nutrition, Gangtok	2001	N/A	N/A
24.	Sanskrit College, Geyzing	1999	N/A	N/A
25.	SHEDA College, Deorali	1983	N/A	N/A

Table 4: Status of Library Automation in Higher Educational Institutions of Sikkim (N=25)

Stages of Library Automation	No.	Percentage (%)
Manual / Not Automated	11	44.0
Partially	06	24.00
Fully Automated	08	32.00

Survey findings as depicted in Table 4 show that out of 25 institutions of higher learning, 11 (44.0%) libraries are still not using any library application software for library automation, whereas only 08 (32.0 %) institutions are fully automated and providing computerised library services and 6 (24.0 %) libraries have partially automated their library house-keeping operations (Figure 5).

Table 5: Status of Use of Library Application Software for Library Automation in Higher Educational Institutions of Sikkim (N=25)

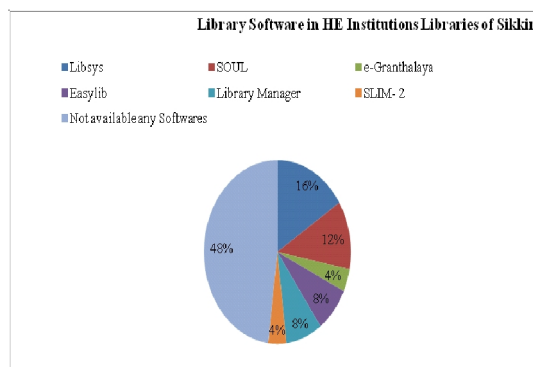| Types of Library Application Software for Library Automation	No.	Percentage (%)
SOUL	03	12.00
Library Manager	02	8.00
Libsys	04	16.00
Easy Lib	02	8.00
E-Granthalya	01	4.00
SLIM-21	01	4.0
In-house Developed Software	01	4.0
Library Application Software not applied	11	44.00
Total	25	100.00

Figure 4: Status of Availability of Library Software in the HE Institutional libraries of Sikkim (N=25)

Survey findings (Table 5) show the type of library application softwares used by the higher educational institutions in Sikkim. The table reveals that out of 25 libraries, maximum number of libraries (4= 16.0%) are using Libsys which is followed by 3 (12.0 %) libraries which are using SOUL and 2 (8.0 %) libraries each are using Library Manager and Easy Lib software whereas 1 (4.0 %) library each is using E-granthalaya, SLIM-21 and in-house developed library application software. Majority of libraries are still not using computers for modernisation of library activities and services.

6.4　Availability of ICT Infrastructure in Library and Information Centres in Sikkim

The survey findings as shown in Table 6 and Table 7 highlight the status of availability of ICT infrastructure in the higher educational institutions in Sikkim.

Table 6: Institution-wise Status of ICT Infrastructure available in the Higher Education Institutional Libraries of Sikkim (N=25)

Sl. No.	Higher Educational Institutions	ICT Applications								
		Computer	Server	Printer	Scanners	Laptop	UPS	Photocopier	LAN	Internet Facility
1.	Sikkim University, Gangtok	13	1	6	3	1	6	1	Yes	Yes
2.	D.I.E.T, Gangtok	1	1	1	1	N/A	1		No	No
3.	ICFAI, University, Gangtok	1	N/A	1	N/A	N/A	1	1	Yes	Yes
4.	EIILM University, Jorethang, Sikkim	7	N/A	1	1	1	1	1	Yes	Yes
5.	Vinayaka Missions Sikkim University	1	N/A		N/A	N/A	N/A	1	Yes	Yes
6.	Rhenock Government College, Rhenock	1	N/A	1	1	N/A	N/A	N/A	No	No
7.	Sikkim Government College, Tadong	7	N/A	1	N/A	N/A	N/A	1	No	No
8.	Namchi Government College, Namchi	1	N/A	1	N/A	N/A	1	N/A	No	No
9.	Damber Singh Degree College, Deorali	1	N/A	1	N/A	N/A	N/A	N/A	Yes	Yes
10.	Palatine College, Pakyong	1	N/A	1	N/A	N/A	N/A	N/A	No	No
11.	Sikkim Manipal Institute of Technology	12	1	5	1	2	5	1	Yes	Yes
12.	Advanced Technical Training Centre, Bardang, East Sikkim	10	N/A	1	1		1	2	Yes	Yes
13.	Centre for Computers & Communication Technology, Chisopani, South Sikkim	13	N/A	1	1	1	1	1	Yes	Yes
14.	Industrial Training Institute, Rangpo	1	N/A		N/A	N/A	N/A	N/A	No	No
15.	Himalayan Pharmacy Institute, Majhitar, East Sikkim	5	N/A	1	N/A	N/A	1	1	Yes	Yes
16.	College of Agricultural Engineering and Post – Harvest Technology, Ranipool, Gangtok, Sikkim	4	N/A	3	1	N/A	3	2	Yes	Yes
17.	National Institute of Technology	5	N/A	2	N/A	1		1	Yes	Yes
18.	Sikkim Manipal Institute of Medical Sciences, Tadong	24	1	2	2	N/A	1	2	Yes	Yes
19.	Loyala College of Education, Namchi	1	N/A	1	N/A	N/A	N/A	1	No	Yes
20.	Harkamaya College of Education, Tadong	4	N/A	1	N/A	N/A	N/A	1	Yes	Yes
21.	Sikkim Govt. B.Ed. College, Soreng	1	N/A	1	1	N/A	N/A	1	No	No
22.	Sikkim Government Law College, Gangtok	1	N/A	1	N/A	N/A	N/A	1	No	No
23.	Institute of Hotel Management, Catering Technology Applied Nutrition, Gangtok	1	N/A	1	N/A	N/A	N/A	N/A	No	Yes
24.	Sanskrit College, Geyzing	1	N/A	1	N/A	N/A		1	No	No
25.	SHEDA College, Deorali	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	No
	Total Frequency of Availability	**96%**	**12%**	**92%**	**40%**	**20%**	**44%**	**72%**	**52%**	**60%**
	Total Frequency of Unavailability	**4%**	**88%**	**8%**	**60%**	**80%**	**56%**	**28%**	**48%**	**40%**

Table 7: Status of ICT Infrastructure available in the Higher Education Institutional Libraries of Sikkim (N=25 for Each Items)

Availability of ICT Infrastructure	No. of Institutions where Items available (%)	No. of Institutions where Items Not Available
Computer (Desktop)	96 .0	4.0
Server	12.0	88.0
Printers	92.0	8.0
Scanner	40.0	60.0
Laptops	20.0	80.0
UPS	44.0	56.0
Photocopier	72.0	28.0
LAN	52.0	48.0
Internet Facility	60.0	40.0

Item-wise details of availability of computers and equipment are shown in Table 7. Computers are available in 96.0 % libraries and printers are available in 92.0 % libraries. Photocopier is available in 72.0 % libraries and Internet facility is available in 60.0 % Libraries.

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7. Discussion, Suggestions and Recommendations

Immediate attention may be given for computerisation of academic, public and special libraries and information centres of this region. Although comprehensive efforts have been taken by INFLIBNET Centre to initiate computerisation, automation and networking of college and university libraries of this region which needs further assistance for strengthening the computer based library and information services provided in school, public, special libraries in the changing scenario of digital era. Some suggestions and recommendations are:

❖ To bridge the gap of digital divide from academic to public, rural to urban population for extending equal opportunity to all for having desired information to various communities of the society at large, the digitisation process needs to be initiated to capture all indigenous knowledge available in the different communities of North Eastern Region ;

❖ For accessing to w-resources/web resources bandwidth should be increased and appropriate ICT infrastructure should be developed in the school, college, university, technical institutions, polytechnic institutions, public libraries should be developed to meet the changing needs of user demands for making citizenry conscious towards education for all and making them 100 % literate to make India a Knowledge Superpower by 2020.

❖ Databases of resources in local languages should be developed to meet the information needs of the indigenous population of different traditions and culture available in North Eastern States;

❖ Manpower training is essential to handle the modern computer based library and information services, therefore, regular user awareness programmes/training for access to e-resources should be organised by CRL/National Library/ INFLIBNET Centre and other professional bodies like IASLIC, ILA, etc. in collaboration with the university and institutional libraries.

8. Conclusion

Implementation of ICT in libraries is going to change the whole environment of the libraries and their users. ICT Infrastructure in the libraries of Sikkim is in the developing stage. However, lack in the infrastructure, proper planning and supervision and frequent change in ICT are the basic hurdles in successful development of ICT infrastructure in higher educational institutional libraries of Sikkim. Libraries should have high speed network and provide more computers with Internet connectivity to library users. Library automation and the use of barcode or RFID technology may bring about revolutionary useful changes in the libraries.

The Sikkim Government should take steps to enact library legislation for the proper development of the school, college and public libraries. LIS professionals working in Sikkim should come forward and join hands with LIS professionals of other North-Eastern States and rest of the country for overall development of the library services in the Himalayan State of Sikkim.

There is lot of opportunity to work for the development of the academic, public and special libraries of Sikkim. There is a need to establish a Regional Library Network of North-East States where all the N E States including Sikkim may take part and excel in the area of library and information profession.

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