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A SCENARIO OF SPECIAL LIBRARIES AND ICT APPLICATION IN THE STATE OF ASSAM: A STUDY

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ABSTRACT: *Computing technology, communication technology and mass storage technology are some of the areas of continuous development that reshape the way libraries access, retrieve, store, manipulate and disseminate information to users. ICT has impacted on every sphere of Special library services. ICT has brought unrivalled changes and transformation to library services, in accordance with LIS such as OPAC, user services, reference services, bibliographic services, current awareness service, document delivery service, inter library loan, audio visual service and users requirement can be provided more efficiently and effectively using ICT, as they provide convenient time, place, cost effectiveness, faster and most-up-to-date dissemination.*

Keywords: Information and Communication Technologies (ICT), Special Library, Library services, Assam.

INTRODUCTION:

Special library movement started in the beginning of last century when it was felt that neither academic nor public libraries could satisfy the information need of groups of people working in very specific areas. A special library is a library that provides specialized information resources on a particular subject. Its clientele are specialized and limited and the library delivers specialized services to its user promptly on demand or on anticipation. These libraries are attached to an institution which is working for a particular goal and hence the library works towards fulfillment of the institutional goal as an important organ of the parent institution. It is stated that a special library is not a separate entity, but exists as an integral part of a highly specialized kind of organization whether it be an industrial organization, research or service institution, a trade organization, a government agency or a museum [1].

In a special library environment the users are highly qualified in specific areas of their work. While doing their job they are in need of very specific piece of latest information. Therefore, most of their information requirements are from reference books, hand books, journals, standards, patents, reports, maps, diagrams, state-of-the-art-reports, etc which are generally not in much demand in other types of libraries. These forms of documents are costly and rare and therefore these libraries use to spend huge annual budget for procurement of documents unlike other libraries. Further, these specialized documents may be in various forms, language etc.

In the 21st century, the libraries have started applying technological facilities available in a larger way as it shows prospects in managing the libraries more efficiently. Information Communication Technology has added a wing to the library services. Side by side publication industries globally started to publish their documents in electronic form in a big way. According to an estimate in USA itself 23% of books published in 2016 are in electronic form [3].Electronic journal become much more wide spread and very much important resources in the present century. Since, users of any special library mostly

depend on journals for information none of them can afford to avoid subscribing to e-journals [4].

Although special libraries generally have huge budget for procurement yet no library can be self-sufficient and can satisfy its clientele cent percent. Demand of information in special libraries attached to R&D organization are mostly from journals published from the country and abroad and library use to spend major portion of its annual budget in acquiring journals. Still there is big gap always exists between demand and supply due to the limitation of budget. Therefore these libraries should evaluate its collection from the point of view of uses so that it can avoid spending limited budgetary resources for unused journals. One of the authors earlier therefore tried to evaluate the current list of journals at NEIST (then RRL, Jorhat) library and was successful in eliminating unused / less used journals so as to accommodate new journals demanded by the users within the available budgetary resource [5]. Works of bibliometric analysis were already reported where it has been tried by various workers to bring out ranked list of journals in core areas of research so that library authority may get help in selecting journals to the library within the available budgetary resources and increase percentage of satisfaction of its users from the available collection of the library [6-8]. Acquiring electronic journals has become more critical than print only when both are not affordable for libraries due to limitation of budget [9]. But these libraries cannot avoid acquiring e-resources as the user community of the present century prefers using documents in electronic form .Seventy five percent readers enjoy the convenience of having a device that can comfortably fit in their hand, weigh as little as 8 ounces, and yet carry the equivalent of 1,000 plus books wherever they go [10].

As there is always exists a big gap between journals subscribed by the library and journals required by the users due to constraints of budget, regular increase in subscription and also regular increase of foreign exchange rates. Journals are basic input for R&D work and they are increasing three folds every 15 years[2]. Costs of journals in the last twenty years have increased 226% in terms of dollars which may be further compounded by currency conversion. The budget of libraries to acquire all such information resources also has increased by 110% during the same period but vis-a-vis the cost escalation of journals, there is a substantial mismatch of 116% (226% -110% = 116%) which has constantly been causing reduction in journals information base of the special libraries of R&D institutions. Making matters further complicated is the ever increasing number of R&D journals, R&D workers, new disciplines, institutions and global competition[11]. Tobridge the gap between these two the concept of resource sharing has come into existence.

Information and Communication Technology (ICT) have brought significant changes to our day to day life. Today we are living in the information age. Information plays an important role in economic and social development of our society. The amount of valued literature is being published at a greater pace. So, applications of ICT in libraries have become the most important issues now. The special libraries in Indian have been preparing themselves on a corporate basis; a platform for ICT based information services. The internet has transformed the ways and means of information services. Breaking the distance barrier, internet has emerged as a boon to the information seekers as well as libraries. It has become popular, easy to use and inexpensive teaching and search tool.

According to S.R. Ranganathan, the growth of library is synonymously associated with the size of the library which has a great impact in the libraries in the ICT environment. The emerging Information, Communication & Technologies (ICT) have brought many changes in

the libraries. These technologies have facilitated LIS professionals to work together to acquire and share and provide better services to the user community. As a result, ICT is gaining increased attention in the service computing community. Library services in general and a reference and information service in particular refers to be personal assistance provided to users in pursuit of information. The reference and information services, provided to the library users may be categorized into three broad groups:

- Information services that involve either finding the required information on behalf of the users, or assisting users in finding information.
- Instruction on the use of library resources and services; and
- User guidance, in which users are guided in selecting the most appropriate information sources and services.

The increasing availability of electronic information sources, emergence of web based digital libraries and use of desktop based search tools and agents have changed the notion of traditional reference and information services. The whole array of Information and Communication Technology (ICT) enabled services are:

- ➢ Database search services.
- ➢ Bibliographic databases
- ➢ Full text retrieval
- ➢ Referral databases.
- ➢ Online database services.
- ➢ CD- ROM database services.

In India, one of the most important steps that need to be taken is to digitize education in order to expand it, make it more accessible thereby reaching a large mass of students. Using ICT related technologies in every sector is to turn our nation into a knowledge society. Developing a strong inventory of various disciplines in the areas of digital learning in both education and administrationsuch as improving teacher's training and course curriculum, digitization of libraries, coaching teacher's, helping students and encouraging them to complement their traditional teaching methodologies with ICT based learning and developing and implementing, monitoring and ensuring the success of e-governance for education.

The computers have now become an integral part of our everyday life. They are used everywhere from industry to business, media to communications, schools to colleges to universities and where not. The recent advancement in communication & technologies has made tremendous changes in Library and Information science. The Library is an important component of any educational institution and organization. All traditional operations of Libraries are gradually shifting towards digitization. New issues like automation, digitization, networking, internet, multimedia, etc. are gradually coming up.

During the last decade the discussion about changes in special libraries focuses most frequently on the automation of the library mainly information and communication technology (ICT) developments, the implications of information in Digital format, new learning and teaching concepts, new economic models legal frameworks.

It is believed that ICT offers librarians opportunities to redefine how information and associated instruction are communicated to students and faculty. As information systems increase in complexity and new resources continue to spring up. Librarians are becoming indispensible counselors in the electronic environment. They are called upon to assist faculty

and students in identifying and evaluating many sources and to serve as true advisors and teachers independently of time and place rather than as custodians of collection.

IMPACT OF ICT IN THE DEVELOPMENT OF LIBRARY SERVICES:

ICT is basically uses in the following library environment:

- **Library management:** The activities of Classification, Cataloguing, Indexing, Database Creation, Database Indexing, etc. are done by the use of ICT.
- **Library automation:** Automating a library reduces the human intervention in all the library services, so that any user can receive the desired information with the maximum comfort and at the lowest cost. Major areas of the automation can be classified into two parts organization of all library database and housekeeping operations of library.
- **Library Networking:** Library networking means a group of libraries and information centers are interconnected for some common pattern or design for information exchange and communication with a view to improve efficiency.
- **Audio-Video Technology:** It includes photography, microfilms, microfiches, audio and tapes, printing, optical disk, etc.
- **Technical communication**: Technical communication consisting of technical writing, editing, publishing, DTP systems, etc.

Today libraries are uses various types of electronic equipment and communication technologies to ensure the smoothness of library activities. Some of the common resources available in the libraries are:

Computers: Computer based technology have become dominant forces to shape and reshape the products and services of the library has to offer.

OPAC: An online public access catalogue of the materials held by a library or group of libraries.

Union catalogue: It is a combine library catalogue describing the collections of a number of libraries. Union catalogue have been created in a range of media including book format, microform, cards and more recently networked electronic databases.

CD-ROM: It presents a state of art review of the applications of all aspects of library involvement and staffing implications.

Scanner: It is a device that optically scanned images, printed texts, handwriting, or an object and converts it to a digital image.

RFID: Radio frequency identification is a term used for technologies utilizing radio waves for identifying individual items automatically. RFID is used very similar to barcodes.

Tele text: It is a television information retrieval service developed in the United Kingdom in the early 1970s. It offers a range of text based information, typically including national, international, and sporting news, weather and TV schedules.

Facsimile: It is a copy of reproduction of an old book, manuscript, map, art, or other item of historical value that is a true of the original source as possible.

Photocopy: photocopier is a machine that makes paper copies of documents and other visual images quickly and cheaply. Xerography is the most current photocopiers widely used in libraries today.

Printing Technology: In computing, a printer is peripheral which produces a text and/or graphics of documents stored in electronic form, usually on physical print media such as paper or transparencies.

Barcode: A barcode reader or Barcode scanner is an electronic device for reading printed barcodes.

Following are some of the services provided through ICT in the libraries:

Document delivery services: Through this service, library delivers copies of journal articles and book chapters from participating libraries.

Inter library loan: It is a comparative arrangement among libraries by which one library may borrow materials from another library.

Indexing and abstracting services: It is a method which is used to retrieve information from a table in memory or a file on a direct access store or the art of compiling an index. The preparation of abstracts, usually in a limited field, by an individual, an industrial organization, and these are being published and supplied regularly to subscribe.

Chat services: Online chat may refer any kind of communication over the internet. Online chat may address as well point to point communication as well as multicast communications from one sender to many receivers.

CAS: The purpose of the current awareness services to inform the users about new acquisition in their libraries. For this display boards and shelves are used. Some libraries produce complete or selective lists for circulation to patrons.

SDI: SDI refers to tools and resources used to keep a user informed of new resources on specified topics.

Scanned Copies: A scanning service for material not available electronically, which is held by the library. This includes articles from journals, chapters from books, manuscripts, survey reports, etc.

Bulletin board services: It is a computer system running software that allows users to connect and login to the system using a terminal. Once logged in, a user can perform functions such as uploading and downloading software and data, reading news and bulletins and exchanging massages with other users.

Electronic services and E-resources: these are mainly CD_ROM, OPACs, E-journals, E-books, ETD and internet which are replacing the print media. These are found to be less expensive and more useful for easy access.

Digital Library: A digital library in which collections are stored in digital formats and accessible by computers. Digital contents may be stored locallyor remotely via computer networks.

Some other electronic sources provided by ICT:

Audiovisual materials: This collection contains a wide range of audiovisual materials to support the research and study needs of staff, researchers and students.

Internet: Through internet communication has become easier and faster and decision are made instantaneously. Internet made it easier to have access to information to all people at all places and at all the times.

Library website: It helps to recognize the facilities and information sources available in the library and integrate the services to one platform.
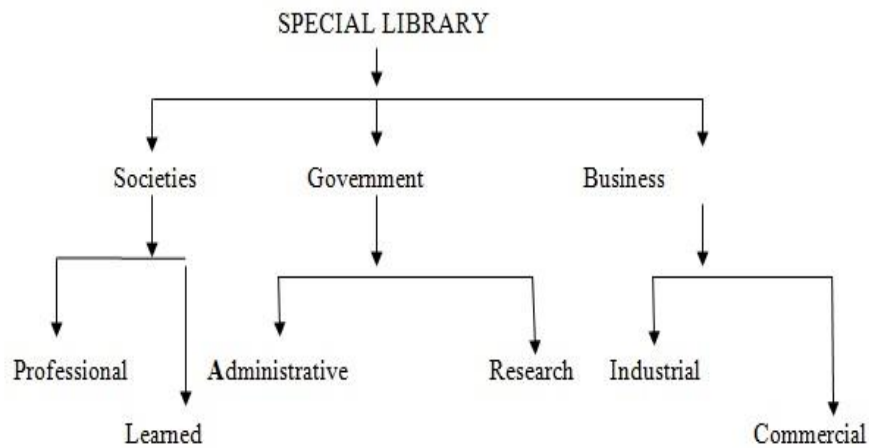
Database: Database is an organized collection of data for one or more purposes, usually in digital form. The data are typically organized to model relevant aspects of reality, in away that supports process requiring the information.

These days nobody can deny the impact of ICT in library services. Now a day's ICT is playing a significant role in the library system because:

- It can provide library users a speedy access of Information.
- Access to unlimited information from different sources.
- It can also help to provide Electronic document delivery service.
- Web access of OPAC is only possible in ICT environment.
- Online reader's advisory services also possible through ICT.
- Provides large number of storage capacity.
- To reduce chance of redundancy.
- Through ICT sharing of Information made easier.

STUDY AREA WHERE REQUIRED:

The present study is confined to all types of central and state government special libraries of Assam. The state and central govt. special libraries are a huge concern in the state of Assam.A special library serves the specialist located within a single establishment or group and all are engaged in working towards one common purpose. They are expected to provide specific information on request from their users. A special library can be categorized as the following because of their areas covered and its different types in present day information area.

```
                    SPECIAL LIBRARY
                          |
                          v
        +-----------------+-----------------+
        v                 v                 v
    Societies         Government         Business
        |                 |                 |
        v                 v                 v
   +---------+      +-----------+    +-----------+
   v         |      v           v    v           v
Professional |  Administrative Research Industrial |
             v                                      v
          Learned                              Commercial
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There are vast numbers of special libraries in all over Assam which have been included in this study. The study has been further delimited to the status of ICT infrastructure and computerized services in the particular area of Special Libraries in Assam. There are approx 70(seventy) number of special libraries under the categories of organization like- Humanities, Social sciences, Science & Technology. Among them 17 (seventeen) numbers of special libraries have taken for the systematic study (table-1).

Table -1 Special libraries of Assam selected for the present study

Sl. no.	Name of The Institute	Year of Establishment	Name of the Library	Place
1.	Assam Legislative Assembly (ALA)	1937	ALA Library	Guwahati
2.	Assam State Museum	1940	Ananda Chandra Agarwala Library	Guwahati
3.	The Institute of Advanced Study in Science & Technology (IASST)	1979	Knowledge Resource Centre	Guwahati
4.	National Institute of Rural Development &Panchayati Raj (NIRDPR)	1983	NIRDP Library	Khanapara, Guwahati
5.	Gauhati High Court	1948	Judges' library	Guwahati
6.	Indian Council of Forestry Research and Education (ICFRE)	1988	RFRI Library	Jorhat
7.	Tata Institute of Social Science (TISS)	2012	TISS library	Guwahati
8.	Indian Institute of Bank Management (IIBM)	1982	IIBM Library	Khanapara, Guwahati
9.	North East Institute of Science & Technology (NEIST)	1961	Knowledge Resource Centre	Joraht
10.	Toklai Experimental Station of Tea research Association (TRA)	1911	Toklai Experimental Station Library	Jorhat
11.	Assam Institute of Research for ST &Sc.	1977	AIR ST & SC Library	Khanapara, Guwahati
12.	National Institute of Public Co-Operation & Child Development (NIPCCD)	1978	NIPCCD RCG Library	Khanapara, Guwahati
13.	Indian Institute of Entrepreneurship (IIE)	1994	IIE Library	Guwahati
14.	Institute of PLASMA physics	1991	PLASMA Physics Library	Guwahati
15.	Department of Historical & Antiquarian Studies (DHAS)	1928	DHAS Library	Guwahati
16.	Central Institute Of Plastic Engineering and Technology (CIPET)	1999	CIPET Library	Guwahati
17.	Assam Science, Technology and Environment Council (ASTEC).	1987	ASTEC AEDA	Guwahati

OBJECTIVES:

Through the present study it was intended to access availability of information sources in the library, services provided to the users, degree of application of ICT infrastructures to make the library services useful to the user community and their satisfaction there on.

METHODOLOGY:

The present study was based on the survey using schedule, questionnaire, observation and conducting interview as well as collection of data from the secondary sources of information, i.e. Institution's Websites/Home page, Annual reports, etc. The study covers limited areas of library's collection and services, development of ICT infrastructure, status of library automation etc.

DATA ANALYSIS:

For the present study seventeen Special libraries have been surveyed and collected different information and data related to the effectiveness of ICT application towards the development of library services. Data are organized in a tabular form and analyzed below. In the tabular form, institution names wereabbreviated for convenience.

For providing efficient library services, the library must have good infrastructural resources and facilities. Man power is one of such important resource. Through the present survey it is seen that in most of the special libraries do not have sufficient man power. In some cases the available man power are also not professionally qualified. In ASTEC library, NIRDP library a grade four person is running the library without any other staff. Similarly in the oldest special library of Assam, Toklai Experimental Station Library is running by a person with PG degree in mass communication. Others are also found to be under staffed to provide efficient library services.This hampers the working and the services to be impacted by the special libraries. Further, it is also seen that, due to under staff these special libraries mostly could not provide adequate library services to their users.

Library personnel

Table -2 shows about the library personnel. From the Table it is observed that in all the libraries surveyed professional staffs are less. Most of the libraries are operated by one professional with one or two non-professionals. And some of the libraries even don't have professional staff, among them Ananda Chandra Agarwala Library of Assam State Museum, NIRDP Library, ASTEC, Toklai Tea Research Centre Library are found. Because to run a library properly its staff should aware about library science and well trained about library.

Table -2: library personnel

SL NO	Name of the Library	LIBRARY PERSONNEL		Qualification
		Total No	Designation of Staff	
1	ALA Library	10	NA	NA
2	Ananda Chandra Agarwala Library	3	Library cum Publication Officer, Jr. Asstt& Library Bearer	B.A, B.A & HSSLC
3	Judges' Library	10	Asst. Librarian(1), Library Asst.(2), Current Attendant(5), Librarian(0)	NIL
4	Knowledge Resource Centre(IASST)	5	Asst. Librarian(1), Library Asst.(1)	(MLISC,), NIL M.Phil, PhD.
5	NIRDP Library	2	In Charge. Asst. Administration Librarian(1), MTS	HSLC
6	TISS Library	6	Librarian(1), Asst. Librarian(1), Library Asst.(NA) & Library Bearer	NIL, MLISC, MLISC & NIL
7	IIBM Library	2	Asst. Librarian(1) & Attendant(1)	Ph.D& HSLC
8	NIPCCD RCG	2	Asst. Librarian(1) & MTS(1)	MLISC & NIL

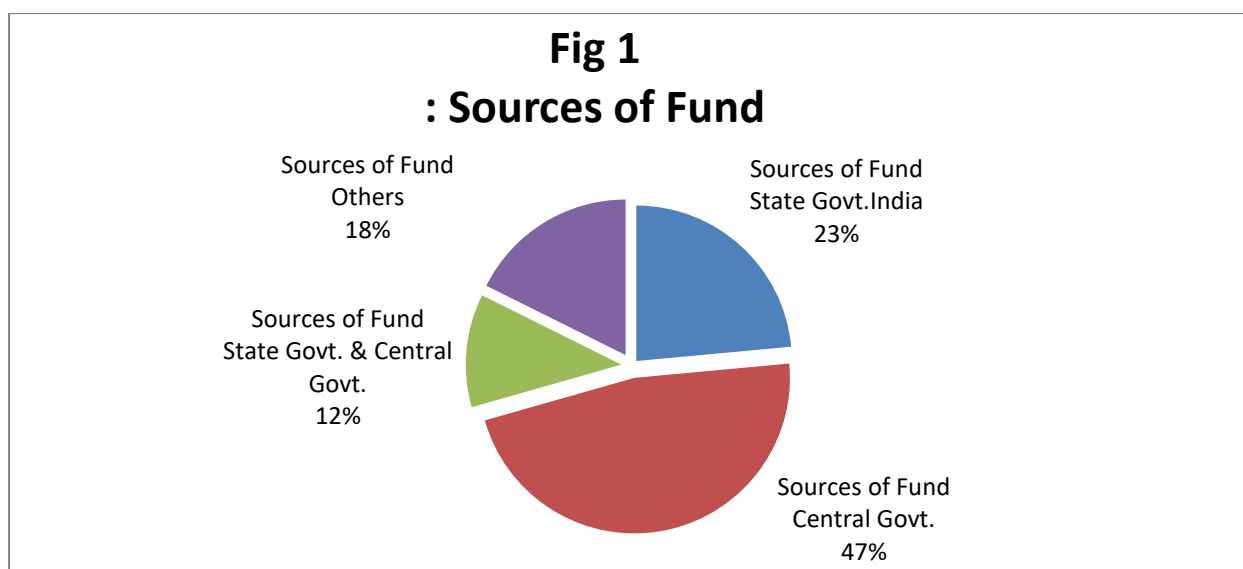				
	Library			
9	IIE Library	4	Librarian, Asst. Librarian & Other Staff(2)	MLISC, MLISC & NIL
10	DHAS Library	4	Asst. Librarian & Bearer(2)	MLISC & NIL
11	ASTEC/AEDA	1	Peon	Under Metric
12	CIPET Digital Library	3	Librarian, Professor. In Charge. & Helper	BLISC, Ph.D& HS
13	Institute of PLASMA Physics Library	1	Asst. Librarian	MLISC
14	Directorate of AIR ST & SC Library	3	Librarian(1) & NA	MLISC
15	RFRI Library	4	Library Information Asst.(3) & Bearer(1)	MLISC(All) & NA
16	Knowledge Resource Centre(NEIST)	4	Technical Asstt 1 Technician 1 Library bearer 2	MLIS BLIS HSLC
17	Toklai Experimental Station Library	3	Library Cum Information Officer., Senior Asst. & Attendant	(M.A, Mass Com), (B.A, PGDCA) & 7th Standard

Sources of fund

Finance is the backbone of any library. Special libraries need regular flow of fund for its collection development program. They generally spends major portion of their annual budget in acquiring journals / serials. Apart from that they also acquire different kind of documents from across the globe on demand by its users. The special libraries under the present study get their library funds from a mixture of local, state, federal and other sources. While the majority of funds for libraries come from state, and local sources, federal funding provides critical assistance, giving libraries across the country the financial support they need to serve their communities.Special libraries are having a special attention, therefore investment of the sources of fund which play a vital role in making the libraries globalized. Libraries can earn its fund from different sources such as fee, gifts, donations, fines, UGC funds, etc. and the aid provided by the Government. In the table -3 Different sources of fund of Special libraries have been found.

Table -3: Sources of fund received by special libraries under study

Sl.No.	Name Of The Institution	Name of The Libraries	Sources of Fund
1	Assam Legislative Assembly	ALA Library	central govt. India& state govt. grant
2	Assam State Museum	Ananda Chandra Agarwala Library	state govt. grant
3	Gauhati High Court	Judges' Library	state govt. grant
4	The Institute of Advanced Study in Science & Technology (IASST)	Knowledge Resource Centre	central govt. India

5	National Institute of Rural Development &Panchayati Raj (NIRDPR)	NIRDP Library	central govt. India
6	Tata Institute of Social Science (TISS)	TISS Library	UGC & Gifts
7	Indian Institute of Bank Management (IIBM)	IIBM Library	Banks' Special
8	National Institute of Public Co-Operation & Child Development (NIPCCD)	NIPCCD RCG Library	central govt. India
9	Indian Institute of Entrepreneurship (IIE)	IIE Library	central govt. India
10	Department of Historical & Antiquarian Studies (DHAS)	DHAS Library	state govt. grant
11	Assam Science, Technology and Environment Council (ASTEC)	ASTEC/AEDA	state govt. grant
12	Central Institute Of Plastic Engineering and Technology (CIPET)	CIPET Digital Library	Library fee
13	Institute of PLASMA Physics	Institute of PLASMA Physics Library	central govt. India
14	Assam Institute of Research for ST & SC	Directorate of AIR ST & SC Library	central govt. India & state govt. grant
15	Indian Council of Forestry Research and Education (ICFRE)	RFRI Library	central govt. India
16	North East Institute of Science & Technology (NEIST)	Knowledge Resource Centre	central govt. India
17	Toklai Tea Research Institute	Toklai Tea Research Institute Library	central govt. India & others

Fig 1 : Sources of Fund

Sources of Fund Others 18%

Sources of Fund State Govt.India 23%

Sources of Fund State Govt. & Central Govt. 12%

Sources of Fund Central Govt. 47%

In the list of Special libraries as mentioned in the Table-3 and fig-1, 47% of libraries collect funds from Central Government, such as Knowledge Resource Centre (IASST), NIRDP Library, NIPCCD RCG Library, IIE Library, RFRI Library, Institute of PLASMA Physics Library, Knowledge Resource Centre (NEIST) and Toklai Experimental Station Library. Toklai Experimental Station library acquire current journals on exchange of their

own publications, namely, Two & a Bud, Tea encyclopedia, Memorandums, etc. 23% libraries collect fund from State Government, such as Ananda Chandra Agarwala Library, Judge's Library, DHAS Library and ASTEC/AEDA, Whereas two library collects fund from both central and state government, namely Assam Legislative Assembly Library and Directorate of AIR ST & SC Library. And some of the libraries collect fund from library fee, UGC fund and gifts. As an autonomous institute IIBM Library collects its funds from eight sponsored banks. Table 4 below shows the volume of budget of the libraries under study for a particular year.

Library budget

Budget of the library must increase at least by 10% every year so as to enable them to meet the ever increasing cost of documents it acquires. Particularly a special library in S&T mostly acquire foreign journals which are very costly due to two factors, viz, increase of publisher's price and increase of foreign exchange rates. The pattern of increase of budget of KRC NEIST, during 2012 to 2016 is shown in table-5 below.

Table -4: Budget for 2012 in special libraries:

Table-4: Budget 2012 (Rs. In lakhs)	
Library	Budget
ALA	-
ACA	-
JL	-
KRC(IASST)	13.00
NIRDP	15.25
TISS	-
IIBM	15.90
NIPCCD RCG	2.88
IIE	18.32
DHAS	7.00
ASTEC/AEDA	3.00
CIPET	-
PLASMA	4.35
AIR ST & SC	24.65
RFRI	7.26
KRC(NEIST)	78.00
Toklai	-

Table-5: Annual budget of KRC, NEIST during 2012-2016 and proportionof expenditure in journal subscription

Years	Total budget (Rs. in lakhs)	Amount spend for subscription of journals (Rs. in lakhs)
2012	78.00	72.05
2013	86.00	81.00
2014	95.00	89.50
2015	100.00	95.00

2016	110.00	102.50

Participation in consortium for enhancing resource base by libraries

It is seen that due to the ever increasing cost of resources from the beginning of 21st century the concept of consortium have come into existence. In India there are various consortium being run successfully by different organizations. Some of them are furnish bellow-

- Council for Scientific and Industrial Research (CSIR) e-journal.
- FORSA (The Forum for Resource Sharing in Astronomy & Astrophysics)
- HELINET (Health Sciences Library & Information Network).
- UGC INFONET e-Journal consortium.
- UGC INDEST Consortium.
- IIM (The Indian Institute of Management).
- N-LIST (National Library & Information Service Infrastructure for Scholarly Content).
- E- Shodhsindhu etc.

Table-6 and fig: 2 below shows that43% libraries are participating in consortium. Among the libraries selected for study KRC (NEIST) has been participated in CSIR E-Journal Consortium, KRC (IASST) has been participated in NKRC and TISS library has been participated in Shodhganga. 28% libraries get available documents from consortium. 29%

Category	No. of the Libraries	Percentage (%)
1.Participation in consortium	3	43%
2. Documents available from consortium	2	28%
3.Library share budget with consortium for getting access to e-documents….(Y/N)	2	29%

libraries share budget with consortium for getting access to e-documents.

Table-6: Status of Consortium in the libraries selected


Fig:2
STATUS OF CONSORTIUM
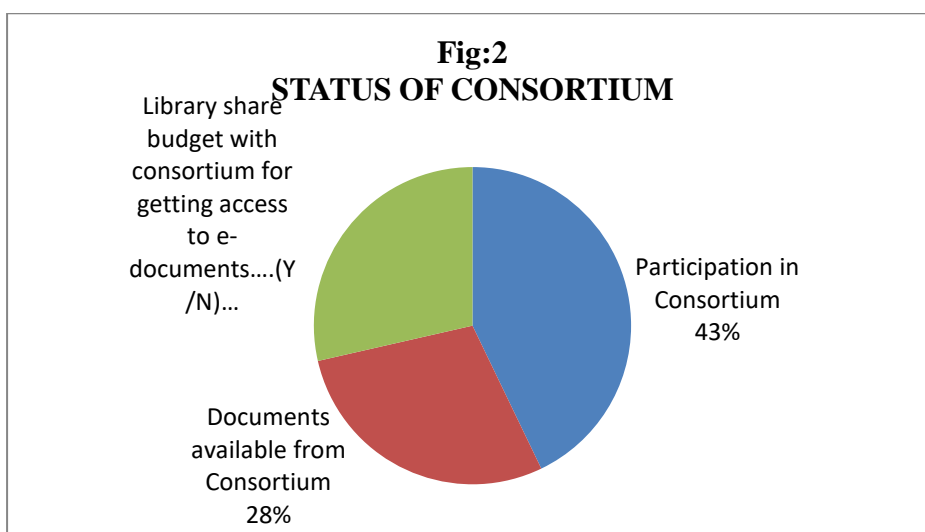
Library Services:

Table -7 and fig: 3 below shows the services provided in the respected libraries. The services which are mostly offered in libraries are Circulation Service (82%), Reprographic Service (65%), Bibliographic Service (76%), CAS (65%), SDI (71%), Documentation Service (65%) and Internet Service (65%). Indexing/Abstracting service (47%) is offered by few libraries. Inter Library Loan service (35%) is also provided by some of the libraries when it is required. OPAC (41%) facility is also there in some libraries. A very few number of libraries offered translation service (24%), such as Knowledge Resource Centre (IASST), IIBM library, NIPCCD RCG library and DHAS library.

Table-7: Library Services

No. of Libraries	CAS	SDI	ILL	OPAC	Reprographic	Circulation	Bibliographic	Translation	Documentation	Internet	Indexing/Abstracting	Lending
17	11 (65%)	12 (71%)	6 (35%)	7 (41%)	11 (65%)	14 (82%)	13 (76%)	4 (24%)	11 (65%)	11 (65%)	8 (47%)	4 (24%)

fig: 3 Library services

	No. of Libraries	CAS	SDI	ILL	OPAC	Reprographic	Circulation	Bibliographic	Translation	Documentation	Internet	Indexing/Abstracting	Lending
Series1	17	11	12	6	7	11	14	13	4	11	11	8	4
Series2		65%	71%	35%	41%	65%	82%	76%	24%	65%	65%	47%	24%
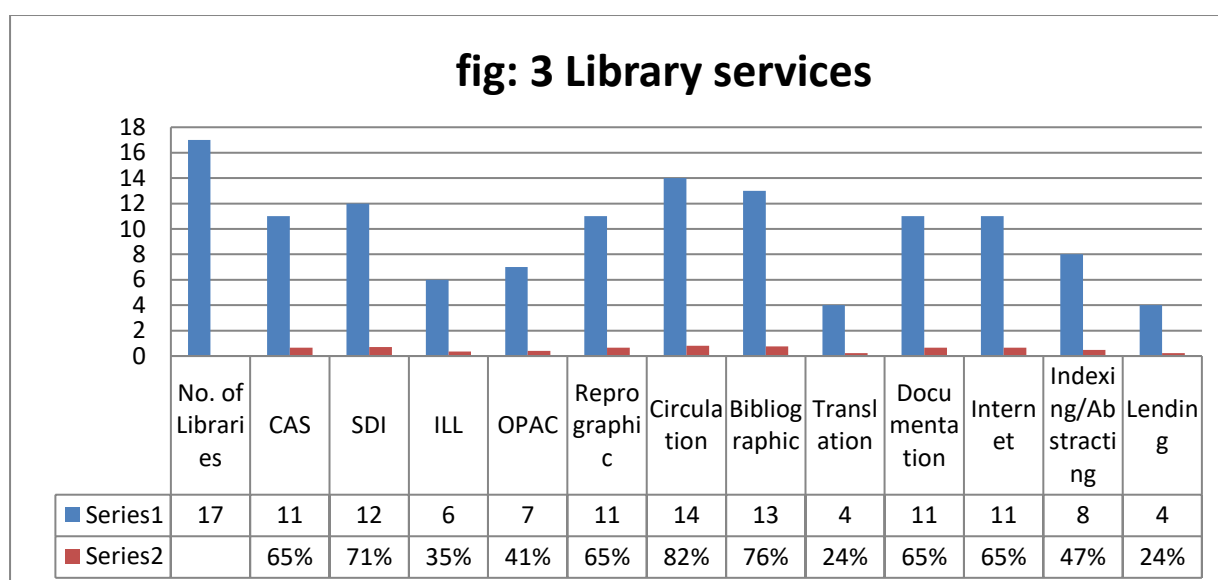
Technical Operations:

Special library should be specialized in its own right but some of the special libraries of the study specialized only its collection and services to some extent. Manual system cannot meet that much information needs of the readers so computerized system of information storage and retrieval is must.
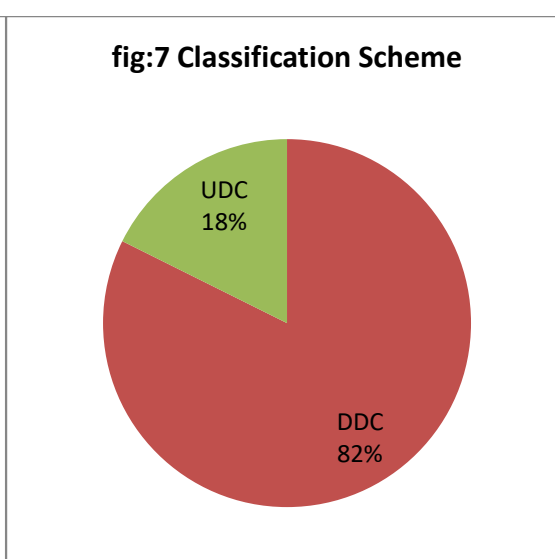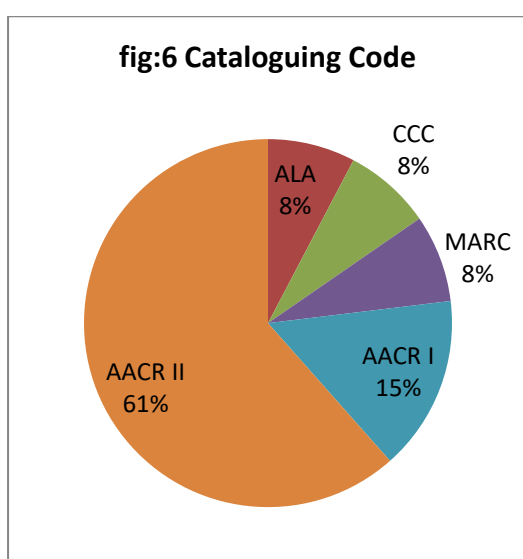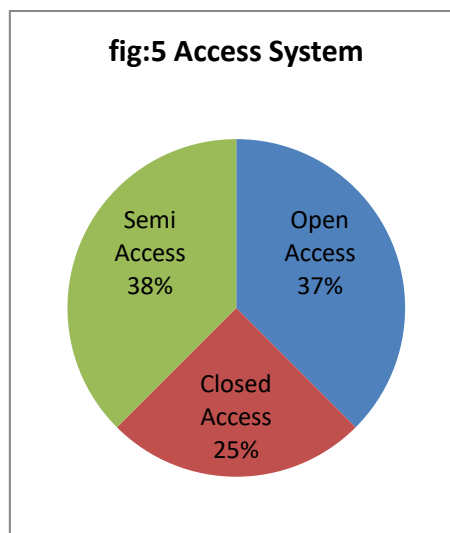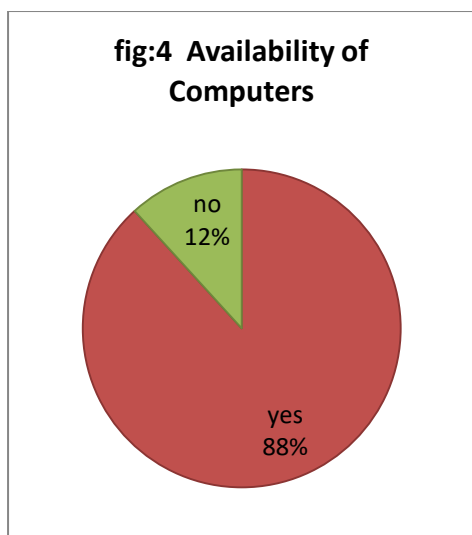
It has been seen from the surveyed data that 88% libraries have computer facility for both the library personnel and users. The libraries are using different software and operating system for their regular housekeeping operations except ASTEC library. Most of the libraries have been using Windows as operating system. Only KRC IASST and RFRI library is using Linux. KRC NEIST provides its online services through the campus wide LAN at Jorhat and through WAN to the users working at its branch Laboratories at Itanagar and Imphal.

From the Table 8 and Figs 4-7 it is found that 90% of the libraries are using different classification scheme and cataloguing code. From the survey it is found that among them37%

libraries have open access system, 38% libraries have semi access system and 25% have closed access system. It is found from the study that except PLASMA Physics library, CIPET library and KRC NEIST in all the libraries classification process is done through DDC and as regard to cataloguing it's seen that except ALA library, Ananda Chandra Agarwala Library and RFRI Library, all the other libraries' process of cataloguing is AACR II. While the processing of cataloguing in ALA Library is ALA, Ananda Chandra Agarwala Library is CCC and RFRI Library is MARC. KRC NEIST is using the cataloguing code of all three as, AACR I, AACR II & CCC. Judge's Library, NIRDP Library, Toklai Experimental Station Library does not have any cataloguing code.

Table-8: Technical Operations carried out by special libraries under study

SL NO.	Name of The Libraries	No. of Computers	Operating System	Software	Classification Scheme	Cataloguing Code	Access System
					Table-8: Technical Operations		
1	ALA Library	2	NA	Koha	DDC 22nd	ALA	Semi access
2	Ananda Chandra Agarwala Library	NA	NA	NA	DDC	CCC	Semi access
3	Judges' Library	7	Windows	Koha	DDC 23rd	NA	Closed access
4	Knowledge Resource Centre(IASST)	15	Linux	SOUL & D. SPACE	DDC 23rd	AACR II	Semi access
5	NIRDP Library	3	Windows	E- Granthalaya	DDC 19th	NA	Closed access
6	TISS Library	77	Windows	Koha	DDC 23rd	AACR II	Semi access
7	IIBM Library	4	Windows	CDS/ISIS	DDC 19th	AACR II	Open access
8	NIPCCD RCG Library	1	Windows	Books help plus	DDC 21st	AACR II	Semi access
9	IIE Library	3	UNIX & Windows	Inhouse software	DDC	AACR II	Open access
10	DHAS Library	5	Windows	SOUL 2.0	DDC 19th	AACR II	Open access
11	ASTEC/AEDA	NIL	NA	NA	DDC	AACR I	Open access
12	CIPET Digital Library	13	Windows	Others	UDC	AACR II	Open access
13	Institute of PLASMA Physics Library	2	Windows	E- Granthalaya	UDC 21st	AACR I	Close access
14	Directorate of AIR ST & SC Library	3	Windows	SOUL	DDC 21st	AACR II	
15	RFRI Library	3	LINUX	Koha	DDC 23rd	MARC	Open access
16	Knowledge Resource Centre(NEIST)	5	Windows	Koha	UDC 2015	AACR I, AACR II & CCC	Semi access
17	Toklai Experimental Station Library	3	LINUX & Windows	NA	DDC	NA	Closed access

fig:4 Availability of Computers

- no 12%
- yes 88%

fig:5 Access System

- Semi Access 38%
- Open Access 37%
- Closed Access 25%

fig:6 Cataloguing Code

- CCC 8%
- ALA 8%
- MARC 8%
- AACR I 15%
- AACR II 61%

**fig:7 Classification Scheme**

- UDC 18%
- DDC 82%

Software using for library automation:

Table No. 9 and fig-8below shows that out of seventeen surveyed libraries, five libraries are using KOHA followed by three libraries are using SOUL 2.0, two libraries are using E-Granthalaya, one library is using CDS/ISIS and another library, that is KRC IASST using both SOUL 2.0 & D-Space and the rest three libraries are using some non-standardized software for library automation.

Table –9: Software used by special libraries under study

Software used	No. of Libraries	Percentage (%)
SOUL 2.0	3	25%
KOHA	5	42%
CDS/ISIS	1	8%
LIBSYS	0	0%

E-GRANTHALAYA	2	17%
ALICE FOR WINDOWS	0	0%
D-SPACE	1	8%
OTHERS	3	25%

Fig-8 Software used in the Libraries
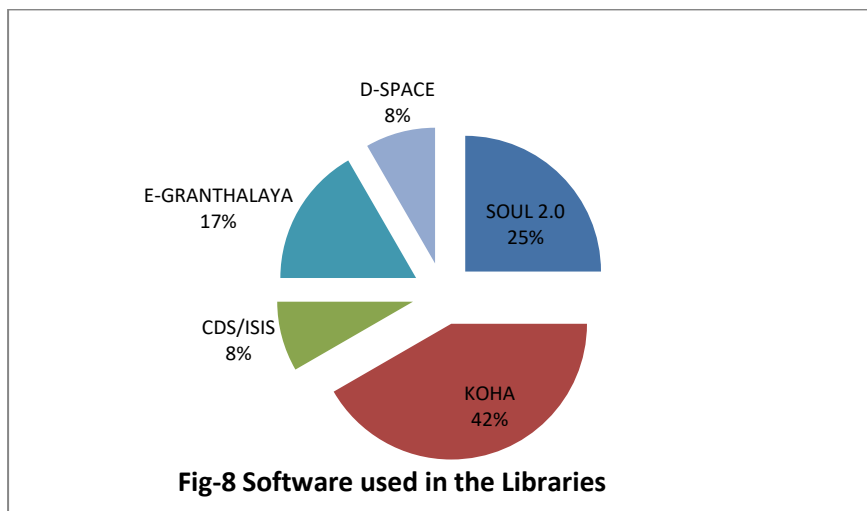
Modules of software in operation for automation:

Table number 10 shows the different areas of automation done by the surveyed libraries. It is found from the study that out of the seventeen libraries surveyed three libraries are automated fully. Some are partially automated followed by thirteen libraries have done acquisition, 14 libraries have done cataloguing, twelve libraries have done circulation, Nine libraries have done OPAC, 8 libraries have done Serial Control modules and only eight libraries have done article indexing module. Among these seventeen libraries only Ananda Chandra Agarwala library and ASTEC/AEDA library till now have not applied any ICT application. Nothing has been done automated in these two particular libraries.

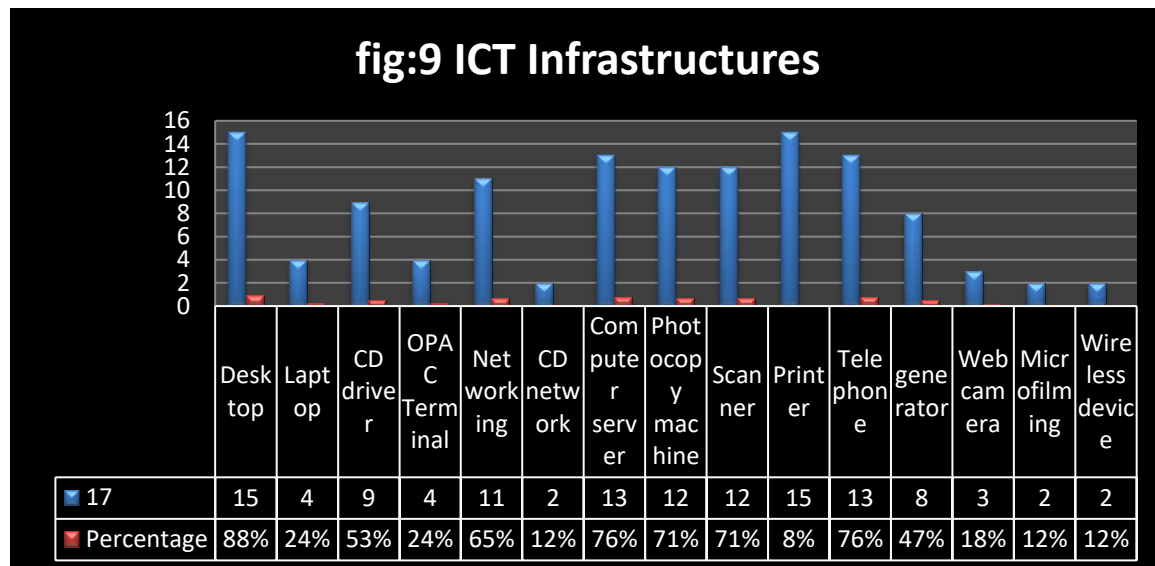Table – 10: Modules of software in operation for automation:

SL NO.	Name of the Libraries	Acquisition	Cataloguing	Circulation	OPAC	Serial Control	Article Indexing
1	ALA Library	Yes	No	No	No	No	No
2	Ananda Chandra Agarwala Library	No	No	No	No	No	No
3	Judges' Library	No	Yes	Yes	Yes	No	No
4	Knowledge Resource Centre(IASST)	Yes	Yes	Yes	Yes	Yes	Yes
5	NIRDP Library	Yes	Yes	Yes	Yes	Yes	Yes
6	TISS Library	Yes	Yes	Yes	Yes	Yes	No
7	IIBM Library	No	Yes	Yes	No	No	Yes
8	NIPCCD RCG Library	Yes	Yes	No	No	No	Yes
9	IIE Library	Yes	Yes	Yes	No	Yes	Yes
10	DHAS Library	Yes	Yes	No	No	No	No
11	ASTEC/AEDA	No	No	No	No	No	No
12	CIPET Digital Library	Yes	Yes	Yes	Yes	No	No
13	Institute of PLASMA Physics Library	Yes	Yes	Yes	No	No	Yes
14	Directorate of AIR ST & SC Library	Yes	Yes	Yes	Yes	Yes	Yes
15	RFRI Library	Yes	Yes	Yes	Yes	Yes	No
16	Knowledge Resource Centre(NEIST)	Yes	Yes	Yes	Yes	Yes	Yes
17	Toklai Experimental Station Library	Yes	Yes	Yes	Yes	Yes	No

ICT infrastructures availability:

Information and Communication Technology (ICT) has radically transformed most of the services provided by a library. The application of ICT in libraries has made remarkable changes in their daily operations and services. Information processing, storage, communication, dissemination of information, automation, etc. revolutionized the information communication technology. One of the most relevant outcomes of ICT is the introduction of the internet and development of World Wide Web, which has necessitated amajor shift in the role of libraries. The application of ICT in the libraries becomes essential to provide the facilities to the user community.

ICT includes desktop, laptop, CD drivers, OPAC terminals, networking, CD network, computer server, etc. as well as the various services and applications associated with them. When such technologies are used for educational purpose, ICT becomes a subfield of educational technology. Table 11 and fig: 9 shows the current status and different ICT based facilities in the libraries selected. It is found from the study that most of the libraries are using the basic things only related to ICT like, Computer (88%), laptop (24%), server (76%), CD drivers (53%), scanner (71%), printer (8%), photocopy machine (71%), telephone (76%), generator (47%), networking (65%) and special to library OPAC terminals (24%). Ananda Chandra Agarwala library and ASTEC/AEDA library till now have not applied any ICT

facility. Digitization has not been done in all the libraries. Only Directorate of AIR ST & SC Library has been fully digitized. It's all the collections have been digitized. Assam Legislative Assembly has digitized its book collection only. KRC IASST, TISS library, RFRI library and KRC NEIST has digitized it's all collection except books. DHAS library has digitized its manuscript collections only. Figure-9 shows the ICT infrastructure facilities available in the respective special libraries.


fig:9 ICT Infrastructures

	Desk top	Lapt op	CD drive r	OPAC Term inal	Net work ing	CD netw ork	Com pute r serv er	Phot ocop y mac hine	Scan ner	Print er	Tele phon e	gene rator	Web cam era	Micr ofilm ing	Wire less devic e
17	15	4	9	4	11	2	13	12	12	15	13	8	3	2	2
Percentage	88%	24%	53%	24%	65%	12%	76%	71%	71%	8%	76%	47%	18%	12%	12%

Purpose of using ICT:

Table number 12 and fig-10, shows purposes of libraries of acquiring or using ICT application. It is found from the studies that among 17 libraries 10 libraries (14%) are using ICT mailing and document sharing purpose. Eight libraries (11%) are using ICT for subscription of electronic journals then 6 libraries (9%) are using ICT for availability of electronic books, whereas seven libraries (10%) are using ICT for collecting data through internet, for online databases, for developing career and also only for presentation. Only four libraries (6%) are using ICT for manuscript. Then nine libraries (13%) are using ICT just to update knowledge of both users and staffs and lastly five libraries (7%) are using ICT for searching Web opacs/ OPACs.

Table-12: ICT based application used by special libraries under study

Purposes	No. of the Libraries	Percentage (%)
1.E-mail & Document sharing	10	14%
2. Electronic Journals	8	11%
3. Electronic Books	6	9%
4. Collect data through Internet	7	10%
5. Online databases	7	10%
6. For Career Development	7	10%
7.Presentation	7	10%
8.Manuscript Proposal & papers	4	6%
9.Update Knowledge	9	13%
10. Search Webopacs/OPACS	5	7%

**Fig-10 Purspose of using ICT**
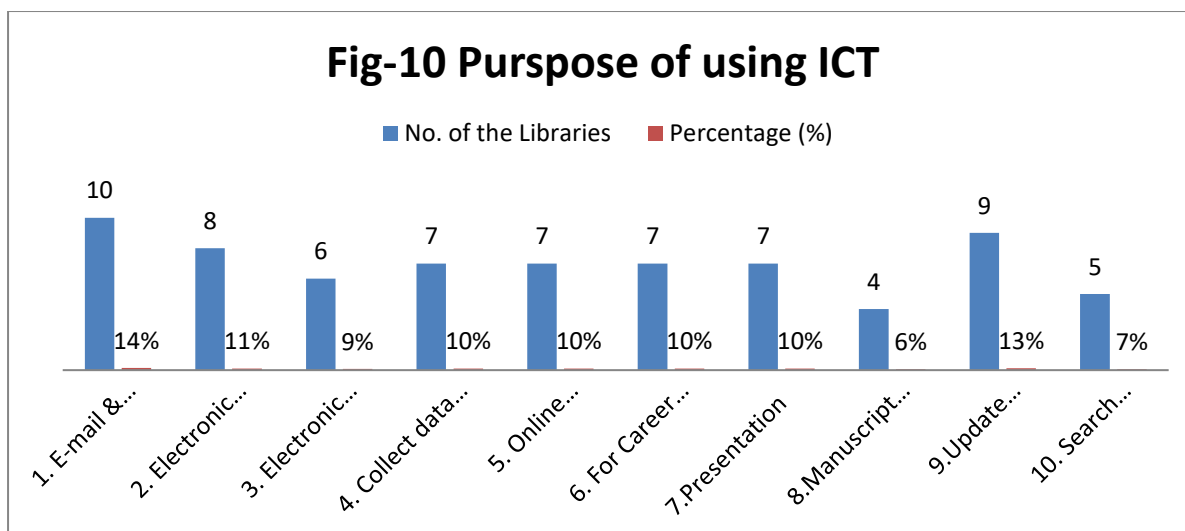
Benefits of using ICT:

Table number 13 and fig 11 stated that 27% of libraries have been benefited from ICT by saving the valuable time of reader as well as staff, 26% libraries benefited through helping in housekeepingoperations, 25%libraries benefited from ICT by giving accurate results to user's query and 22% of libraries benefited by helping the proper subject approach to the research scholar.

Table-13: Benefits of using ICT:

Benefits	No. of the libraries	Percentage (%)
1.Saving of valuable time	15	27%
2.Helps in housekeepingoperations	14	26%
3.Giving accurate results to user's query	14	25%
4.Helps the proper subject approach to the research scholar	12	22%

Fig-11 Benefits of using ICT

■ No. of the libraries   ■ Percentage (%)

|			
15	14	14	12
27%	26%	25%	22%
1. Saving of valuable time	2. Helps in Housekeeping operations	3. Giving accurate results to user's query	4. Helps the proper subject approach to the Research Scholar
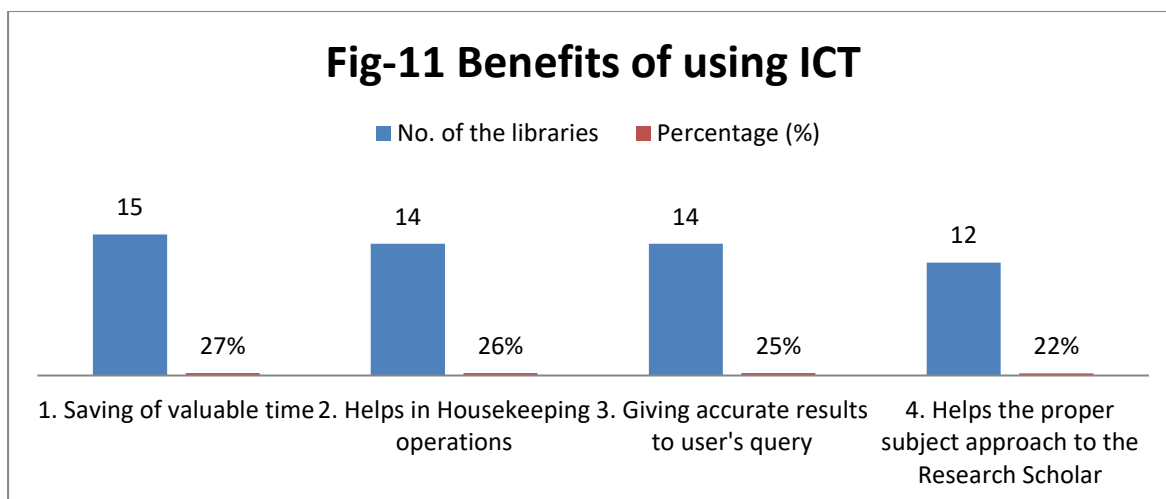
Barriers in using ICT:

Table number 14 and fig:12 shows that all surveyed libraries are facing several barriers in using ICT like 7 libraries (14%) are facing barrier in getting insufficient fund for ICT infrastructures followed by 9 libraries (17%) are facing problem of lack of proper infrastructures, 5 libraries (10%) are facing problems in lack of support from their concern authority, 9 libraries (17%) are facing lack of skilled manpower, 8 libraries (16%) are facing barrier in inadequate staff training, 4 libraries (8%) are facing problem in long gap orientation among users, 3 libraries (6%) are facing problem from the absence mindset of the professionals and 6 libraries (12%) are getting barriers from the lack of ICT knowledge of their staffs.

Table-14: Barriers of application of ICT

Aspects	No. of the Libraries	Percentage (%)
1. Insufficient of Funds	7	14%
2. Lack of infrastructure	9	17%
3. Lack of support from the concern authority	5	10%
4. Lack of skilled manpower	9	17%
5. Inadequate staff training	8	16%
6. Long gap oriented from time to time	4	8%
7.Absence of mind-set of the professional	3	6%
8.Lack of ICT Knowledge	6	12%

fig:12 BARRIERS IN USING ICT
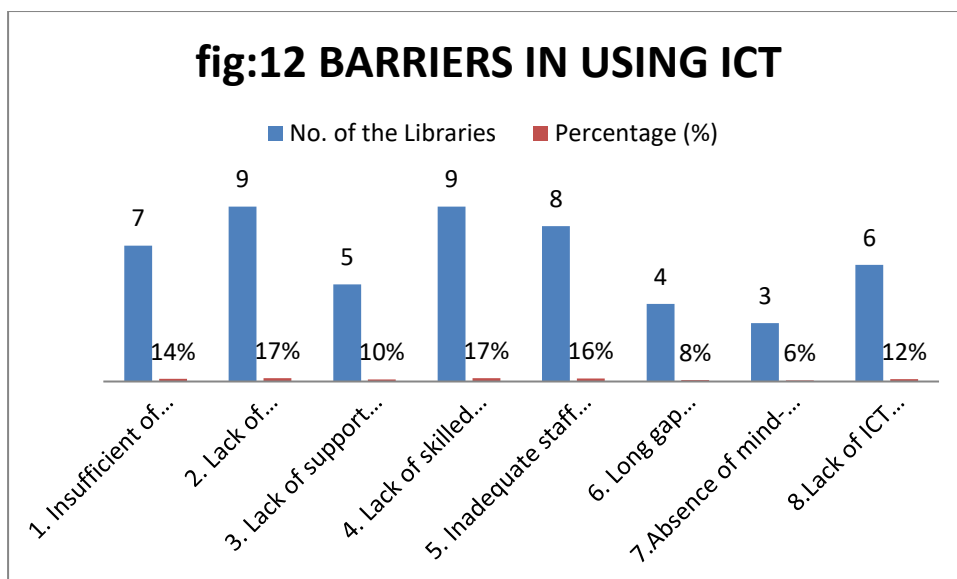
FINDINGS:

Through the present study, it is seen that the Special Libraries stresses mostly on recent information. As the e-resources have captured the world of information they are promptly switching over to **e-**resources. Users of Special libraries are generally belongs to some specific department. They don't get enough time to spend in the library. They are time crazy, so special libraries have no alternative than to choose ICT tools for management.Users of Special Libraries prefer to get the solution of the problem they are handling. A-state-of-the-art report, annotated bibliography made available by the library online is highly preferred.

SUGGESTIONS:

After analyzing the different areas of ICT application in the Special Libraries of Assam, the following suggestions are recommended:

       a. Up to date technologies must be applied to the libraries.

       b. In house orientation program must conduct in the libraries to make the staffs up to date with the recent trends take places in the libraries, so that they can provide current and effective services to the library users.

       c. In place of traditional print documents modern electronic documents must be adopted in the libraries.

       d. Number of skilled and trained manpower should increase in the libraries.

       e. Special fund provision should be implemented in the libraries for ICT applications.

CONCLUSION:

It is found from the study that the status of ICT application and its development on the library services not satisfactory. The libraries authority, Librarian and faculty share the responsibility of developing the services of library and application of ICT. They should adopt the knowledge about modern technologies and must apply to library functions to develop the library services.

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