

ISSN : 2349-7386

Vol. III

2017

# GRANTHAKUTI

(A Peer Reviewed Annual Journal on Library and Information Science)



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ISSN : 2349-7386

## GRANTHAKUTI

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**Vol. III**

**DIGITAL LIBRARIES : ISSUES AND CHALLENGES  
2017**

Editor :

**Dipika Das**

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## EDITORIAL

Digital libraries are those libraries where the electronic or digital collections are stored. The digital collection may include digital books, digital scanned images, graphics, textual and numeric data, digitized films, audio-visual clips etc. Today, libraries are extending their wings to digital library. The term digital library was first used to forward the outcome of collaborative research initiatives founded by National Science Foundation, Advance research Agency and National Aeronautic and Space Administration in the United States. Digital library is associated with technical capabilities for creating, searching and using information. It helps the readers to access data or information in their own pc. The digital or electronic collection helps reader to get right information quickly. It minimizes the space scarcity of a library.

In today's digital environment, the role of librarian is changing day by day. A digital librarian is skilled information professional who manages and organizes the digital libraries, provides information just-in- time and digital reference services, facilitates electronic publishing.

Research is going on to face the challenges of digital libraries. So, this volume wishes to brought out with a subject " Digital Libraries : Issues and Challenges". There are nine research based papers and one general paper. All contributors establish different issues relating to digital libraries and show how the librarians meet the various challenges in digital era.

Dr. Smriti Rekha Baruah pens a paper on *"Effective usage of electronic resources in digital library environment"*. She opines that for authentic use of e-resources measures should be taken by the library during acquisition of these e-resources. There is a need for information literacy programme or user education programme for the user to develop their skills for effective usage of information resources. Mr. Hemanta Kumar Das writes on *"Exploring Open Access Web Resources on Plant Taxonomy"*. This paper attempts to explore different web resources available on internet which will help in locating plant taxonomy related information for the students, researchers, scientists, teachers, botanist and librarians. Mr. Bhaskar Khanikar brings out a paper on *"E-resources management in B.M. Pugh Library, AAU, Jorhat and LNB Granthagar DU, Dibrugarh: a study"*. His attempt is made to study on the processes of development and management of E-resources in this two surveyed libraries. Mr. Mrinmay Kumar Das and Mrs. Dipika Saharia pens a special paper on a special library. They draw the picture of media libraries on their paper *"Electronic media libraries and its storage devices with special reference to private satellite television libraries of Assam"*. It is a challenge for digital librarian to choose the software for digital libraries. Mrs. Pallavi Gogoi takes the challenge and chooses D-Space for information repository in Tinisukia College. She shares the practical knowledge and experiences on her paper *"Developing institutional repository using d-space: an experience at Tinisukia College"*. Now a days, each and every academic library joins in collaborative platform to access e-resources. N-LIST programme is provided to college and university library by INFLIBNET centre, Ahmedabad. Mrs. Nirmali Chakraborty and Ms. Bonashree Saikia make a research on *"Use of N-LIST programme by the faculty members of the colleges of Jorhat City: A Survey"*. Ms. Santana Phukan discusses components and requirements of digital libraries on *"Digital library : an overview"*. Rituraj Borkakoti depicts the concept of

digital library and its different aspects, digital collections along with a brief introduction of the National Digital Library of India on his *"Digital Library : a brief study with reference to National Digital Library"*. In digital library the fair use of electronic or digital resources is an important issue. Ms. Rimpi Gogoi discusses about the laws regarding copyrighted materials in the context of digital libraries on *"Digitization of libraries and its legal aspects: copyright protection and provisions attracting punishment for violation of copyright laws in India"* to overcome and be conscious in this point.

Dr. D. Dutta Das, an renowned educationist shares her views with library professional on *"Evolution of Library: an academicians' perspective"*. I am happy enough the purpose of publishing GRANTHAKUTI was to bring together the academicians and library professionals in one platform. Ms. Rimpi Gogoi and Dr. D. Dutta Das encourage me submitting their papers from other discipline. In future we will hope some research papers from various disciplines as well as Library and Information Science.

This volume is the third volume of GRANTHAKUTI. I hope GRANTHAKUTI will brighten its name in future. The GRANTHAKUTI has received ISSN from the first issue and now it is applied for the UGC selection list of journal. This volume will apply for an online ISSN. All the ten papers are informative. All papers are reviewed by a peer reviewed team. It will be pleasure if readers go through these papers and library professional would add something new in their workplace.

I am thankful to all the authors who have contributed their papers in this volume. We are grateful to our Principal Dr. Pores Boruah for his positive attitude to bring out issue in reality. I sincerely give heartiest thanks to Dr. R.C. Gaur, Dr. S.K. Singh, Mr. U. K. Gogoi, Dr. Mukesh Saikia, Dr. B. K. Boruah, Dr. Kamalendu Saikia and Mr. Jadavjyoti Saikia for



their valuable suggestions and cooperation. I am thankful to all the members of Editorial Board. I welcome all the members of Reeta Bindings & Printing Works, Dibrugarh for their hard works to bring out the journal in time.

At last, I beg blessings and co-operation from Dibru College Community, well-wishers and readers of new generation for the GRANTHAKUTI to be a memorable one.

Dibrugarh  
6<sup>th</sup> July, 2017

Dipika Das

Founded : 2014

ISSN : 2349-7386

## GRANTHAKUTI

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## Effective Usage of Electronic Resources in Digital Library Environment

\* Dr Smriti Rekha Baruah

### Abstract :

*With the development of Information and communication technology changes has been occurred in the library by their resources and services. According to varied needs of the users library has acquired more e-resources. For authentic use of e-resources measures should be taken by the library during acquisition of these e- resources. There is a need for information literacy programme or user education programme for the user to develop their skills for effective usage of information resources.*

**Keywords :** E-resources, Information Literacy, LIS Professional.

### 1. Introduction :

The rapid development of Information and Communication Technology has changed the structure and working environment of the libraries. It has brought changes in the library scenario giving rise to a number of options to the users' community to handle varied sources conveniently and effortlessly as a result of which e-resources have become one of the major resources in present ICT environment. " Electronic resources " refer to those materials that can be accessed through computer and that may either be locally mounted or accessed remotely via the Internet .A digital library is a library in which collection are stored in digital formats and accessible by computers. With the increasing demand of e-resources by the user in research and development area in any discipline users are also expected to develop information literacy skills.

Knowledge explosion thrust forward the information explosion, because information is the basic ingredient to knowledge. In this age of information, easy location and identification of information, pinpointed information is highly demanded for which study of information literacy and user study are important aspect in library and information science profession. Hence the information professionals are expected to guide the users for using the right information at the right time.

### 2. Advantages of Electronic resources :

Major advantages of electronic resources are that people can access the e-resources at any time and from any places as long as an Internet connection is

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available. The same resources can be accessed simultaneously by a number of institutions and patrons. The user is able to use any search term to search the entire digital collection in a very short period. Limited space is also another advantage of digital collection. Retrieval of digital collection and updated information is much easier than print collection. It allows remote access from anywhere and anytime and provides hyper links to related additional resources. Effective searching can be possible in e-resources to retrieve particular information

Major types of e-resources are-E-journals, E-books, E-theses and dissertations, On-line Databases, Library Networks, Library websites, Web OPACs, Web databases, Online-Bulletin Boards, E-news paper, E-reference books, CD-ROM etc.

### 3. **Functionality and reliability of e-resources :**

To determine the functionality and reliability of e-resources the following points may be considered-

- a. **Interface-** The e-resource interface should be user-friendly and easy to navigate. User friendly resources often include on-line tutorials, introductory screens, navigation aids with the options like e-mail alerts, save search history etc. The screen design should be easy to read and familiar with the users.
- b. **Search and retrieval-** For search and retrieval of e-resources common features might include- keyword and Boolean searching, full-text searching, truncation, browsing (index and title), relevancy ranking, thesaurus and search history. Therefore the resource should offer a powerful, flexible and user-friendly search engine. The search and retrieval software must be powerful and flexible.
- c. **Exporting, downloading and availability-** Exports options such as e-mail, printing, and downloading should be supported. The system should be technologically up-to-date and have the appropriate capacity to support multiple users and optimum response times.

### 4. **Promotion for effective usage of E-resources :**

In spite of spending large amount of money for subscribing e-resources, sometimes users are not using extensively because of lack of awareness, infrastructure, effective management of resources, absence of federated search environment etc. For effective use of e-resources few measures should be adopted -

**4.1 Computer infrastructure-** More and more workstation with internet connectivity should be provided to the users for accessing e-resources. Effort should be made to increase the speed of the Internet access.

**4.2 Federated search engine-** Federated search environment should be provided to the users so that they can search the all databases through single window search

**4.3 Remote login-** Facility for remote login should be provided by the institutions for remote access of resources. For example OCLC EZ proxy is web proxy servers used by the libraries to give access to e-resources from outside the library's computer network that authenticate users by IP address. This allows library patrons at home or elsewhere to log in through their library's EZ proxy server and gain access to all e-resources available in the library.

**4.4 The library website-** The library website is to be created providing information about the e-resources and giving link to them.. The website is to be updated regularly giving up-to-date information on library collection, rules and regulations, library activities, online services, links to the available e-resources so that e-resources can be highly accessed by the user community. Once the users are aware of the availability of resources they will use it. Document delivery service can be introduced through e-mail by which users can send their queries through e-mails regarding various library services and especially for e-resources and can get their access through e-mail.

**4.5 Awareness Building and User Support-** The subscriber is to be informed by the publisher or service provider about their users' meet/ seminars to be organized in advance to enable the subscriber to participate free of cost in the event.

**4.6 Training -** If required the licensor should conduct initial and ongoing training programme in the use of the product to ensure their effective use. The licensor should also provide adequate number of publisher's publicity material, brochure, posters and user support material in both print and CD form.

**4.7 Awareness among the library staff-** Library and information science professionals should be well aware of the digital resources available in the concerned field of study and evaluate these before subscribing these for their library users.

**4.8 Acquisition of e-resources:** Trial version of the resource and recommendations from the faculty members-

Vendor must be requested to give the trial version of the resources and the academic community is to be informed about the trial period and resources so that they can access it. After trial period is over the vendor is requested to provide the usage statistics. After analyzing the usage statistics if found useful and recommendations from academic community the resources can be acquired.

**4.9 Information literacy programme-** To enhance the usage of e-resources information literacy programme should be introduced in which users should be made aware about the availability of electronic resources and how to use these resources.

## 5. Information literacy :

Information literacy is a set of skills which provide the optimum utilization of information and help to find, evaluate and use the information. The term Information Literacy is defined as an individual's ability to recognize a need for information, identify and locate appropriate information sources, know how to gain access to the information contained in those sources, evaluate the quality of information obtained and use of information effectively. As per Association of Colleges and Research libraries (ACRL), Information Literacy is "to recognize when information is needed and have the ability to locate, evaluate and use effectively the information need". Therefore to use the information effectively and have the optimum utilization of resources, information literacy and its programmes become essential.

As the American Library Association Presidential Committee on Information Literacy (1989) explains, "Ultimately, information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand".

In a nutshell, information literacy has five broad abilities within the context of the continuum and a lifelong learning context:

- a. Recognizing the need for information
- b. Knowing how to access information
- c. Understanding how to evaluate information
- d. Knowing how to synthesize information
- e. Being able to communicate information (Babu: 2012)

## 5.1 Need of Information Literacy :

Information literacy is required because of proliferating information access and resources, advent of Information and Communication Technology, varied needs of the users, and growing needs of digital information sources.. In this situation, only dissemination of information is not sufficient but to teach the users how to handle information is also necessary so that they can enhance their knowledge by authentic use of information.

For making available the required information among the abundance of information available in different forms, information literacy and user education programme is essential. It is essential to educate the users as to how to determine his/her information need, what are the different information sources, their coverage or features; how to find the relevant and precise information from various sources. In this way Information Literacy is essential to make the users competent enough for retrieving precise and relevant information as per their need.

## 5.2. Information Literacy Competence :

Information Literacy empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their goals in different aspect of life.

Competence is the ability to perform a specific task, action or function successfully (Wikipedia). Therefore acquiring information literacy or being information literate is Information Literacy competency. According to ACRL'S Information Literacy Competency Standards for Higher Education are-

- a. Determine the extent of information needed
  - b. Access the needed information effectively and efficiently
  - c. Evaluate information and its sources critically
  - d. Incorporate selected information in to one's knowledge base & Use it effectively to accomplish a specific purpose.
  - e. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally
- Information literacy competency ensures maximum utilization of the information resources as well as optimization of information handling capabilities.



### 5.3 User Studies :

User study and information literacy both are interdependent as to formulate a realistic and need based information literacy programme, it is essential to know the users' information need or users' information seeking behaviour. User studies and information literacy was introduced in the university library to teach the students on use of the library and its resources and to develop their information seeking skills.

A user study may be defined as a systematic study of information requirements of users in order to facilitate meaningful exchanges between information systems and users.

One of the main goals of any information system is to provide pin-pointed exhaustive and expeditious information service to users. The problem of satisfying the information needs of users is becoming complicated because of various factors such as-

- a. Increasing amount and complexity of literature which make it uneconomical to acquire everything.
- b. Scattering of literature
- c. Variations in access to information

In this age of information and ICT environment and varied nature of resources the importance of studying and identifying the information use and search pattern of users in the electronic environment is greatly emphasized.

### 5.4 Role of LIS Professionals in Information Literacy Programme :

In the changing environment of information explosion and ICT development the library and information scenario is changing at a dynamic speed by its collection from print to e-resources and ICT based services. Similarly there is a change in the needs and interests of the readers. In accordance with this emerging scenario, the library and information professionals' role is also subjected to dramatic changes. Hence, library and information professionals are required to acquire knowledge and skills in Information and Communication Technology as the library of to-day centered round highly IT influenced services, especially in educational institutions.

To promote information literacy LIS professionals should come forward to organize the courses which enable students to develop technical and communication skills necessary to ensure authentic use of resources. LIS professionals also require good teaching and communication skill to teach information literacy to the students. He/she also need to

collaborate with library and other academic staff to integrate the information literacy in to the regular curriculum to make the teaching - learning process more effective.

### 6. Conclusion :

Digital resources hold many advantages such as time and place convenience, ability to search directly on text, ability to link to further reading material and ability to disseminate and share information, convenience of storage and maintenance, cost advantage, ability to target global users, ability to support distance learning; and their potential to provide users with access 24 hours a day/7 days a week. Digital resources also sometimes create technological and human problem such as selection of resources, discomfort in reading on the screen, problems in internet access and speed, poor infrastructure, lack of sufficient skills to use etc. . Hence to create awareness among the users is a important and mandatory to ensure authentic usage. Information literacy programmes and guidelines can be reviewed and changed by libraries and parent institutions according changing scenario of library's collection and services for effective use of library resources.

Now-a -days in the era of ICT digital resources have emerged as the most powerful medium for storage and retrieval of information and library must be careful in collection and management of electronic resources in the library

To overcome the issue of information explosion, every student has to be taught how to search, access, evaluate and use the information effectively. Hence, all students, whether they are undergraduates, postgraduates or research scholars of a university should be oriented on library use and its resources through a formal instruction course on user education. Information Literacy Programme should be designed properly in digital and networked environment based on users' information seeking pattern so that the students are satisfied with the course and become more confident and self reliant in their literature search. The UGC and university or research institution has to take the steps to impart Information Literacy Programmes among teachers and students engaged in higher education which ICAR ( Indian Council of Agricultural Research) has already implemented a non-credit compulsory course on library services for the students of higher education to develop their skills in the use of library resources and to acquaint them with library services. However, the success of electronic resource service and management depends on its usage. To create awareness among the users and establishing comfortable ICT environment are crucial factors and mandatory to ensure authentic usage of e-resources.

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## Exploring Open Access Web Resources on Plant Taxonomy

\* Hemanta Kumar Das

### Abstract :

*In this digital era, the popularity and usage of open access web resources has changed the information seeking behaviour of the students, teachers, researchers, scientist, of plant taxonomy also. There are plenty of open access web resources such as open access journals, historical literature and scientific literature, and open access plant related databases which are very useful in plant taxonomy research. This paper attempts to explore different web resources available on internet which will help in locating plant taxonomy related information for the students, researchers, scientists, teachers, botanist and librarians. An attempt have also been made to identify and analyze the open access journals in Plant taxonomy related research available in Directory of Open Access Journals(DOAJ) and the recently approved API list of journals by University Grant Commission(UGC).*

**Keyword :** Web resources, open access web resources, plant taxonomy, Botany, plant taxonomy information, database, open access.

### 1. Introduction :

Plant taxonomy is a science which deals with the identification, nomenclature and classification of plants. Since the Pre-Linnaean time there are number of literature on plant taxonomy are produced by different taxonomist, scientist, scholars, students etc. "Theophrastus (born c.372 BC Eresus, Lesbos-died c.285BC.)"<sup>2</sup> was a student of Aristotle and Plato, who wrote, **De Historia Plantarum** which contained note on 480 known plant species, can be considered as the first works on plants and can be regarded as a starting point of plant taxonomy . There after various literature came out from different workers on plant taxonomy and which are still being are use as reference tools in different field of plant science research. Along with these printed information resources web resources are also playing major role in this field.

There are plenty of open access information resources available on World Wide Web (WWW). Botanist, researchers and students are now find very useful in using

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internet for searching their needy information like *WorldCat* to search availability of title and holding in the various libraries of the world, *DOAJ* (Directory of Open Access Journal) for searching open access journals, *TROPICOS* and *IPNI* (International Plant name Index) to share and access nomenclatural, bibliographic and specimen data, *Plant List* to search accepted Latin names, synonyms of species, *BHL* (Biodiversity Heritage Library) for to search archival botanical literature. *eFloras* to search various flora of the worlds.

## 2. Objective of the Study :

The objectives of the present study are:

- 1) To identify open access journals in plant taxonomy for student, researchers, teachers of plant taxonomy and botanist which are indexed in DOAJ and UGC API list of journals.
- 2) To identify plant databases useful for student, researchers, teachers of plant taxonomy and botanist
- 3) To identify useful digit literature on plant taxonomy available online

## 3. Methodology :

To study the area all the important i.e. open access journals and freely accessible issues of journals, open access historical botanical literature, and open access plant databases are checked through Google search engine, DOAJ (Directory of Open Access Journals), UGC approved list of journals, and the other sources of botanical information and literature, links are verified.

## 4. Open access journals :

Exploration for open access journals for Plant taxonomy researchers has been made with some specific search strategy in the Directory of Open Access Journals (DOAJ), such as, searching for Journals in the Subject Botany with keyword Plant taxonomy published in English language (full text) along with the Article Processing charges details only 11 journals are displayed out of which 9 numbers of journals are not having Article Processing Charges (APCs), and 2 journals are having APCs for publications in their journals. Again with a search query of journals in subject Botany available in English language indexed in DOAJ, hits 88 journals.

With a minute scrutiny from both the search 53 open access journals are listed as helpful for plant taxonomic researchers. Again availability of the name of these 53 Open access journals indexed in DOAJ and other selected open access journals (not indexed in the DOAJ) are checked with the UGC API list of 38652 journals which is notified by UGC on 10<sup>th</sup> January 2017.<sup>6</sup>

Sl. No.	Title of the Journal	Webpage	Country/Sr.No. in UGC approved API list of Journals	Article Processing Charges (APCs)	
				Yes	No
1	Flora Montiberica	<a href="http://www.floramontiberica.org/">http://www.floramontiberica.org/</a>	Spain/ 12439		✓
2	Botanical Sciences	<a href="http://www.botanicalsciences.com.mx/">http://www.botanicalsciences.com.mx/</a>	Mexico/NA	✓	
3	Anales del Jardín Botánico de Madrid	<a href="http://rjb.revistas.csic.es/">http://rjb.revistas.csic.es/</a>	Spain/NA		✓
4	Hoehnea	<a href="http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=2236-8906&amp;nrm=iso&amp;rep=&amp;lng=pt">http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=2236-8906&amp;nrm=iso&amp;rep=&amp;lng=pt</a>	Brazil/NA		✓
5	Rodriguésia	<a href="http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=2175-7860&amp;lng=en&amp;nrm=iso">http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=2175-7860&amp;lng=en&amp;nrm=iso</a>	Brazil/32991		✓
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7	Acta Botanica Croatica	<a href="http://www.degruyter.com/view/j/botcro">http://www.degruyter.com/view/j/botcro</a>	Poland/572		✓
8	Modern Phytomorphology	<a href="https://phytomorphology.org/journal/">https://phytomorphology.org/journal/</a>	Ukraine/NA		✓
9	Adansonia	<a href="http://sciencepress.mnhn.fr/en/periodiques/adansonia">http://sciencepress.mnhn.fr/en/periodiques/adansonia</a>	France/1093		✓
10	Bangladesh Journal of Plant Taxonomy	<a href="http://www.banglajol.info/index.php/BJPT">http://www.banglajol.info/index.php/BJPT</a>	Bangladesh/4597		✓
11	Reinwardtia	<a href="http://e-journal.biologi.lipi.go.id/index.php/reinwardtia">http://e-journal.biologi.lipi.go.id/index.php/reinwardtia</a>	Indonesia/NA		✓

12	Lankesterian a:International Journal of Orchidology	<a href="http://revistas.ucr.ac.cr/index.php/lankesteriana/">http://revistas.ucr.ac.cr/ index.php/lankesteriana/</a>	Costa Rica/NA		✓
13	Journal of Mycology	<a href="https://www.hindawi.com/journals/jmy">https://www.hindawi.com/ journals/jmy</a>	Egypt/NA	✓	
14	Botanica Serbica	<a href="http://botanicaserbica.bio.bg.ac.rs/">http://botanicaserbica.bio.bg. ac.rs/</a>	Serbia/NA		✓
15	Plant Root	<a href="https://www.jstage.jst.go.jp/browse/plantroot/">https://www.jstage.jst.go.jp/browse/plantroot/</a>	Japan/29718	NI	NI
16	Hacquetia	<a href="http://www.degruyter.com/viejhacq">http://www.degruyter.com/viejhacq</a>	Slovenia/13910		✓
17	MycKeys	<a href="http://mycokeys.pensoft.net/">http://mycokeys.pensoft.net/</a>	Bulgaria/26717	✓	
18	Acta Societatis Botanicorum Poloniae	<a href="https://pbsociety.org.pl/journals/index.php/asbp/index">https://pbsociety.org.pl/journals/ index.php/asbp/index</a>	Poland/993	✓	
19	Plants	<a href="http://www.mdpi.com/journals/plants">http://www.mdpi.com/journals/ plants</a>	Switzerland/NA	✓	
20	Journal of Botany	<a href="https://www.hindawi.com/journals/jb/">https://www.hindawi.com/ journals/jb/</a>	Egypt/NA	✓	
21	Rodriguésia	<a href="http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=2175-7860&amp;lng=en&amp;nrm=iso">http://www.scielo.br/scielo.php? script=sci_serial&amp;pid=2175-7860 &amp;lng=en&amp;nrm=iso</a>	Brazil/32991		✓
22	Global Journal of Research on Medicinal Plants & Indigenous Medicine	<a href="http://gjrm.com">http://gjrm.com</a>	India/NA	NI	NI
23	European Journal of Taxonomy	<a href="http://www.europeanjournaloftaxonomy.eu/index.php.ejt">http://www.europeanjournal oftaxonomy.eu/index.php.ejt</a>	France/11815		✓
24	Agronomía Colombiana	<a href="http://www.revistas.unal.edu.co/index.php/agroco">http://www.revistas.unal.edu.co/ index.php/agroco</a>	Colombia/1757		✓
25	Annali di Botanica	<a href="http://annalidibotanica.uniroma1.it">http://annalidibotanica.uniroma1.it</a>	Itali/NA		✓
26	Turczani- nowia	<a href="http://journal.asu.ru/index.php/tur">http://journal.asu.ru/index.php/tur</a>	Russian Federation / NA		✓
27	Advances in Botany	<a href="https://www.hindawi.com/journals/abot/">https://www.hindawi.com/ journals/abot/</a>	Egypt/NA	✓	

28	Records of Natural Products	<a href="http://www.acgpubs.org/RNP/index.htm">http://www.acgpubs.org/RNP/ index.htm</a>	Turkey/31445		✓
29	Boletín de la Sociedad Argentina de Botánica	<a href="http://www.scielo.org.ar/scielo.php?script=sci_serial&amp;pid=1851-2372&amp;lng=es&amp;nrm=iso">http://www.scielo.org.ar/ scielo.php?script=sci_serial&amp;pid= 1851-2372&amp;lng=es&amp;nrm=iso</a>	Argentina/5397		✓
30	Anales del Jardín Botánico de Madrid	<a href="http://rjb.revistas.csic.es">http://rjb.revistas.csic.es</a>	Spain/NA		✓
31	Journal of Ginseng Research	<a href="http://www.journals.elsevier.com/journal-of-ginseng-research/">http://www.journals.elsevier.com/ journal-of-ginseng-research/</a>	Korea/20758		✓
32	Advances in Forestry Science	<a href="http://periodicoscientificos.ufmt.br/index.php/afor/index">http://periodicoscientificos. ufmt.br/index.php/afor/index</a>	Brazil/NA		✓
33	BMC Plant Biology	<a href="http://bmcplantbiol.biomedcentral.com">http://bmcplantbiol. biomedcentral.com</a>	United Kingdom/ 5317	✓	
34	Journal of Ethnobiology and Ethno- medicine	<a href="http://www.ethnobiomed.com">http://www.ethnobiomed.com</a>	United Kingdom/ 20459	✓	
35	Avian Conservation and Ecology	<a href="http://www.ace-eco.org/">http://www.ace-eco.org/</a>	Canada/4511	✓	
36	Botanical Studies	<a href="http://www.as-botanicalstudies.com">http://www.as-botanicalstudies. com</a>	United Kingdom/ 5474	✓	
37	Biodiversity Science	<a href="http://www.biodiversity-science.net/EN/Volumn/home.shym1">http://www.biodiversity-science. net/EN/Volumn/home.shym1</a>	China/NA	NI	NI
38	Planta Daninha	<a href="http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=0100-8358&amp;nrm=iso&amp;lng=en">http://www.scielo.br/scielo.php? script=sci_serial&amp;pid=0100-8358 &amp;nrm=iso&amp;lng=en</a>	Brazil/29732	✓	
39	Buletin Kebun Raya	<a href="http://jurnal.krbogor.lipi.go.id/">http://jurnal.krbogor.lipi.go.id/</a>	Indonesia/NA		✓
40	AoB Plants	<a href="https://academic.oup.com/aobpla">https://academic.oup.com/aobpla</a>	United Kingdom/3102	✓	
41	Hoehnea	<a href="http://www.scielo.br/scielo.php?script=sci_serial&amp;pid=2236-8906&amp;nrm=iso&amp;rep=&amp;lng=pt">http://www.scielo.br/ scielo.php?script=sci_serial&amp;pid=2236- 8906&amp;nrm=iso&amp;rep=&amp;lng=pt</a>	Brazil/NA		✓
42	Arnaldoa	<a href="http://journal.upao.edu.pe/Arnaldoa">http://journal.upao.edu.pe/Arnaldoa</a>	Peru/NA		✓



43	Flora Montiberica	<a href="http://www.floramontiberica">http://www.floramontiberica</a>	Spain/12439		✓
44	Journal of Pollination Ecology	<a href="http://www.pollinationecology.org">http://www.pollinationecology.org</a>	Canada/NA		✓
45	Forests	<a href="http://www.mdpi.com/journal/forests">http://www.mdpi.com/journal/forests</a>	Switzerland/12657	NI	NI
46	Acta Biologica Cracoviensis Series Botanica (ABC Botanica)	<a href="http://www.degruyter.com/view/j/abcsb">http://www.degruyter.com/view/j/abcsb</a>	Poland/560	NI	NI
47	Endangered Species Research	<a href="http://www.int-res.com/journals/esr/esr-home/">http://www.int-res.com/journals/esr/esr-home/</a>	Germany/NA	NI	NI
48	Lazaroa	<a href="http://revistas.ucm.es/index.php/LAZA">http://revistas.ucm.es/index.php/LAZA</a>	Spain/24538		✓
49	Acta Botânica Brasilica	<a href="http://www.scielo.br/scielo.php?script=sci_serial&amp;lng_pt/pid_0102-3306nm_iso">http://www.scielo.br/scielo.php?script=sci_serial&amp;lng_pt/pid_0102-3306nm_iso</a>	Brazil/571		✓
50	Check List	<a href="http://www.checklist.org.br">http://www.checklist.org.br</a>	Brazil/6914	✓	
51	Italian Journal of Mycology	<a href="https://italianmycology.unibo.it/index">https://italianmycology.unibo.it/index</a>	Itali/N.A		✓

**Table 1:** List of Open access journal in Plant taxonomy and related areas indexed in DOAJ and listed in API list of Journals of UGC. (N.A: Not available, N.I: No information).

Some of the other open access journals which are not indexed in DOAJ but are also useful for plant taxonomy researchers are:

1. Blumea (<http://www.ingentaconnect.com/content/nhn/blumea>). The issues of the journal are available in web for open access from 2003 to 2012 in ingentaconnect. UGC approved journal list sr.no.5257
2. Botanica Serbica (<http://botanicaserbica.bio.bg.ac.rs/>)
3. Bulletin of Arunachal Forest Research (formerly known as Arunachal Forest News) <http://www.sfri.org/journals.htm>. Full text of his journal are available from the year 2006 to 2209.

4. Current Botany: <http://currentbotany.org/index.php/currbotany/index>. UGC approved journal list sr.no 9022
5. Current Science: <http://www.currentscience.ac.in/>. UGC approved journal list sr.no 40.
6. Ethnobotany Research and Applications: <http://www.ethnobotanyjournal.org>). UGC approved journal list sr.no 11431
7. Indian Journal of Natural Products Resources (IJNPR) Formerly Natural Product Radiance (NPR) <http://nopr.niscair.res.in/handle/123456789/54>
8. Indian Journal of Traditional Knowledge (IJTK). <http://nopr.niscair.res.in/handle/123456789/43>. UGC approved journal list sr.no.127.
9. International Journal of Botany <http://scialert.net/jindex.php?issn=1811-9700>
10. Journal of Threatened Taxa <http://threatenedtaxa.org/index.php/JoTT>. UGC approved journal list sr.no.23596.
11. Acta Phytotaxonomica Sinica (Formerly Acta Phytotaxonomica Sinica) [http://www.plantsystematics.com/index\\_en.asp](http://www.plantsystematics.com/index_en.asp). UGC approved journal list sr.no.933.
12. NeBIO <http://www.nebio.in/>
13. North American Fungi <http://www.pnwfungi.org/>. UGC approved journal list sr.no.27595.
14. MIOS journals <http://miosjournal.org/index.html>
15. Rheedeia <http://www.iaat.org.in/rheedeia.html> (Full text is available of the journal from 2009 onwards). UGC approved journal list sr.no.277
16. The Garden Bulletin Singapore: <https://www.sbg.org.sg/item&id=694&Itemid=118>

17. Studies in Mycologia : (<http://www.studiesinmycology.org/>) .Fulltext are available in the internet from 2005 onwards.
18. Taiwania (<http://tai2.ntu.edu.tw/taiwania/>). UGC approved journal list sr.no.35412.
19. Turkish Journal of Botany (<http://journals.tubitak.gov.tr/botany/index.php>) Full text can be access from volume 1996(Vol.20). UGC approved journal list sr.no.36967.
20. Willdenowia (<http://www.bioone.org/loi/will>). The issues of the journal are available in web for open access from 1996 onwards. UGC approved journal list sr.no. 37822.

It is found from the study that 40 open access journals in plant taxonomy i.e. 28 numbers of DOAJ indexed journals and 12 numbers of others open access journals are available in the UGC approved API list of journals.

#### 5. Open access plant taxonomy database and other resources :

Plant taxonomy databases provide access to data and resources for plant taxonomy, systematic and floristic. Different plant taxonomic databases are available in the web. 'The taxonomic databases used in plant taxonomy can be classified into eight major groups on the basis of their content'. These are Nomenclatural databases, Digitized Botanical literature, Electronic Flora or e-floras, Family-oriented databases, Image database Virtual Herbarium and herbarium database, Botanical Gardens, Secondary database, India specific database. Some selected open access plant taxonomic databases which are very useful for the plant taxonomist, researcher, student and librarian are as follows :

Sl. No.	Database	URL	Type of database
1	Algaebase	<a href="http://www.algaebase.org/">http://www.algaebase.org/</a>	Nomenclatural
2	Angiosperm Phylogeny Website	<a href="http://www.mobot.org/MOBOT/Research/APweb/welcome.html">http://www.mobot.org/MOBOT/Research/APweb/welcome.html</a>	Nomenclatural
3	APG II Classification (Angiosperm Phylogeny Group)	<a href="http://www.flmnh.ufl.edu/deeptime/apgII2002.html">http://www.flmnh.ufl.edu/deeptime/apgII2002.html</a>	Nomenclatural
4	<i>Bryophytes</i>	<a href="http://bryophytes.plant.siu.edu/">http://bryophytes.plant.siu.edu/</a>	Family oriented database
5	Catalogue of New World Grasses	<a href="http://www.tropicos.org/NameSearch.aspx?projectid=10">http://www.tropicos.org/NameSearch.aspx?projectid=10</a>	Flora/e-floras
6	Checklist of World Ferns	<a href="http://homepages.caverock.net.nz/~bj/fern/">http://homepages.caverock.net.nz/~bj/fern/</a>	Flora/checklist
7	eFloras	<a href="http://www.efloras.org/index.aspx">http://www.efloras.org/index.aspx</a>	Flora/e-floras
8	Enviscentre of Floral diversity	<a href="http://www.bsienvi.org/">http://www.bsienvi.org/</a>	Indian specific plant database
9	Ethnomedicinals.com plant taxonomy database	<a href="http://www.ethnomedicinals.com/searcheng.html">http://www.ethnomedicinals.com/searcheng.html</a>	Ethnobotany
10	Flora Europaea	<a href="http://rbg-web2.rbge.org.uk/FE/fe.html">http://rbg-web2.rbge.org.uk/FE/fe.html</a>	Flora/e-floras
11	Flowering Plant Gateway	<a href="http://botany.csd.tamu.edu/Flora/newgate/cronang.htm">http://botany.csd.tamu.edu/Flora/newgate/cronang.htm</a>	Nomenclatural
12	International Code of Botanical Nomenclature, ICBN, (Melbourne Code)	<a href="http://www.iapt-taxon.org/nomen/main.php">http://www.iapt-taxon.org/nomen/main.php</a>	Nomenclatural
13	Index fungorum	<a href="http://www.indexfungorum.org">http://www.indexfungorum.org</a>	Nomenclatural
14	Index Herbariorum	<a href="http://sciweb.nybg.org/science2/IndexHerbariorum.asp">http://sciweb.nybg.org/science2/IndexHerbariorum.asp</a>	Herbarium database/virtual herbariums
15	Index Nominum Genericorum (ING) Genericorum	<a href="http://botany.si.edu/ing/">http://botany.si.edu/ing/</a>	Nomenclatural
16	Index nominum supragenericorum plantarum vascularium	<a href="http://www.plantsystematics.org/reveal/pbio/WWW/supragen.html">http://www.plantsystematics.org/reveal/pbio/WWW/supragen.html</a>	Nomenclatural
17	Integrated Taxonomic Information System (IT IS)	<a href="http://www.itis.gov/">www.itis.gov/</a>	Nomenclatural

18	Kew's Electronic Plant Information Centre (ePIC)	<a href="http://epic.kew.org/index.htm">http://epic.kew.org/index.htm</a>	Nomenclatural
19	Kew's Herbarium Catalogue	<a href="http://apps.kew.org/herbcat/navigator.do">http://apps.kew.org/herbcat/navigator.do</a>	Herbarium database/virtual herbariums
20	LegumeWeb (pea family)	<a href="http://www.ildis.org/LegumeWeb">http://www.ildis.org/LegumeWeb</a>	Family oriented database
21	Linnaean plant name typification project	<a href="http://www.nhm.ac.uk/our-science/data/linnaean-typification/">http://www.nhm.ac.uk/our-science/data/linnaean-typification/</a>	Nomenclatural
22	Names in Current Use for Extant Plant Genera	<a href="http://www.bgbm.fu-berlin.de/iaptncu/genera/NCUGQuery.htm">http://www.bgbm.fu-berlin.de/iaptncu/genera/NCUGQuery.htm</a>	Nomenclatural
23	NCBI	<a href="http://www.ncbi.nlm.nih.gov/Taxonomy/taxonomyhome.html?taxon=resources">http://www.ncbi.nlm.nih.gov/Taxonomy/taxonomyhome.html?taxon=resources</a>	Nomenclatural
24	New York Botanical Garden bryophyte catalog :	<a href="http://www.nybg.org/ryo/bry3.html">http://www.nybg.org/ryo/bry3.html</a>	Family oriented database
25	The Plant List	<a href="http://www.theplantlist.org">http://www.theplantlist.org</a>	Nomenclatural
26	Regional Floras and Individual Plant Groups	<a href="http://www.blogger.com/goog/1316442556">http://www.blogger.com/goog/1316442556</a>	Flora/e-floras
27	The Cycad Pages	<a href="http://plantnet.rbgsyd.nsw.gov.au/PlantNet/cycad/">http://plantnet.rbgsyd.nsw.gov.au/PlantNet/cycad/</a>	Family oriented database
28	The Gymnosperm Database	<a href="http://www.conifers.org/">http://www.conifers.org/</a>	Family oriented database
29	The International Plant Names Index (IPNI)	<a href="http://www.ipni.org/">http://www.ipni.org/</a>	Nomenclatural
30	Trpocos	<a href="http://www.tropicos.org/">http://www.tropicos.org/</a>	Nomenclatural
31	USDA PLANT	<a href="http://plants.usda.gov/java/">http://plants.usda.gov/java/</a>	Nomenclatural
32	Vascular Plant families and genera	<a href="http://data.kew.org/vpfg1992/vascplnt.htm">http://data.kew.org/vpfg1992/vascplnt.htm</a>	Nomenclatural

Table 2 : List of Open access databases in Plant taxonomy and related field

## 6. Open access web resources on historical botany literature:

In the open web world there are various digitization project of historical literature has been established to make it online and public. These online resources of historical botany literatures are very important for plant taxonomist, scientist, researcher, student and librarian. A brief description of the some selected open access historical botany literature information resources along with there URL are explored and listed here.

**6.1 The Biodiversity Heritage Library (BHL) :** (<http://www.biodiversitylibrary.org/>) BHL is a consortium of natural history and botanical libraries. The main objective of BHL is to digitized their legacy literature of biodiversity with them and make it open accessible. BHL has digitized millions of pages of taxonomic literature. At present BHL has a total online collection of over 100000 titles, 1,70,000 volumes. The BHL allows users to search, read the texts online, or download select pages or entire volumes as PDF files.

**6.2 BioLib - Kurt Stüber's Online Library :** (<http://www.biolib.de/>) BioLib is a collection of historic and modern biology books. Many of these books are currently out of print. The collection of books are online accessible and to help students of biology and teachers in learning and research.

**6.3 Botanicus Digital Library :** (<http://botanicus.org/>). Botanicus digital library is an open access Web-based encyclopedia of digitized historic botanical literature from the Missouri Botanical Garden. Almost out of 67,000 systematic botanical publications exists in Botanicus.

**6.4 BPH online :** (<http://fmhibd.library.cmu.edu/fmi/inp/cgi>) This site is useful to search the abbreviations of titles of botanical journals and periodicals.

**6.5 Kew Library :** electronic resources: (<http://www.kew.org/library/e-resources.html>). Kew library electronic resources gives links numerous links to botanical titles available online for free somewhere on the internet. It provides links to literature of floras, medicinal plants etc.

**6.6 Kurt Stüber's online library :** ([www.BioLib.de](http://www.BioLib.de)). It is an online collection of biological titles out of print, including many botanical titles, historic and modern biology books. At present over 1 lacks of scanned pages are available and can accessible from this digital library.

**6.7 Libri Fungorum :** (<http://www.librifungorum.org/>). Libri Fungorum(LF) is a digital archive for books, journals, thesauri, indexes and other publication important to systematic mycology (fungi and fungal analogues, including yeasts, lichens, myxomycetes, downy mildews, and all their allies). In this digital archive resources like books, journals, Thesauri, Indexex are available and can be access freely. Libri Fungorum currently serves 708 items comprising 330700 page images from books, journals, Thesauri, indexes and miscellaneous.

**6.8 Mertz Library Digital Collections :** (<http://mertzdigital.nybg.org/cdm/search>). The LuEsther T. Mertz Library is one of the world's largest and most important botanical and horticultural research libraries, with over one million accessioned items (books, journals, original art and illustration, seed and nursery catalogs, architectural plans of glass houses, scientific reprints, and photographs) and over 4,500 linear feet of archival materials. The Library serves as both a research and a public library and as both a scholarly resource and a general plant information service.

**6.9 Biblioteca Digital :** The digital Library of Royal Botanic Garden (CSIS) (<http://bibdigital.rjb.csic.es/ing/presentacion.php>). The digital library of the Royal Botanic Garden (CSIC) was set up with this objective to digitalizing the antiquarian botanical books. The digital Library of Royal Botanic Garden provides access to books are mainly related to Iberian flora but also to Latin-American and Philippines floras and other classical botanical works in Pdf high-quality images. The digital Library of Royal Botanic Garden (CSIS) Currently contains a collection of 1593434 pages, 2637 titles and 6162 volumes for free access on web.

**6.10 The complete work of Charles Darwin Online :** (<http://darwin-online.org.uk>). Among the most important collection of biological sciences literature Charles Darwin's collection are very important classic literature which are available online in the Darwin online. This site contains Darwin's complete publications, many handwritten manuscripts and the largest Darwin bibliography and manuscript catalogue ever published. This website contains over 100,000 pages of searchable text and 214,000 electronic images.

**6.11 NYPL Digital Gallery :** Nature Illustrated: Flowers, Plants, and Trees, 1550-1900: ([http://digitalgallery.nypl.org/nypldigital/explore/dgexplore.cfm?col\\_id=184](http://digitalgallery.nypl.org/nypldigital/explore/dgexplore.cfm?col_id=184)).

The NYPL provides access to thousands of page images and illustrated botanical plate etc. The Gallery includes thousands of art and scientific prints, illustrating medicinal plants, spectacular garden flowers, exotic tropical blooms, trees and ferns.

## 7. Conclusion :

The growth of web resources and their increased use and dependency changed the information seeking behaviour of the library users. Now a day library users spend more time on web to search their required information. In the ocean of web information it is very difficult to get the information they need from the web in a shortest possible time for a plant student, researcher, teacher, taxonomist, or scientist. The provided information resources and their URL in this paper will helps to find out the botanical information for selected community of users. The library professionals can play a major role to create awareness about these available open access online resources and other related new resources to its user's community time to time by providing useful links of information resources to their library webpage, library blog page, library facebook page, twitter and using other social networking tools for the effective information flow and disseminations.

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## E-resources management in B. M. Pugh. Library, AAU, Jorhat and LNB Granthagar DU, Dibrugarh : a study

\* Bhaskar Khanikar

### Abstract

*In the modern technology based society the traditional thought for a library is being changed. The users of the libraries are also making themselves aware of the time based resources which are easily accessible from remote locations. The library authorities are also bound to pay attention towards the satisfaction of the user community at any level in any cost. Libraries are increasingly seeking to maintain Electronic Resources as well as print and audio-visual collections. The management of electronic collections relies on proper use of technology and the ability to integrate various processes like Collection, Development, Organization and Dissemination etc... Here an attempt is made to study on the processes of Development and Management of E-resources in the surveyed libraries.*

**Keywords :** Collection Development, E-resources, E-resource Management, University Libraries etc...

### 1. Introduction :

The widespread use of electronic technology to produce, store, maintain and dissemination of information of all kind is one of the great achievements of the information age. The electronic resources are of great importance to the libraries of all types and sizes. Internet also has changed it radically. Libraries provide internet facilities so that they can satisfy the needs of their clients to a maximum level. In addition to the development of the e-resources the libraries also have to concentrate on the overall operations for proper utilization of the same. These e-resources can be accessed from the home/ remote location by the users.

The dissemination of electronic resources is not alike to the traditional resources. It requires a delivery platform, equipment, software, and time based services.

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## 2. Objectives of the study :

The main objectives of this paper are:

- a. To trace out the E-resources available in the library.
- b. To know the collection, development and management process.
- c. To find out the users' satisfaction levels.
- d. To know the manpower strength.
- e. Availability of services etc.

## 3. Scope of the study :

The scope of the present study is limited to the e-resource management of the two surveyed libraries. It focuses the available resources, the way of development and management processes. The study also covers personal interviews with the librarians of the two libraries.

## 4. Methodology :

There are three state universities in Assam and we have randomly selected the two libraries among them. Keeping in view the objectives of the study in mind a questionnaire was developed and distributed to collect data from the selected libraries. The survey was also conducted through telephonic conversations and personal interview with the librarians. Then the data are tabulated and analyzed for the purpose of result and are presented in the following paragraph.

## 5. E - Resources :

Electronic information resources are the concept of new era, which brought a lot of phenomenal changes in the process of information resources. When we process data and convert it to meaningful form, it becomes information and when this information is fetched in electronic form it is called electronic information resources. E-resources are not physical object but a combination of text, animation, sound, video clips etc. E-resource contains machine readable information.

### 5.1 Types of e- resources :

#### a) Direct access e-resources :

Basic e- resources can be used at any time. Databases are under this category. They contain fixed information.

#### b) Living e-resources :

These are client and server based information resources and can be accessed from remote location.

#### c) Subscription based e - resources :

These e- resources are available through payment basis.

#### d) Free e-resources :

These are available free of cost on internet. Open access journals are under this category.

## 6. Management of e-resources :

Collection management is not originally perceived as a very demanding activity but it certainly brings great personal satisfaction to the librarians if the information required by the users can be delivered him immediately. The arrival of digital technologies for handling text sound, visual images have made the possibilities almost limitless.

The rapid expansion of digital resources compounded with changing formats and sales models in the short life of web based delivery system has particularly made the management process more complex. The management process of e-resources is a set of processes that collects, processes, stores and disseminates the information to help and coordinate the activities of decision making to avoid uncertainty.

There are several vendors providing more or less integrated e-resources management services. The steps required for maintaining e-resources are more complex than those for print resources. A process that consists of selecting, ordering, cataloguing and binding now includes evaluating, approving, licensing, billing and registering access. These are accompanied by a series of technical aspects, such as usability, performance, access technologies, public interfaces and usages statistics.

## 7. Data analysis and interpretation :

Analysis is a critical examination of assembled data in relation to the objectives of the study. In this study a structured questionnaire was prepared and distributed among

the library personnel of the selected libraries. Data were also collected through over telephone as well as personal interview. The collected data under various questions have been scrutinized, tabulated and reduced for better transparency and understanding.

7.1 Profile of the libraries :

Table-1

Serial No.	Name of the Library	Year of Establishment	Area
1	LNB Granthagar, DU	1965	33570 Sq. Ft.
2	BM Pugh. Library AAU	1969	25000 sq . ft.

The above table shows, that the trend of establishment of the surveyed libraries were started in the mid of 19th century. These two libraries are equipped with huge working area.

7.2 Collections of the libraries :

The Table-2 shows the collections of the surveyed libraries. All are well equipped with sound collections in terms of print and non print resources. LNB library has huge collections in comparison to BM Pugh Library.

Table-2

Sl. No.	Name of Library	Printed	Non-printed	Others
1	LNB Library	175293	698	59 A/V materials
2	BM Pugh.	100956	454	45 A/V materials

7.3 Library services :

In order to satisfy the needs of the users the libraries provide the following services. Some services are common to them. As a special library cum academic library the BM Pugh library provides documentation services.

Table-3

Name of the library	CAS	SDI	User Education	Circulation	Reference Service	Internet	Docum-entation	Reprog-raphy	Print of Document.
LNB	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
BM Pugh	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes

7.4 Manpower strength :

Table-4

	LNB	BM Pugh
Professional		
Sufficient/ insufficient	Sufficient	Insufficient
Semi professional		
Sufficient/ insufficient	Sufficient	Insufficient
Non professional		
Sufficient/ insufficient	sufficient	Insufficient

The above table implies that the surveyed libraries are not well equipped with manpower. They have insufficient library personnel.

7.5 Status of library automation :

The table-5 shows that the libraries are fully computerized. They are using the updated version of SOUL.

Table-5

Sl. No.	Initial stage	Fully automated	Software used
LNB	No	Yes	SOUL 2.0
BM Pugh	No	Yes	SOUL 2.0

7.6 Sources preferred in identification of e-resources :

Table-7

Sources	LNB library	BM Pugh. library
Vendors reputation	Yes	Yes
Timelines and accuracy	Yes	Yes
Price	Yes	
User interface	Yes	Yes
Faculty/students' recommendation	Yes	Yes
e-presentation or demo programme	Yes	No
Others	Yes	

This table shows the basis of identification of e-resources in the libraries. These are the consideration in identifying the e-resources. LNB Library prefers all the above conditions but in case of BM Pugh Library some sources are different. Price is not a factor for them.

#### 7.7 Arguments in favor of procurement and use of e-resource :

Table-8

Sources	LNB Library	BM Pugh
High demand	Yes	Yes
Accessibility	Yes	Yes
Quality stock	Yes	Yes
Stock maintenance	Yes	No comment
Price	Yes	No comment
Others	MOU	No comment

The surveyed libraries procure and use the e-resources for the above reasons. They give emphasis on easy to access so that the user can easily get it. Price is the main factor in procurement of e-resources, as a result they have to satisfy with the less price documents or limited collections. The e-resources are less time consuming, so user as well as the library staff can easily handle them. These are cost effective also.

#### 7.8 Role of the librarian :

Table-9

Role	LNB library	BM Pugh Library
E-resource selector	No	Yes
Forwarding agent	No	Yes
Others	Coordinator	Not mentioned

In the developing of e-resources the librarian of surveyed libraries have played a very effective role. The librarian of BM Pugh library plays the role of resource selector and forwarding agent. But the librarian of LNB library plays only the role of coordinator between the e-resource provider and the authority of the institution. He takes the final decision and passes the list for procurement of resources.

#### 7.9 Internet facilities :

Table-10

Internet facilities	LNB Library	BM Pugh Library
Within the library	Yes	Yes
Intake capacity	60+	30+

Both the libraries are providing the facilities of internet services. The internet centers are also attached with the libraries' main building.

#### 7.10 Modes of e-resource development :

Table-11

Modes	LNB Library	Total	BM Pugh. Library	
Purchased	Yes	2000+=journal 7000+=books	Yes	300+=journals
Supplement with book	Yes		Yes	Not mentioned
Joining with consortia	Yes		Yes	Not mentioned
Using open access facilities	Yes	8000+ journal	yes	Not mentioned

The above Table-11 shows the trends of development of e-resources in the surveyed libraries. In their collections most are purchasing documents, some are available through consortium services, some copies are available as supplement with books. It is significant that they are also providing open access facilities to their users.

#### 7.11 Available services under consortia :

Table-12

Services	LNB Library	BM Pugh. Library
Journal access	Yes	Yes
Database access	Yes	No
Card catalogue	Yes	No
ILL through JCCC	Yes	No

Table-12 shows that both the libraries are member of e-journal consortia. Through this they are providing journal access to the users of the library. The users have own gateway to access to the journal through remote locations.



**7.12 Users' awareness programme :**

Table-13

Awareness programme	LNB Library	BM Pugh Library
Orientation programme	Yes	Yes
E-resource utility programme	Yes	No
Others	Not mentioned	No

The Table-13 shows that libraries are also taking users awareness programme for handy use of the library resources. They take the users orientation programme at the beginning of the semester courses and being continue with the availability of the new services. E-resources utility awareness programme is provided by the LNB Library and under these users are introduced with the services under the consortia, open access and database access.

**8. Conclusion :**

From the above study it is clear that the surveyed libraries are well equipped with various collections. These two libraries are the central hub of the Dibrugarh University and Assam Agricultural University. To cope with the changing environment the libraries are trying to intimate with the e-resources and introducing the required ICT based infrastructure. The goal of the libraries is to provide an effective combination of print, non-print and e-resources. These resources help in further study and teaching. Though the e-resources pose challenges in purchasing them but through proper channel the purchasing become easy. Being a member of consortia it is also to provide e-resources is an easier path.

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## ELECTRONIC MEDIA LIBRARIES AND ITS STORAGE DEVICES WITH SPECIAL REFERENCE TO PRIVATE SATELLITE TELEVISION LIBRARIES OF ASSAM

\* Mrinmay Kumar Das and \*\* Dipika Saharia

**Abstract**

*The paper provides an overview of electronic media and its libraries and types of media libraries. An introduction of Private Satellite Televisions of past and present of Assam has been given. Brief descriptions of different Storage devices used by the Satellite Television Library (STL) are given along with their image. Storage devices used by different STL of Assam has been listed here.*

**Keywords :** Media, Electronic media, Electronic media Library. Satellite Television, Satellite Television Libraries, Audio Visual (AV) storage devices.

**1. Introduction :**

Media is described as the mean of communication. According to English Oxford Dictionaries "Media" means "the main means of mass communication (broadcasting, publishing and internet) regarded collectively. There are two kinds of media-Print media and Electronic media. Print media deals with the print materials whereas electronic media means broadcast or storage media that take advantage of electronic technology. They may include television, radio, internet, fax, CD-ROM, DVD and any other medium that requires electricity or digital encoding of information.

From the time of human civilization media is playing a vital role in communication. The libraries related to this media are regarded as the media library. Again the media library is of two types-

- a. The media libraries which are having the materials in print form (books, newspaper, journals etc.) are named as print media library.

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- b. The media libraries which are having the non-print materials especially AV (Audio Visual) are regarded as the electronic media library or AV media library.

The electronic media library is that from where we find access either online or offline movies, interviews, radio programs and all such "moving media". Due to the speed and accuracy the electronic media libraries has become popular now a days.

## 2 Electronic Media Libraries :

Electronic media libraries are those libraries that acquire Audio Visual (AV) materials i.e. non-print materials like CDs, DVDs, tapes, slides films etc. Now a days Electronic media libraries playing a major role in the storage of different information. The information from different disciplines are collected, recorded and are kept in the libraries and as and when these information are required, are telecasted with the help of satellite service throughout the world within seconds.

### 2.1 Types of electronic media libraries :

The media by which thoughts and ideas, information can be disseminated are newspaper, radio and television. Now television has become a most popular electronic media.

The types of electronic media libraries are-

- a. Radio library,
- b. Television library, and
- c. Film library

## 3. Satellite Television :

Satellite Television is a particular type of broadcast delivery based on using space satellite to deliver signals. Broadcast signals are transmitted from satellite orbiting the earth and received by local and regional TV system.

### 3.1. Satellite Television Library (STL) :

Satellite Television Libraries have been developed to support their individual TV channels. These libraries are equipped with latest state-of-the-art devices for storage

and dissemination of information in the form of news, interviews, different entertainment programs etc.

## 3.2 Satellite Television Libraries of Assam :

With the development of information technology and upcoming need of the society numbers of Satellite Television has been emerged in Assam in the beginning of 21st century. A library is very much essential in Satellite Television for archiving the different broadcasted programs like news, interviews, entertainment shows etc. in suitable storage devices.

NE Television (NETV) was the first private satellite TV channel of the entire North East Region and established in 16th March' 2004 under the banner of "Positive Television Private Limited", Rehabari, Guwahati, Assam. NE HiFi, the 1st entertainment private satellite channel of North East was launched in 25th February' 2006 within the building of NE Television. The library of NE HiFi was also functioning from the NE Television library. The library of NE Television was having a collection on CDs (audio and video), Tapes (Hi-Band, Beta, DVC pro, and Mini DV), Audio cassettes etc. They arranged the materials according to own system for easy and speed retrieval of information. The library used CDS/ISIS library software with which the required information can be retrieved within a fraction of second. NE Television mainly broadcast news in different language of NE region, like English, Assamese, Bengali, Hindi, Nepali, Bodo, Nagamese, Khasi, Mizo, Manipuri etc. In 2010 NE Television was tagged with "Pratidin Group" and became "NETV Asomiya Pratidin". Than it became Focous NE. Unfortunately NETV group had shut down on 23.05.2015 forever. The first private satellite channel (Television) of North East Region is now a history in the Satellite Television era of North East.

Two satellite TV channels, Frontier TV and Prime News were emerged between 2010 to 2014, but not survived.

The present STL are-

### 3.2.1 News Live :

News Live is established on 21st January' 2008, the second private satellite news & entertainment channel of Assam under the banner on **Pride East Entertainments Private Limited**. Under this banner five channels are functioning. Viz- News Live

(2008), Rang (2009), Ramdhenu (2011), North East Live (2013) and Indradhanu (2016). The collection are arranged and preserved very properly and for easy and correct retrieval. The library is functioning from the News Live library.

### 3.2.2 DY365 :

This one is the 3rd private satellite news & entertainment channel of Guwahati, established on 30th October 2008 under the banner of Brahmaputra Tele Production Pvt. Ltd. It is mainly deals with news of different language (English, Assamese, Hindi and Bengali). The library of DY 365 is having a small collection of, DVDs and Tapes. Jonak is an entertainment channel of DY 365 group.

### 3.2.3 Pratidin Time :

It was first launched as News Time Assam on 25.12.2010 which was owned by Kolkata based Brand Value Communications Limited under Rose Vally Group of Companies. In 2015 the channel was acquired by Pratidin Group and renamed as "Pratidin Time".

### 3.3.4 Prag News :

It was launched as a cable TV channel in Guwahati on 4th March 2001. It was owned by A.M. Television Pvt. Ltd. In the later years the channel is upgraded as satellite TV channel. "Rengani" is an entertainment channel of Prag group.

### 3.2.5 Assam Talk :

This news channel is established on 2nd May 2015. Under the banner of Rockland Media and Communication Private Limited at Guwahati.

### 3.2.6 News 18 Assam/North East :

This channel was established on 24th June 2016. It is owned by Network 18 Group. Broadcast Assamese and English News Bulletin. There is no library in this channel. All programs including news bulletins are stored in the server located in Hyderabad city.

## 3.3 Materials Used in STL :

The materials used in STL are as follows-

## 3.3.1 Tapes :

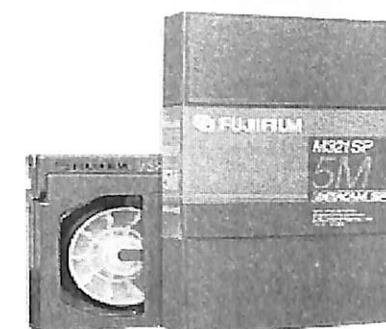
The most widely used audio- visual material in AV media library is the tape. The information receives and disseminate mainly in tapes. There are various types of tapes used in AV library having various lengths. The types are as follows -

**(i) Hi-Band :** It is a type of digital cassette (tape). This is huge in size (about 30cm) and capture or record only up to 30 minutes. These types of tapes are not use these days.



**Fig: Hi-Band**

**(ii) Beta cam :** It uses metal formulated tape as opposed to Beta cam's oxide tape. Beta cams are a popular professional video tape that is used by many production companies. It is available in brands like Sony, Maxell and Fuji etc. It comes in various length, 5, 30, 60 and 90 minutes.



**Fig: Beta cam Tape**

(iii) **DVCPro** : It is also one kind of digital video cassette and the cassettes come in different lengths like 66, 94 & 126 minutes (Panasonic, Fujifilm).



**Fig: DVCPro**

(iv) **DVCAM** : The DVCam tape format is the most compact professional digital recording media. DV Cam also comes in various length like 41 & 184 minutes (Sony), and 66 & 127 minute (Panasonic).



**Fig : DVCAM**

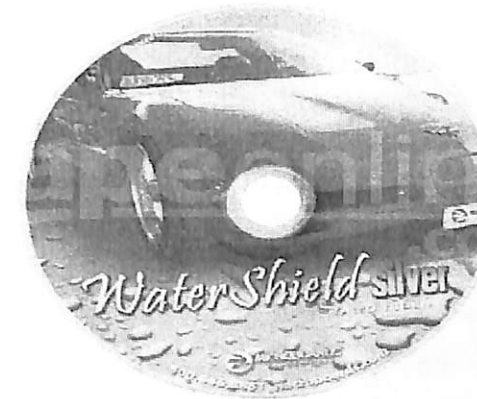
(v) **MiniDV**: Mini DV is one of the three common digital formats used in sound and picture recording using digital technology Mini DV captures video and audio on high density caste tapes. This format is very popular as it delivers sound and videos of sharp and high quality. The length of the tape is 90 minutes (LP Mode), 60 minutes (ST Mode), and 41 minutes (DV Cam mode).



**Fig: Mini DV**

### 3.3.2 CD :

The full form of CD is Compact Disc. It burns mp3's and other data on this blank CD-R Disc from major manufacturers like Maxell, Prodisc, Taiyo, Yaden etc. The maximum length of a CD is 700 MB. It may be Audio or Video in form.



**Fig : CD**

### 3.3.3 DVD :

The full form of DVD is Digital Versatile Disc. It can record our favorite movies; T.V. Shows etc. backup any important data on these blank DVDs. The available brands of DVDs are Sony, Maxell, Prodisc, Apple etc. It has the capability to capture the pictures (video) in digital form the maximum length of DVD in single layer is 4GB and Double layer is about 8 GB.



Fig : DVD

3.3.4 SDCard :

An SD card i.e. Secure Digital Card is an ultra small flash memory card designed to provide high capacity memory in small size. SD cards are used in many small portable devices such as digital video camocorder, digital cameras, audio players and mobile phones. SD cards are available in different capacities and size.

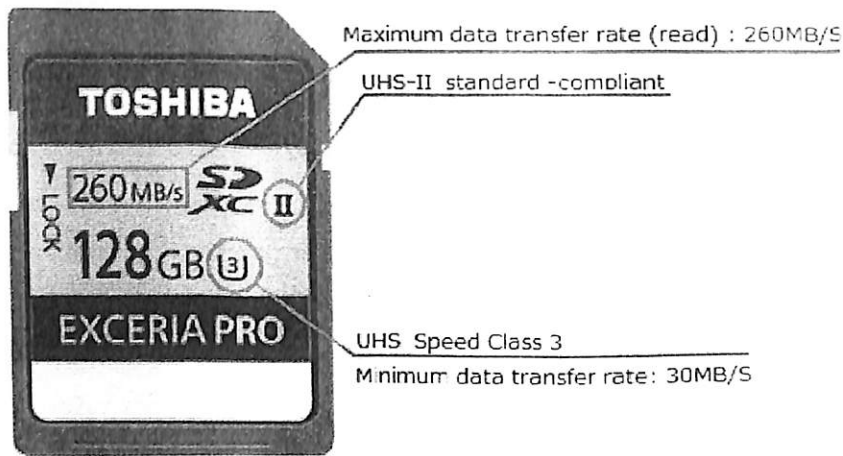


Fig: SD Card

3.3.5 External Hard disc :

An external hard drive is a portable storage device attached to a computer through a USB or Fire Wire connection or wirelessly. Such drives are typically have high storage capacities and are often used to back up computers and as a storage device on a Local Access Network (LAN).



Fig: External Hard Disc

4. Storage Device Used in STLs of Assam :

The following table shows a detail picture of different storage devices used by the STLs of Assam -

Storage device used by STL	News Live Group	DY365 Group	Pratidin Time	Prag News Group	Assam Talks
Hi-Band	Yes	No	No	No	No
Beta cam	Yes	No	No	No	No
MiniDV	Yes	Yes	Yes	Yes	No
DVCpro	No	No	No	No	No
DVCAM	Yes	No	No	No	No
CD	Yes	Yes	Yes	Yes	Yes
DVD	Yes	Yes	Yes	Yes	No
SD Card	Yes	Yes	Yes	Yes	Yes
External Hard disc	Yes	Yes	Yes	No	No

From the above table it has been seen that most of the STL uses same type of storage devices. Hi-Band tape and Beta cam were used in News Live Group library to store old films. On the other hand Assam Talks Library uses only CDs and SD Cards.



## 5. Advantages and Disadvantages of AV Materials :

### 5.1 Advantages :

#### (i) Space saving :

The AV materials are space saving. A long story can be kept in a single video tape, SD cards or CD etc. that can be stored in a library in minimum space.

#### (ii) Security :

One copy of the programme can be kept permanently and on the other hand, one duplicate copy can be used and there by it can reduce considerably the destruction or loss of vital information.

#### (iii) Reproducibility :

The AV tapes can be reproduced in another tape at nominal cost within a short time. Which is time saving and can be satisfied number of requester at a time.

#### (iv) Accessibility and portability :

The AV materials generally take up little space; very small libraries can provide a can to thousands of documents.

#### (v) Economy in transportation :

If the tapes/ records are need to transport from one place to another it is easy to send by official messenger or by speed post of Indian postal Departments or can be transported by local courier service.

### 5.2 Disadvantages :

#### (i) Sophisticated :

The AV materials are highly sophisticated and there is a vast chance of spoiling if not handled properly.

#### (ii) Extensive care :

The AV materials required extensive care while handling. Because of mishandling the materials are frequently damaged. Proper precautions should be maintained to keep devices in good conditions.

#### (iii) Required high quality preservation :

The AV materials should be preserved by environment control (using A/C) if not the materials can be easily spoil out and will become out of order.

#### (iv) Expert handling :

A skilled staff is mandatory for handling the AV materials properly.

#### (v) Changing technology :

Very frequently technology change and with this the type of cassette are also changes. Low-Band, Hi-Band, VHS, Beta cam, and now DVCpro, DVCAM and MiniDV. It creates little bit of problem because when the types of tapes changes the equipment must be changed and the old machines does not support the new tapes.

## 6. Conclusion :

Eletrononic media are the media that communicate with the society in fast mode and in popular way. The libraries of electronic media are equipped with sophisticated AV storage devices and are supporting the respective media for proper communication of information. Now a day Satellite Television is playing a vital role in communication of different information, news, entertainment programmes, awareness programme etc. for society.

The STL are using different form of AV devices to cop up with the changing trend of information technology and making people aware of current happenings as well as making them entertained. For correct and good handling of the AV materials the librarian of electronic library, they should have good knowledge of information technology. A skilled librarian will keep such libraries and storage devices in well condition and usable.

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## Digitization of Libraries and Its legal aspects : Copyright Protection and Provisions Attracting Punishment for Violation of Copyright Laws in India

\* Rimpi Gogoi

### *Abstract*

*This paper discusses about the laws regarding copyrighted materials in the context of digital libraries. Most of the people in the world have less awareness about the provisions attracting punishment and fine for infringing or violating the copyright rules. The Copyright Act, 1957, in India prevents the unauthorized use of author's original work in India. This paper also discusses about the "Doctrine of Fair Dealing" in digital environment i.e. the right to use the copyrighted material without permission or payment, subject to certain limitations. The International Conventions and Treaties including Berne Convention of 1886 has also been discussed which is considered universally as the most important convention in the field of copyright protection.*

**Keywords :** Copyright Act, 1957; Doctrine of Fair Dealing, Digital Environment, International Convention, Treaties, Berne Convention.

### 1. Introduction :

In this era of digitization, technology is playing a great role in shaping our traditional libraries into digital libraries. Digital conversion of library materials has advanced rapidly in recent years. Over the centuries traditional libraries have changed significantly over the course of history. A traditional library was a place where different books, magazines, reports, handouts, newspapers were preserved and was made available to the public at times when they want to read or to study. But sometimes people use to face problems due to non-availability of number of resources. It was therefore felt that development in the field of digitizing library materials was the need of hour where people could easily access huge number of collections and also save time and money.

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Notably, in today's world where people can easily access materials through internet, one of the major issues we need to be concerned about is the issue of copyright protection. In the digital environment there is possibility that a big number of data may be processed. It is very important that creators of digital libraries and the users of digital libraries have an understanding of the existing copyright laws. There is a need that the privacy rights and the confidentiality rights of library users are protected. In order to protect the rights of the users the government has enacted copyright laws in India. It is discussed in detail below.

## 2. What is Copyright ?

Copyright is a term use to define the right over the property which results from the intellect of the creator. Under Indian Copyright Act, 1957, copyright means and includes literary, dramatic, musical, and artistic works, cinematographic films and sound recordings. The definitions of the works are such that most of the expressions in the above fields, irrespective of their literary, artistic or aesthetic qualities are covered by copyright provided they are original. Although originality of expression is a criterion for copyright protection, the degree of originality demanded is not very high. Ordinarily it means that the work should not have been a copied one and should be the result of the labour and skill of the person who claims to be the author. Thus a political tract or a memorandum issued by a local authority can claim copyright even if they do not have any literary merit.

The copy right ownership generally rests with the creator that is the author of the literary work, composer of the musical work, dramatist of the dramatic work and the artist of the artistic work. In the case of acinematograph film and a sound recording the owner is the producer. There are exceptions to this like when the person created the work, the first owner is the government, and that of the work of a public undertaking or an international organization it is the undertaking or the organization as the case may be. In the case of a painting done or a cinematograph film made or a photograph taken for a valuable consideration the ownership goes to the person who has paid for the valuable consideration.

Copyright is not a single right but a bundle of rights. It inter alia, includes the right of reproduction, issuing of copies, communication to the public, adaptation and translation. These are transferable rights. The owner can transfer the rights

through assignments or testamentary dispositions or through inheritance. The assignments can be in respect of one right or more than one right or even all the rights. The owner can also license a person to do any specific act which is his exclusive right without transferring the right. The Indian Copyright Act also enables an author to relinquish his copyright in a work, which work would be out of copy regime.

## 3. International Treaties and Conventions on Copyright :

It has been witnessed during 18th and 19th century that books were smuggled around the globe and there is no proof to claim them. The globalization of the media market made it imperative to assure copyright protection internationally. The first International Convention on Copyright which is considered as the oldest and most important one is the Berne convention of 1886 followed by other treaties and Conventions. The Conventions and Treaties in chronological order are as follows:-

- a. Berne Convention for the Protection of Literary and Artistic works, 1886, Switzerland.
- b. Universal Copyright Convention (UCC), 1952, Geneva.
- c. Convention for the Protection of Producers of Phonograms, 1971, Geneva
- d. World Intellectual Property Organization Copyright Treaty WIPO 1996, Geneva
- e. The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), 1996, etc.

There are many more agreement and treaties beside these Conventions.

## 4. Berne Convention, 1886 :

It is the most important treaty for copyright protection which was signed in 1886 and was ratified by almost 180 countries. The preamble of Berne Convention lays down the aim to protect effective and uniform rights of authors in their literary

and artistic works. Article 1 lays down that the countries to which the Convention applies constitutes a union for the protection of the rights of authors in their literary and artistic works.

The Convention provides three basic principles:-

- a. **The Principle of National Treatment :-** According to the principle of "national treatment" works originating in one of the member states are to be given the same protection in each of member States as these grant to works of their own nationals.
- b. **The Principle of Automatic Protection:-** According to this principle national treatment is not dependent on any formality. In other words, protection is granted automatically and is not subject to the formality of registration, deposit or the like.
- c. **The Principle of Independence of Protection:-** According to the third principle enjoyment and exercise of the rights granted is independent of the existence of protection in the country of origin of the work.

The Berne Convention lays down minimum standards of protection of literary and artistic works and duration of protection:-

- i. Article 2 (1) provides that, protection must include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression, such as books, pamphlets and other writings.
- ii. Subject to certain exceptions and limitations there are certain rights that are recognized as exclusive rights of authorization:
  - a. The right to translate;
  - b. The right to make adaptations and arrangement of work;
  - c. The right to perform in public dramatic, dramatic-musical and musical works;

- d. The right to recite literary works in public;
- e. The right to communicate to the public the performance of such works;
- f. The right to broadcast (with the possibility that a contracting State may provide for a mere right to equitable remuneration instead of a right of authorization);
- g. The Convention also provides for "moral rights"; that is, the right to claim authorship of the work and the right to object to any mutilation, deformation or other modification of, or other derogatory action in relation to, the work that would be prejudicial to the author's honor or reputation.

The Berne Convention, concluded in 1886, and was revised at Paris in 1896 and at Berlin in 1908, completed at Berne in 1914, again revised at Rome in 1928, at Brussels in 1948, at Stockholm in 1967 and at Paris in 1971, and was amended in 1979.

The Convention is open to all States. Instruments of ratification or accession must be deposited with the Director General of WIPO.

## 5. Copyright Law in India :

The modern copyright law developed gradually in a span of 150 years. The first copyright law enacted by Governor General of India during East India Company's Regime on 18th December 1847 to affirm the applicability of English copyright law to India. The Act specifically provides that under a contract of service copyright in "any encyclopedia, review, magazine, periodical work or work published in a series of books or parts" shall vest in the proprietor, projector, projector, publisher or conductor". However, the Act specifically reserved the subsistence of copyright in the author, and his right to sue for its infringement to the extent available in any other law except 1847 Act. At the time of introduction in India, copyright law had already been in the developing stage in Britain for over



a century and the provisions of the 1847 enactment were reflected in the later enactments. The Copyright Act 1911, while repealing earlier statutes on the subject, was also made applicable to all the British colonies including India. In 1914, the Indian Copyright Act was enacted which modified some of the provisions of Copyright Act 1911, and added some new provisions to it to make it applicable in India. The Indian Copyright Act 1914 remained applicable in India until it was replaced by the copyright Act 1957.

The Indian Copyright Act, 1957 was enacted and was amended several times that is in 1981, 1984, 1992, 1994 and 1999 and most recently in 2012. Under this Act the right to produce a translation of work was made coextensive with other rights arising out of copyright. Provisions relating to assignment of ownership and licensing of copyright including compulsory licensing in certain circumstances, rights of broadcasting organizations, international copyright, definition of infringement of copyright, exceptions to the exclusive rights conferred upon the author or acts which do not constitute infringement, special rights of authors, civil and criminal remedies against infringement and remedies against groundless threats or legal proceedings were also introduced.

### **5.1 Penal Provisions Under Copyright Act and other Legal Provisions for Infringement of Copyright :**

The Copyright Act, 1957 provides for penal provisions under different sections. Section 63 of the Act provides that any person who knowingly infringes or abets the infringement of the copyright in a work or any right conferred by this Act shall be punished with imprisonment for a term which shall not be less than fifty thousand rupees but which may extend to two lacs rupees.

Section 63A provides for enhanced penalty on second and subsequent convictions. It provides that whoever having already been convicted of an offence under section 63 is again convicted of any such offence shall be punishable for the second and for every subsequent offence, with imprisonment for a term which shall not be less than one year but which may extend to three years and with fine which shall not be less than one lacs rupees but which may extend to two lacs rupees.

Section 63B provides that any person who knowingly makes use on a computer of an infringing copy of a computer program, shall be punished with imprisonment for a term which shall not be less than seven days but which may be extend to three years and with fine which shall not be less fifty thousand rupees, but which may extend to Rupees 2 lacs.

Section 64 provides power of the police to seize infringing copies. Section 65 any person who knowingly makes, or has in his possession, any plate for the purpose of making infringing copies of any work in which copyright subsists is punishable with imprisonment which may extend to two and fine.

### **6. Digitization of Libraries and Copyright :**

Digitization is a process of converting any work into binary language that can be read by a computer. Digitization involves storage in an electronic medium such as the hard disk of a computer or a floppy disk or a CD-ROM. The Copyright Act classifies such storage as reproduction. Hence digitization involves reproduction, which is an exclusive right of the owner of the copyright in the work if the work is still in the copyright regime. Therefore, it is a legal requirement that permission of the copyright owner is obtained before digitizing a work in the library on which copyright subsists.

Digitization involves certain rearrangements and alterations because of technical reasons. Many a time it also involves such alterations for other reasons such as formatting, facility for searching and so on. If the work is in copyright regime such things can be done only with the permission of the copyright owner.

In today's scenario publication scene is undergoing a change in the digital publishing. In such a scenario should there be an enabling legislation that would allow libraries to take hard copies of a work in digital format and issuing the same to its members is an issue that should engage the attention of library administrators as in such a situation, the rights over issuing copies and communication to the public will come into play. There are major ramifications for this issue since in days to come e-published documents may not be issued in hard copies and may not be available for purchase even in e-format after sometime because of the economy of market. In such

a scenario, the question of how libraries can perform their historical functions as achieves of published material needs to be addressed in earnest.

In traditional modes libraries had very little to do with copyright law. The main functions of a library, such as collection and preservation of books and documents, lending them to its patrons for reading, private study or research were acts permitted by copyright laws in most countries. Some countries have a public lending right which comes into play in the libraries lending copies of the volume with it to the members. In such countries, the libraries were required to pay a fee or royalty to the authors for exploiting the public lending right on their works. India does not have any public lending right. Hence there was no such payment or permission required for lending copies of the works to the members or to the general public. The instance where the libraries were involved with a copyright issue was in allowing photocopying of a book or document. Photocopying involves reproduction and reproduction is the exclusive right of the owner. Therefore, photocopying requires the permission of the owner. In America, the United States Copyright Act exempts libraries and their from liability for copying made by patrons or unsupervised machines where appropriate notices are posted. The Copyright Designs and Patents Act (CDPA) of 1988 of the United Kingdom provides that a librarian can make one copy of an article in a periodical for a person who requires it for the purpose of research and private study. This is subject to the condition that not more than one copy of the article at the same time, and that not more than one article from the same issue of the periodical is supplied. The UK Act also enables librarians, under the same conditions, to copy part of a published edition of a literary, dramatic or musical work and supply to a patron on payment. There are no such specific provisions in the Indian Copyright law.

Before digitizing any work in its collection, a library has to satisfy itself that by doing so it is not infringing any copyright in that work or any contractual obligation on the work. For example, certain stocks received as donations or bequeathments by a library may have conditionalities attached with the donation which stipulate, use only for research or reference." In such cases digitization may be a violation of the contractual terms.

There is a clear distinction the ownership of a copy of a work and ownership of the copyright. For example, if library has acquired an original painting or manuscript it

does not automatically make the library the owner of the copyright in that painting or manuscript. Therefore, before digitizing the painting or the manuscript, the library needs to obtain the permission of the copyright owner.

Again obtaining copyright permission from the owners for the vast collections in the libraries is a major problem. There is no single source from where the details of all copyright owners can be obtained. This is primarily because copyright protection does not require any formality. Infact the Berne Convention for the protection of Literary and Artistic works prohibits formalities such as registration as a precondition for copyright. While the Indian copyright law provides the facility of registration of a copyright with the Registrar of Copyrights, such registration is not a pre-requisite for enjoying the copyright in a work.

One way this problem can be addressed is through obtaining license from societies administering copyrights as per chapter VII of the Copyright Act, 1957 provides for such societies. Registration of such societies is done "having regard to the interests of the authors and other owners of copyright, the interest and convenience of the public and in particular of the groups of persons who are most likely to seek licenses in respect of relevant rights. Ordinarily only one society is to be registered to do business in respect of the same class of works. Therefore, the license seeker will not have to search for too many societies to get a license in a particular class of work such as literary works. Lyric writers, music composers and music publishers have such societies. There is also a society for photocopying rights. But there are no societies of literary authors. If there was a society of all literary authors it would have been easy for institutions such as libraries to negotiate and take license for digitizing the works in their collections.

### 6.1 The Doctrine of Fair use :

One of the clause that is applicable to copyright law is the "Fair Use" clause. The fair use clause is applicable to digital content as well. The American Library Association (ALA), USA, Joint Information System Committee (JISC) and Publishers Association (PA), UK set up a Working Committee to study the application of the fair dealing and library privilege permissions in digital environment. They provided some guidelines for fair dealing in a Digital Environment in 1998, which can be adopted in Indian context. The Doctrine of fair use is the right to use copyrighted material without permission or payment under some circumstances, subject to certain limitations. It is a general

right that applies in situations where the law provides no specific statutory authorization for the use in question. Consequently, the fair use doctrine is described only generally in the law, and it is not tailored to the mission of any particular community. Ultimately, determining whether any use is likely to be considered "fair" requires a thoughtful evaluation of the facts, the law, and the norms of the relevant community.

Fair use is widely and vigorously employed in many professional communities. For example, historians regularly quote both other historians writings and primary sources; filmmakers and visual artists use, reinterpret, and critique copyrighted material; scholars illustrate cultural commentary with textual, visual, and musical examples. Fair use is also healthy and vigorous in broadcasting news and other commercial media, where references to popular films, classic TV programs, archival images, and popular songs are frequently unlicensed. Trade and academic publishers regularly rely on fair use to justify the incorporation of third-party material into books they produce. Librarians likewise need fair use to execute their mission on a daily basis.

Fair use offers a set of factors to consider when using copyrighted work for teaching or research. Specifically the factors includes:-

- a) The purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- b) The nature of the copyrighted work;
- c) The amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- d) The effect of the use upon the potential market for or value of the copyrighted work.

## 6.2 How to Prevent Infringement in Digital Environment :

With the advent of digital environment, the use and duplication of original works have doubled and threat posed to the copyrighted work differ from that in normal course of physical world. To counter these threats various methods and techniques have been developed to prevent duplication or access use of materials.

A digital library can be protected by a password or the IP based authentication. It restricts any unauthorized person to misuse the library and only the library user has the right to use the library collection.

Digital watermarking is one of the good technique that help authors to trace the source of a work and any unauthorized duplication of original work. There is some software that can be used for watermarking such as Digimarc, Syscop, Signum Technologies etc.

Another technique to control access use of material and control copying is access control and copy control software that enables the creator to keep a check on the free and illegal exploitation of their work.

When libraries scan and transmit copyright materials to each other under the fair dealing provisions, more than one copy of the material will exist at some stages of that process. This is an inevitable result of the technology, and so could not rationally be considered as a breach of copyright. However, for the process to fall within fair dealing there ought to be autodeletion of all electronic copies, except the one to be used by the individual for personal research and study, at the end of the PC-to-PC transmission process.

During the last couple of years, the IPA specially helped by the Association of American Publishers (AAP), have developed a system called Digital Object Identifier (DOI) by which copyright infringement can be checked and secondly, it can detect the source from where the infringement has originated.

## 7. Conclusion :

Digitization of Libraries is changing the ways in which collections are used and accessed. Many materials can be used safely by students, researchers, professionals in digital form. But one of the serious problem authors are facing in this field is that a concrete law regarding copyright for digital materials is absent in India. The Indian Copyright Act is silent about the copyright application in digital environment. In India we have a great reservoir of valuable literature since ancient times which is freely available. All national libraries in every school, colleges and universities should digitize all those documents which is coming under public domain.

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## DEVELOPING INSTITUTIONAL REPOSITORY USING D-SPACE : AN EXPERIENCE AT TINSUKIA COLLEGE

\* Dr Pallavi Gogoi

### Abstract

*An Institutional Repository can serve as an usefull platform for the systematic maintenance of scholarly output of an institution. The Tinsukia College Library is taking the effort of developing an institutional Repository using D-Space, which is a open source software and can be customised with little effort without any professional training. At Tinsukia College this IR is being used as a platform to develop employee databank also along with the storage of literary output of the institution. The paper provides an overview of the ongoing project of Tinsukia College Institutional Repository.*

**Keywords :** Institutional Repository, D-Space, Tinsukia College.

### 1. Introduction :

The digital era is offering us with a number of sources and formats for storing our digital content, but the major problem lies here with the systematic organization of our digital content . in this information age , information has been growing in every sphere of work, as well as people have become more concerned about its availability in electronic form in free of cost. In an educational institution due to demand of society as well as job requirements , the faculty are almost bound take up research activities and produce their research output , which has be disseminated among the academic community. IR here provides the most reliable and cost effective platform to make their intellectual output openly accessible within the institution or on the web.

### 2. Institutional Repository :

Institutional Repository (IR) can be considered as an important tool for scholarly information transfer, as well as organization of intellectual content of an institution. IR is a digital archive of an academic institutions intellectual output.

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IR's can work as subject repositories for small scholarly journals, as explained by Kelly, J & Eells, L(2016), who suggests that small scholarly journals otherwise may not reach out to the larger group of users and if the small societies depend upon commercial publishers the content may come behind a pay wall. The article cites AgEcon Search, a subject repository as an example providing solution to small scholarly journals in finding a publication platform in the form of IR. Leary, H...et.al.(2012) explains the various issues and challenges faced while involving Subject Librarians in the task of copyright clearance before uploading the materials in the IR at Utah State University.

Through IR's institutions intellectual content can be centrally stored and organized for systematic access. Once the materials are stored in an IR, the departments can easily manage and update the content of IR. The major challenge lies in obtaining a copyright clearance from the original holder of the work who is generally the publisher of the work, here the direct contact with the publisher may require.

### 2.1 Institutional Repository Development Software :

There are a good number of open source software available for development of institutional repository; such as - Fedora, D-Space, Greenstone, E-Prints, Hydra, MyCoRe, OPUS etc.; out of which DSpace has now been used in most of the libraries due to a various advantages .

DSpace was jointly developed by Massachusetts Institute of Technology and Hewlett-Packard in 2002. DSpace is the software of choice for academic, non-profit, and commercial organisations building open digital repositories. It is free and easy to install 'out of the box' and completely customizable to fit the needs of any organisation. DSpace preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and datasets. Some of other benefits of DSpace are-

- a. It is User friendly with web based interface.
- b. User interface can completely be customised.
- c. Can be Browse by title, author, subject or issue date.
- d. Incomplete submissions are not archived.
- e. User can review their submissions before final submission.

- f. Option to remove unwanted submission.
- g. Uses a qualified Dublin Core metadata standard to identify items and also it is possible to incorporate other hierarchical metadata schemes such as MARC and LCSH.

### 3. Institutional Repository-Tinsukia College :

Tinsukia college, one of the oldest institutions of upper Assam established in the year 1956, has now grown to a premier educational institution with more than 2700 students and above 80 members of teaching staff. The college offers three years degree courses along with higher secondary level education in all the faculties.

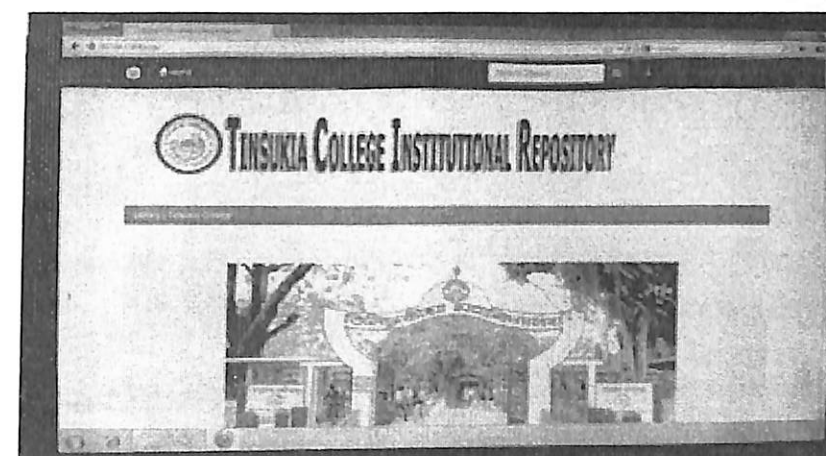


Fig. 1: Home page of Tinsukia College Institutional Repository

The major objectives behind developing an Institutional Repository are-

-to provide a common platform to publish, archive and long term preservation of institutional scholarly output.

-to distribute, make visible and for wider accessibility of institutional scholarly work in a cost effective manner.

The Institutional Repository at Tinsukia College is built with the following hardware :



One SV600 Fujitsu Scanner-Overhead system, automatically recognise and customize document size. Compatible with Windows and Mac.

*ML150 Server ,Xeon 1.6/8gb/2tb-*

*OS- Ubuntu 14.04.5 LTD*

*UPS Numeric 1000VA*

*Printer -HP Laserjet 1020 Plus*

*Two desktop computers with Intel Core i5 Processor, 500GB Harddisk and 2 GB Memory and Windows 7 Professional Operating System TwoWi-Fi access points inside the library.*

To run and install DSpace some supporting software are required such as:

UNIX like OS or MS Windows

Oracle Java JDK

Apache Maven

Apache Ant

Relational Database (Postgre SQL or Oracle)

Apache Tomcat

Perl Programming

Various versions of software may support the installation process depending upon the DSpace version used. Theses supporting software are required at various installation stages of DSpace.

#### 4. Materials included in the IR :

An IR may contain all types of research output such as published articles, preprints, classroom lectures, assignments, projects, dissertations, theses, images, audio, video and other materials.

Though books can become a part of IR, but due to the intricacies involved with the reproduction of books, we are now avoiding books to include in the IR. Also the need for digitations arises preferably with the rare collection of the library only.

The Tinsukia college library is developing its collection for the IR under the following Communities:

*College Publications*

*Faculty Profile*

*Library*

*Miscellaneous*

*News and Newspaper Clippings*

*Office*

*Reports*

*Sports and Culture*

*Presentation Slides/Posters*

*Projects/ Thesis/Dissertation*

*QP/Syllabus*

College publications may further be divided into sub-communities as per the available departments, but with limited faculty in a college environment we found it convenient to organize sub-communities as -Journals/Magazines; which are published from the institution, Faculty Publications and Others, in which all the other publications such souvenirs, special collections etc are kept.

Under Faculty profile two sub-communities are made for Personal and Academic Profiles of the faculty. Classroom Lectures, College activities, achievements etc. related documents are kept under Miscellaneous Community.

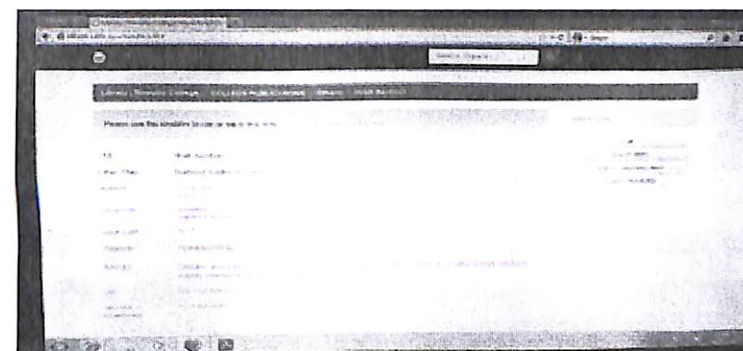


Fig.2: An entry under Community -College Publications and Collection -Others

In Tinsukia college now we are developing our system in offline mode, which is going to continue for the next few years until we are able to fully implement our system. The submissions are in the process of uploading in our institutional repository with due permission from the authors to avoid any copyright infringement.

IR's even can be successfully applied to develop employee databank within an institution, where the personal and academic profiles of the employee can be developed and can be made accessible with proper administrative restrictions. IR's if made online it makes the institutions intellectual output visible to the outside world and thereby increases the chances of collaborative research in and outside the institution.

Developing an IR is a continuous process and time consuming also; a person must be engaged with the continuous maintenance of the IR. For the college libraries with limited staff it would really be a hard challenge to fully implement IR in their institution. One staff of the library must be trained with the IR related activities such as scanning of documents, creating metadata, providing description to items; which needs to be done in a systematic and accurate manner, otherwise there are chances of misleading the users resulting in wrong or no access to the required documents; and finally uploading the materials.

Among many such challenges also includes fitting the task of IR into an already over burdened scheduled in a library with limited staff and that too with contractual staff.

To encourage the faculty of the institution to deposit their materials to the repository and also to make them understand the benefits of submitting their work to a repository is also an another important task. For successful implementation of IR there is need of proper coordination among the faculty, library and copyright clearers.

## 5. Conclusion :

Institutional Repository development has now become an essential task for the institutions to make it's scholarly output visible to the world. It also reflects the strength of intellectual activity of the institution. If the research work has to get the response from the peers without involving any cost; if the researcher has to get support for collaboration from the peers, IR is the answer. It is only way through which the intellectual community can give proper value to its research work by publishing in a platform which is almost free and the institutions specially the universities which provide

fund for the research activity and the scholar who accomplishes the research work need not be required to pay to receive or to disseminate its own research output.

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## Use of N-LIST programme by the faculty members of the Colleges of Jorhat City : A survey

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### Abstract

*N-LIST Programme of INFLIBNET has been successfully and effectively serving the information requirement of Govt. and Govt. aided Colleges and other beneficiary institutions. N-LIST programme is really helpful to college libraries in India to fill in the serious gap of providing access of e-resources. There are several consortia in India, but none of these consortia like N-LIST, however, targets to college users. N-List programme is effectively serving the information requirement of entire nation and helping the nation to move towards an information rich society. The availability of scholarly contents in this programme is increasing the quantitative and qualitative research output in India. It is also removing the digital divide between the universities and colleges.*

**Keywords :** N-LIST, consortia, e-resources, college library

### 1. Introduction :

N-LIST is an initiative of the Ministry of Human Resources Development, funded by the University Grants Commission. The main aim of this Programme is to subscribe and provide access to selected e-resources to universities and colleges through the two consortia namely UGC Infonet Digital Library Consortium and the INDEST-AICTE Consortium and to act as a Monitoring Agency for colleges. This programme provides cross-subscription to e-resources subscribed by the two Consortia, i.e. subscription to INDEST-AICTE resources for universities and UGC INFONET resources for technical institutions; and access to selected e-resources to colleges. From the year 2014, N-LIST Programme is included under UGC-INFONET Digital Library Consortium as a college component. The colleges (except Agriculture, Engineering, Management, Medical, Pharmacy, Dentistry and Nursing) in India are eligible to get access to the e-resources under this Programme. This programme is

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meant to extend the availability and access of e-resources to the student, researchers and faculty of colleges and other institutions across the country through server installed at the INFLIBNET Centre.

N-LIST stands for "National Library and Information services Infrastructure for Scholarly Content". The programme is funded by the MHRD to extend access to selected e-resources to colleges covered under Section 2F/12B of UGC Act. More than 6,000 colleges covered under Section 2F/12B of UGC Act. As on 30th June 2017, a total number of 3375 colleges have registered themselves with the N-LIST programme including 3072 Govt. aided colleges covered under the section 12 B/2F of UGC Act as well as Non Aided colleges. Log-in ID and password for accessing e-resources has been sent to the authorized users from these 3072 colleges. All e-resources subscribed for colleges under the N-LIST Project are now accessible to these 3072 colleges through the N-LIST website (<http://nlist.inflibnet.ac.in>)

### 2. Back ground of the study :

Singh (2010) described that the N-LIST programme is really helpful to college libraries in India to fill in the serious gap of providing access of e-resources.

Bhattacharjee, Bhattacharjee and Sarmah (2011) have conducted a study attempting to find out the use and familiarity of E-journals through N-LIST consortium to the users of college libraries of Cachar District, Assam. This study also tried to highlight the present position of the college libraries as well as the thinking and satisfaction of the different categories of users like students, teachers and staff.

Ravi and Somasekhar (2011), have carried out a comparative study between the government colleges from different states and union territories and the registered colleges using NLIST services. Only a few colleges are registered for N-LIST services. Those not registered with N-LIST due to lack of funds cannot access the e-journals and e-books available with N-LIST. The authors suggest that the government and NAAC should make it mandatory for colleges to register with N-LIST and that INFLIBNET should provide the necessary awareness and orientation programmes.

Karmakar (2012) made a study on E-resources in twelve college libraries of Guwahati with reference to N-List. It is depicted that seven colleges had introduced online eresources under N-List programme in the library. Majority of the colleges

have not created Id and password for the students for accessing N-List e-resources. Cotton College, S. B. Deorah College and Pandu College were providing access to e-resources to the interested students.

Talmale and Humilore (2012) have conducted strength, weakness, opportunity and threat (SWOT) analysis of N-LIST programme.

Chikkamanju and Kumar (2013) reveal that The Library and Information Centre should organize seminars, workshops and orientation programmes for faculty and students for accessing N-LIST Services at regular interval of time to keep them pace with latest technological changes. The infrastructure in the college computer centre should be further improved for providing better N-LIST Services. The faculty and students should further improve their information searching skills to make better use of largely available electronic information resources.

Chikkamanju, Kumbar and Kumar (2013) in their paper presented in the National Seminar on emerging trends in ERMS in college libraries, studied the factors affecting the optimum utilization of N-LIST services, place of access, purpose of use, types of services, level of satisfaction, problems faced while accessing, training/orientation programmes and preferred external medium of storage for storing the data downloaded via NLIST services. The questionnaire and interview method was used for the study. It was found that students and faculty mostly access N-LIST services for seminar presentations. They faced the problem of retrieval of irrelevant information. Majority of those included in the study were moderately satisfied with the information retrieved through N-LIST services.

Madaan and Dhingra (2013) have highlighted various existing Consortia like UGC-INFONET, INDEST Consortium, Consortia for e-resources in Agriculture (CeRA), FORSA Library Consortia and Health Sciences Library and Information Science Network (HELINET). It also explores various initiatives of INFLIBNET, an independent, Inter- University Centre of UGC with special reference to the details of N-LIST Programme.

Sinha, Bhattacharjee and Bhattacharjee (2013) have conducted a survey to know the scenario of selected college libraries of Barak Valley of South Assam and status of the ICT and Internet literacy skills and also to access E- Resources available under N-LIST Programme during January to May 2012. The study reveals that the users are less

aware of N-LIST Service so Users' study should be conducted from time to time by the library staff so that the problems encountered could be resolved according to users' requirements.

Sinha, Bhattacharya and Bhattacharya (2013) have tried to gain knowledge about the N-LIST programme implementation and the status of ICT and Internet literacy skills among the college library users from selected colleges.

Boraiah (2014) investigated a study on implementation and utilization of N-LIST programme through UGC-INFONET digital library consortium in Gokhale Centenary college users and found that 82.76% of faculty members and 73.61% of students came to know about the availability of E-Resources in library through the library circulars. All faculty members and students use E-Resources to upgrade their knowledge. 100% of faculty members and 97.1% of student respondents use "e-journals". 58.62% of faculty members and students (36.46%) use Indian Journals regularly".

Chikkamanju and Kumar (2014) have carried out a study at Women's First Grade Colleges such as Arts and Science discipline affiliated to University of Mysore. The study highlights optimum utilization of e-resources under N-LIST programme, place of access, purpose of use, types of services, level of satisfaction, problem faced while accessing, training/ orientation program and preferred external storage medium for storing information resources downloaded via N-LIST Services. The study helps in planning, developing and extending the N-LIST Services to academic Colleges.

Deka and Boruah (2014) have conducted a case study of nine College Libraries of Assam. They found that 55.55% of the college libraries provide the services of N-List programme to faculty, administration, researchers and students.

Kamble (2014) did a study on importance of N-List project in teaching learning process. He concluded that e-resources are available to common people, researcher, and faculty due to N-list project, because this consortium provides accessibility 24/7.

Punwatkar and Salunke (2014) have studied the impact of ICT on library users with special reference to UGCINFLIBNET. INFLIBNET helps in resource sharing through its various modules including N-LIST. These provide peer reviewed journals, abstracts, etc.



Thirumagal and Bremala (2014) have found that there is an increasing trend in the use of N-LIST among the researchers.

Waghchoure (2014) investigated a study on N-list and conclude that Information Explosion, emergence of internet and particularly World Wide Web as a new medium of Information storage makes the concept more come into sight than earlier.

Annadurai and Venkatachalam (2015) have used questionnaires to elicit the opinion of users by using random sampling technique. This paper tries to find out the purpose of e-resources among the users, ranking and evaluation of e-resources on the basis of the usage and the difficulties faced by the users while accessing e-resources. Based on the findings of this study, the researcher concluded that the use of e-resources had tremendous impact on the academic performance of the users.

George, Pillai, and Aparna (2015) have reported that colleges where orientation programmes have been conducted, the use of N-LIST is high. Thus, to increase the use of N-LIST Programme, more orientation programmes are to be initiated in all colleges. Students should also be encouraged to use the resources to supplement their course of study.

Khan and Tripathi (2015) found that majority of the teachers and students of Chandidas Mahavidyalaya are using e-resources and majority of the teachers are dependent on e-resources to get relevant information. The availability of e-resources on the campus is almost sufficient but the infrastructure to use these resources is not adequate.

In the study of Khandare and Sonwane (2015), found that all users are aware about N-LIST. Maximum users are using N-LIST programme for research work, prepare of research paper etc. Library is the perfect place for accessing electronic-resources under N-LIST programme. Some of the user spent "1-5" hours time for accessing and searching N-LIST per week. The most used publishers having rank first, the name is "Cambridge books online". Most of the respondents are facing problems of unavailability of regional languages title and downloading facility is not sufficient. Maximum user felt the awareness training is important for accessing electronic-resources in N-LIST programme.

Nagesh and Naveen (2016) found that, In Karnataka district, Some of the college libraries are subscribing N-List consortia and some of the colleges are not

subscribing N-LIST consortia. There were various reasons for not subscribing N-List consortia. Some colleges are facing many problems for not subscribing N-LIST consortia. Many colleges were due to insufficient fund. Another reasons are in adequate computers, in adequate electricity, no internet facility, lack of training, lack of ICT knowledge etc.

Narayanaswamy (2016) has found that majority of the students & faculty members are aware about N-LIST services. Some of the students and faculty members use frequency of once in a week. Some of the students use N-LIST services for assignment purpose & faculty members use N-LIST services for teaching purpose. Some students and faculty members faced problem of overload of information on the internet, in N-LIST services.

Pragasamp (2016) found that a majority of users are aware and use NLIST as one of their sources of information. In this study most users are satisfied with the information available on NLIST. The NLIST facility has enabled the faculty members, research scholars and students to their academic and research purpose.

From the above literature review it is seen that there is no study done on the use of N-List programme by the college libraries of Jorhat city.

### 3. Objectives of the study :

The study is motivated with the following objectives -

- a. To see the awareness level on N-LIST programme among the college teachers.
- b. To see the usage pattern of N-LIST programme by the college teachers.
- c. To know the purpose of using N-LIST programme.
- d. To find out the level of satisfaction about the information resources retrieved through N-LIST programme.
- e. To find out the problems facing by the users in accessing N-LIST programme.
- f. To find out the opinions and suggestions from the users regarding N-LIST programme.

#### 4. Scope and Limitation of the study :

The study is limited to the colleges situated in the Jorhat city which are members of N-LIST Programme. According to the records of N-LIST website, till 30th June 2017, a total number of 193 colleges are there in the state of Assam under the N-LIST programme. Among these 193 colleges of Assam, 12 colleges belong to Jorhat district. Again among these 12 colleges of Jorhat district, only 4 colleges are found within the Jorhat city (According to Google map, <https://www.google.co.in/maps/search/colleges+of+jorhat+city/@26.7271457,94.1765648,16z>). All these four colleges are affiliated to the Dibrugarh University. The name of these colleges are-

- Jagannath Barooah College(JB)
- Devicharan Barua Girls College(DCB)
- CKB Commerce College
- Jorhat College

#### 5. Research Methodology :

For this study a survey was carried out among the teaching staff of the selected colleges through questionnaire. Currently there are approximately 107 numbers of faculties working in JB College, 69 faculties in DCB Girls College, 30 in CKB Commerce College and 26 in Jorhat College. Here 70% of the total population was covered into the study sample. Hence the size of the sample of this study was 163 and convenient sampling technique was adopted.

#### 6. Data Analysis :

##### 6.1 Profile of the Selected College Libraries :

Among the four selected colleges JB College is the oldest one and DCB Girls College is the most recent one. All the colleges are having separate library building. All the libraries are automated through Soul 2.0.

**Table 1: Profile of the Selected College Libraries of Jorhat city:**

Name	JB College	DCB Girls College	CKB Commerce College	Jorhat College
Established in the year	1930	1995	1965	1962
Name of the Library	Krishna Kanta Handiqui Library	DCB Girls College Library	CKB Commerce College Library	Jorhat College Library
Separate Library Building	Yes	yes	yes	Yes
Library hour	8 am to 12 midnight	9 am to 4 pm on week days and 9 am to 1.30 pm on Saturdays	9 am to 4 pm	9 am to 4 pm
Library collection	3.5 lakh documents, 300 print journals, 40,000 online full-text journals, 45,000 e-books etc.	Over 50,000 books on a wide range of subjects, encyclopaedia volumes, current journals and magazines and newspapers of national importance.	2 lakhs books, 1,000 scholarly journals, Reports, Theses, Standards, Patents, CD Rom, Audio/ Video Cassettes etc.	23000 books, various international journals, old manuscripts, rare publications, a number of encyclopaedias and subscribes to a good number of English and Assamese dailies
LMS	Soul 2.0	Soul 2.0	Soul 2.0	Soul 2.0
Repository Software	No	No	No	No
New Arrival Section	Yes	Yes	Yes	Yes

##### 6.2 Response Rate :

The table 2 represents the response rate of the respondents of this particular study. Here 163 questionnaires were distributed among the faculty members of 4 colleges, out of which 128 (78.52%) questionnaires were responded.

**Table 2 (Response Rate)**

No of questionnaire	Distributed	Returned	Response Rate
	163	128	78.52%

**6.3 Personal Dossier of Faculties :**

The personal dossier of the study population has covered gender, stream, designation, age group, working experience and research publication of faculty members.

**Table 3 (Personal Dossier of Faculty members)**

	Variables	Frequency	Percentage
Gender	Male	78	60.94%
	Female	50	39.06%
	Total	128	100%
Stream	Arts	73	57.03%
	commerce	30	23.44%
	Science	25	19.53%
	Total	128	100%
Designation	Assistant professor	91	71.09%
	Associate professor	37	28.91%
	Total	100	100%
Age	18-25	1	0.78%
	26-30	4	3.13%
	31-35	20	15.62%
	36-40	34	26.56%
	41-45	37	28.91%
	46-50	16	12.5%
	51-55	8	6.25%
	56-60	8	6.25%
	Total	128	100%

Working Experience	1-5	11	8.59%
	6-10	8	6.25%
	11-15	32	25%
	16-20	55	42.97%
	21-25	12	9.38%
	26-30	1	0.78%
	30+	9	7.03%
	Total	128	100%
Research Publication	1-5	40	31.25%
	6-10	58	45.31%
	11-15	13	10.16%
	16-20	15	11.72%
	21-25	2	1.56%
	26-30	0	0%
	30+	0	0%
	Total	128	100%

Table 4.2. displays that out of 128 respondent, majority are male (60.94 %), majority (57.03%) are Assistant professor and majority (57.03%) belong to the Arts stream. Again in case of age, it is seen that respondents are belong to heterogeneous age group. In case of experiences it is found that majority of the respondents (42.97%) are having 16-20 years of working experiences. Again majority of the respondents (45.31%) are having 6-10 numbers of research publications.

**6.4 Awareness on N-LIST :**

Here respondent are asked to state their awareness on N-LIST programme. Here it is seen that all the respondents are aware about N-LIST programme.

**Table 4 (Awareness on N-LIST) :**

Aware about N-LIST	No. of Faculties	Percentage
Yes	128	100%
No	0	0%



### 6.5 Frequency of use of N-LIST programme :

The frequency of the use of N-LIST services by the faculties of 4 select colleges of Jorhat City is indicated in the table 5.

**Table 5** (Frequency of use of N-LIST programme)

Frequency of use	No. of Faculties	Percentage
Daily	59	46.09%
2 times in a week	53	41.41%
3-4 times in a week	9	7.03%
2-3 times in a month	2	1.56%
Once in a month	5	3.91%

The table indicates that out of the 128 respondents, 59 (40.09%) respondents are daily using electronic-resources, 53 (41.41%) are using electronic-resources 2 times in a week, 9(7.03%) are using 3-4 times in a week, 2(1.56%) are using 2-3 times in a month, and 5(3.91%) respondent are using electronic -resources through n-list once in a month. Hence, it is seen clearly from the above table that most of the respondents use e-resources daily.

### 6.6 Time spend on accessing e-resources under N-LIST programme :

Table No. 6 indicates that out of the 128 respondents, 9.37% respondents are using one hour in a week, 10.16% are using 2-3 hours in a week , 37.5% are using 4-5 hours in a week , 42.97% are using 6-7 hours in a week.

**Table 6** (Time spends on searching e-resources under N-LIST programme)

Hours	No. of Faculties	Percentage
One hour in a week	12	9.37%
2-3 hours in a week	13	10.16%
4-5 hours in a week	48	37.5%
6-7 hours in a week	55	42.97%
8-9 hours in a week	0	0%

### 6.7 Places for accessing E- resources under N-LIST programme :

Table 7 indicates that out of the 128 respondents, 61.72% respondents are accessing n-list in Library and Information Centre, 59.37% are using Department, 12.5% are using College Computer Centre, and 31.25% respondents are using N-LIST from home.

**Table 7** (Places for accessing E- resources under N-LIST programme)

Place of access	Frequency	Percentage
Library and Information Centre	79	61.72%
Department	76	59.37%
College Computer Centre	16	12.5%
Home	40	31.25%

It is seen clearly from the above discussion that most of the respondents use N-LIST in their respective library.

### 6.8 Search techniques to find out needed information from N-LIST :

**Table 8** (Search techniques to find out needed information from N-LIST)

Frequency of use	No. of Faculties	Percentage
Simple Search	93	72.66%
Advance Search	45	35.16%
Boolean Logic	18	14.06%
Gets help form Library Stuff	41	32.03%
All of the above	0	0%

It is seen clearly from the above table that majority of the respondents are using Simple Search technique while using N-LIST programme.

### 6.9 Most preferred publishers for E-Books and E-Journals :

**Table 9** (Most preferred publishers for E-Books in N-LIST)

Publishers of E-Books	No. of Faculties	Percentage
Cambridge Books Online	65	50.78%
E-brary	70	54.69%
E BSCoHost-Net Library	14	10.94%
Hindustan Book Agency	13	10.16%
Institute of South East Asian Studies (ISEAS)	17	13.28%
Oxford Scholarship	7	5.47%
Springer eBooks	6	4.69%
Sage Publication eBooks	30	23.44%
Taylor Francis eBooks	4	3.12%
My library-McGraw Hill	0	0%

**Table 10 : Most preferred publishers for E-Journals in N-LIST**

Publishers of e- journals	No. of Faculties	Percentage
American Institute of Physics	11	8.59%
Annual Reviews	52	40.62%
Economic and Political Weekly	47	36.72%
Indian Journals .com	51	39.84%
Institute of Physics	34	26.56%
JSTOR	6	4.69%
Oxford University Press	8	6.25%
Royal Society of Chemistry	21	16.41%
H. W. Wilson	20	15.62%
Cambridge University Press	0	0%

It is seen clearly from the above two tables that most of the respondents prefer Cambridge Books Online in case of e-books again in case of e-journals majority of the respondents prefer Annual Reviews.

### 6.10 Purposes of accessing N-LIST :

Table 11 indicates that purposes of using N-LIST Programme is differ from user to user. Here respondents were allowed to choose more than one options. It could be noted that out of the 128 respondents, 71.09% respondents are using N-LIST for self development, 46.09% are using for teaching purpose, 48.44% are using for research and guidance, and 18.75% respondents are using N-LIST Programme for scholarly contribution.

**Table 11** (Purposes of accessing N-LIST)

Purpose of use	No. of Faculties	Percentage
Self development	91	71.09%
Teaching	59	46.09%
Research and guidance	62	48.44%
Scholarly Contribution	24	18.75%

It is seen clearly from the above table that most of the respondents are using N-LIST programme for self development.

### 6.11 Level of satisfaction on N-LIST programme :

Table 12 indicates that out of the 128 respondents, 13.28% respondents are extremely satisfied, 52.34% are satisfied, 30.47% are moderately satisfied, and 3.91% respondents are slightly satisfied. It is seen clearly from the above table that most of the respondents are satisfied in using N-LIST programme.

**Table 12** (Level of satisfaction on N-LIST services)

Level of Satisfaction	No. of Faculties	Percentage
Extremely satisfied (100%)	17	13.28%
Satisfied (75%)	67	52.34%
Moderately satisfied (50%)	39	30.47%
Slightly satisfied (25%)	5	3.91%
Not at all satisfied	0	0%

### 6.12 Problems facing while searching e-resources under N-LIST :

Here the respondents were asked to point out the problems used to face in accessing N-LIST consortium. The responses received are tabulated and presented in table 4.12 and figure 4.9.

**Table 13** (Problems facing while searching e-resources in N-LIST)

Problems	No. of Faculties	Percentage
Varied Search Pattern	64	50%
Poor Internet Connectivity	60	46.87%
System Hardware Problem	21	16.41%
Virus/unwanted Programs	30	23.44%
Application Software Problem	2	1.56%
Retrieval of Junk/Irrelevant Information	6	4.69%
Frequent Power Problem	5	3.91%
No Proper Support from Library Staff	0	0%

The table 4.23 indicates that majority of the respondents (50%) face problem like varied search pattern while accessing N-List Services, followed by 46.87% face problem due to poor Internet Connectivity, 16.42 % System Hardware Problem, 23.44% Virus/unwanted Programs, 1.56% Application Software Problem, 4.69% retrieval of Junk/Irrelevant Information and 3.91 % facing problem due to frequent power failure. But none of the respondents found problem due to lake of support from Library Staff.

### 7. Discussion and Findings :

The findings of this study are presented below in view of the objectives of this study -

**Objective 1: To see the awareness level on N-LIST programme among the college teachers.**

- All the respondents are aware about N-LIST Programme.

**Objective 2: To see the usage pattern of N-LIST programme by the college teachers.**

- Majority of the respondents (40.09%) are using e-resources through NLIST daily.
- Majority of the respondents (42.97%) spend 6 to 7 hours weekly in accessing e-resources through N-LIST Programme.
- Library and information centre is the place where the majority (61.72%) of the faculties access e-resources under N-LIST programme.
- Here it is found that majority of the respondents (72.66%) are using Simple Search technique while searching e-resources through N-LIST programme.
- E-brary is the most used publisher for E-books, having rank first by 54.69% respondents.
- In case of E-journals, most of the respondents 40.62% prefer Annual Reviews.

**Objective 3: To know the purpose of using N-LIST programme.**

- In case of purposes for using N-LIST mixed responses have found, where majority (71.09%) use for the purpose of self-development followed by 46.09% for teaching and learning and 48.44% for research and guidance.

**Objective 4 : To find out the level of satisfaction about the information resources retrieved through N-LIST programme.**

- Majority of the respondents (52.34%) are satisfied with the information available through N-LIST Services.
- Majority (60.94%) of the respondents are satisfied with the content coverage of N-LIST programme.
- The study revealed that almost all the respondents have given their opinion that N-LIST has improved access to quality e-resources to the colleges.

- d. A majority of the respondents strongly agreed that N-LIST is playing an important role in enhancing the quality of research in colleges nephew.

**Objective 5 : To find out the problems facing by the users in accessing N-LIST programme.**

- a. Most of the respondents are facing problem of varied search pattern. Followed by 46.87% for facing problem due to poor Internet Connectivity.
- b. Moreover few respondents are facing problems of unavailability of regional languages title and downloading facility is not sufficient.

**Objective 6 : To find out the opinions and suggestions from the users regarding N-LIST programme.**

The suggestions given by the respondents regarding N-LIST programme are-

- a. As NLIST is for college community, more number of syllabus oriented E-Resources should be included.
- b. It should cover all main streams proportionately for users.
- c. It should be made more users friendly.
- d. The college librarian should conduct regular orientation, tutorial and training programme on how to access NLIST programme.
- e. Computer Labs of the colleges should be arranged systematically for easy accessing of N-LIST service.
- f. There need to create greater awareness among students about N-LIST services; particularly the quality of materials and cause of access.

**8. Conclusion :**

N-LIST Programme of INFLIBNET has been successfully and effectively serving the information requirement of Govt. and Govt. aided Colleges and other beneficiary institutions. N-LIST programme is really helpful to college libraries in India to fill in the serious gap of providing access of e-resources. There are several consortia in India, but none of these consortia like N-LIST, however, targets to college users. N-List programme is effectively serving the information requirement of entire nation and help the nation to

move towards an information rich society; the availability of scholarly contents in this programme, would lead to increase the quantitative and qualitative research output in India. It also would remove the digital divide between the universities and colleges.

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## DIGITAL LIBRARY: AN OVERVIEW

Santana Phukon

### Abstract

*Considering the importance of Digital Library at present context of ICT era, the present article highlights the Digital Library; definitions and developments of digital library; objectives and characteristics/salient features of digital library. It also discusses about the components, requirements of digital libraries; Difference among Traditional library, Digital library and Internet resources; also highlights the resources and advantages of the Digital Libraries. Finally the article ends with a conclusion.*

**Keywords :** Digital Library, Information Technology (IT), CD-ROM.

### 1. Introduction :

Today, the advent of Information Technology has paved the way of reducing the size of the libraries from biggest to the very small. In fact, modern libraries are moving towards smaller and smaller but with rich potential of information. This smallness of the libraries is due to the digitization of information, which has outcome a number of problems faced by the traditional libraries since long. The digital libraries are based on digitized data of information which has gradually replaced paper based records. Because the visual information systems are getting more popular these days in comparison to text based information systems, therefore digital libraries today are becoming more and more popular and more graphical in nature. Digital libraries have reduced the space problems in them.

There are number of terms which are used by library communities to represent the concept of digital libraries. These terms are Electronic library, Disk top library, Virtual library, Online library, Library without walls, Polyglot library etc. "Digital library" is simply the most current and most widely accepted term and is now used almost exclusively at conferences, online, and in the literature.

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## 2. Definitions of Digital Library :

There is no universally accepted definition of a digital library. The terms are being used synonymously, which is not the exact case.

### Definitions :

- a. Digital Libraries are global virtual libraries, - "The library of thousands of networked electronic libraries".
- b. "Digital Libraries are the systems which provide users with coherent access to a very large, organised repository of information and knowledge".
- c. "Digital Library could be referred to as computerized network system where all the information is stored in electronic format which can be accessed and transmitted through networks enabling retrieval of desired information by a large number of users. Users will normally access the information they desire using a terminal desktop computer at their place of work".
- d. "The Digital Library is an information service in which all the information resources are available in computer process able form and the functions of acquisition, storage, preservation, retrieval, access and display are carried out through the use of digital technologies".

## 3. Developments of Digital Library :

Digital Libraries are the outcome of information explosion. Developed countries recognised the use of digital libraries quite early. In 1970s libraries in the developed countries began to connect remote hosts to conduct online searches for commercial digital bibliographic databases. The invention of CD-ROM in 1980s was a turning point in the digitisation of information. 1990s marked a progressive more towards digitisations due to networking, electronic document delivery services, online services, electronic journals etc. Major advance in this field has been the document delivery service, which transmit by fax the full text of documents.

## 4. Objectives of Digital Library :

The main objectives of the digital library are:-

- a. To capture, store, manipulate and distribute information.

- b. To introduce and provide new services.
- c. To provide need-based and retrospective search services to the user.
- d. To have large number of databases in CDs.
- e. To avoid routing and redundant activities.
- f. To provide facility for networking and resource sharing.
- g. To access national and international journals which are being published only in machine-readable form.
- h. To digitize the documents for preservation and for space saving.
- i. To support library functions such as circulation, serial control, acquisition control, stock maintenance and other routine office works and developing in-house database.
- j. To improve the cost effectiveness of library operations.

### 5. Characteristics/Features of Digital Library :

The Characteristics of a digital library are-

- a. Digital libraries require undoubtedly the digital technologies. It is a heterogeneous in nature which contains hard copy to online systems.
- b. The full-fledged digital library is one in which all the information is available in the digital form this may however be difficult to achieve.
- c. Digital library consist of mostly electronic documents which are of the reference type and the queries received and processed are also of reference type in nature.

Following are the salient features of a digital library :-

- a. It provides access to very large collection of information.
- b. It focuses on providing access to primary or complete information, not merely surrogates or indexes.

- c. It supports multimedia content.
- d. It provides user-friendly interface.
- e. It uses declarative representation of documents i.e. tagged SGML text, in addition or as against image, postscript, etc. forms.
- f. Unique referencing of digital objects.
- g. Network accessible.
- h. Enables link representation to local, external objects (hypertext).
- i. Clearly separates the user interface by employing client server architecture.
- j. It supports advanced search and retrieval.
- k. It available for a very long time, i.e. should not be dependent on specific hardware and softwares.
- l. It supports traditional library missions of collection development, organisation access and preservation.
- m. It integrates personal, group, enterprise, public digital libraries.
- n. It supports publishing, annotation and integration of new information.

### 6. Requirements/Components of digital libraries :

Digital library requires well tested and Proval Information Technologies including the multi-media kit. Much of the work in the digital library is achieved through e-mail service, by participating in user needs internets, by accessing the databases or servers through network like internet. Locally developed databases will contribute a lot to the digital libraries. In other words, the components of digital libraries are-

- a. Local library system with adequate PC having LAN, Local databases in machine readable form, CD-ROM etc. provision to provide e-mail service, access to servers and to remote databases, etc.
- b. Networks, including the network of networks.



c. A variety of system functions to co-ordinate, manage the entry and to retrieve data.

d. Well-trained man-power.

#### 7. Difference among Traditional library, Digital library and Internet resources:

Traditional Library	Digital library	Internet resources
Objects are information resources.	Same.	Objects can be anything at all.
Objects are selected on the basis of quality.	Same.	No quality control; no entry barriers.
Objects are located in a physical place.	Objects are located in a logical place (may be distributed)	Objects are not located in a physical or logical place.
Objects are organised.	Same.	No organisation.
Objects are subjected to authority control.	Same.	No authority control.
Objects are fixed (do not change)	Objects change in a standardized way.	Objects are fluid (can be change at any time).
Objects are permanent (do not disappear)	Disappearance of objects is controlled	Objects are transit (can disappear at any time).
Authorship is an important concept.	Concepts of author are weaken.	No concepts of author.
Access to objects is limited too specific classes of user.	Access to some objects is limited too specific classes of users.	Access to everything by anyone.
Services such as reference assistance are offered.	Services can be offered.	The only services are those perform by computer software.
Human specialists (called librarian etc.) can be found.	Same.	There are no librarians.
They are exist well defined user groups.	Some classes of objects have associated user groups.	There are no defined user groups.

#### 8. Resources of the Digital Libraries :

Resources which can be included in a Digital Library are as follows-

- Digital access to scanned images of photographs, printed text and other materials.
- Complete contents of the documents are converted in digital form for online access.
- Databases, including library catalogue accessible through the internet.
- Online databases and CD-ROM information products with interactive video components etc.
- Digital A-V clip's or full length movies.
- Retrospective converted materials as well as newly published materials, which may be derivative of print works or original e-publication.
- A wide range of material types including journals, reference works, monographs, visual materials, sound recordings, moving pictures etc.
- All types of digital formats from bit-map (scanned photographs) page images to SGML encoded text to page images stored in proprietary format.

#### Advantages of the Digital Library :

- Digital materials can be stored, transmitted and retrieve easily and quickly.
- Digital text can be linked and thus made inter-active besides enhancing the retrieval of more information (either text numbers, graphics, statistics).
- Access to electronic information is cheaper than its counter parts when all the files are stored in an electronic ware house with compatible (well- suited) facilities and equipments.
- On-line computer catalogue, databases, e-journals and internet based resources are extensive initially but worthy of efforts because of the much enhanced accessibilities.

- e. As the cause of digital storage continues to drop more information would likely be distributed and stored digitally.
- f. Digitization leads to the developments of internet based digital libraries as the internet is now the preferred form of publication and dissemination.
- g. Digitization means no new buildings are required, information sharing can be enhanced and redundancy of collection reduced.

#### 10. Conclusion :

From the above discussion, it is clear that the advent of Information Technology has significantly impacted library collections, library services, library profession and its delivery to the users. Now a day, with the effect of new technology libraries are transforming from traditional to digital one which save the valuable times of users/staffs. Digitization of information leads to the developments of internet based digital libraries. The digital libraries are based on digitized data of information which has gradually replaced paper based records. Digital materials can be stored, transmitted and retrieve easily and quickly and main advantage is that the digital libraries have reduced the space problems also.

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## Digital Library: a brief study with reference to National Digital Library

\* Rituraj Borkakoti

#### Abstract

*A digital library is considered as the transformation of traditional library with the help of information & communication technology and internet. The digital library concept came into existence in the beginning of the 21st century and it is widely practiced by the major educational and research institutions' libraries and public libraries all over the world. Virtual library, electronic library, library without walls are the synonyms of digital library. In this article a brief study about the concept of digital library and its different aspects, digital collections along with a brief introduction of the National Digital Library has been discussed.*

**Keywords :** Digital library, Digital collections, National Digital Library etc.

#### 1. Introduction :

Though the print information resources have been occupying a very predominant place from quite a long time in the field of education, research and developmental activities. These are becoming outdated very quickly due to the information explosion and information overload. With the development of computer, communication technology, networks technology and internet, the traditional method of expression, scholarly communication and acquiring of knowledge has also changed drastically. Now a days, it has become a trend among intellectual circle and publishers to publish, store and communicate organized knowledge and ideas electronically through electronic systems and in networks or internet which is called digital information resources. These digital resources available in the web or internet, intranet, etc. have changed the global trend of acquiring and sharing of knowledge and scholarly communication of information for various research and academic activities universally only through a mouse click or even with a kindle or smart phone.

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Again academic libraries are facing various problems in terms of space, increase in the cost of print resources like books, periodicals etc., budget shrinkage, inability to provide multiple copies, information retrieval problems, shortage of manpower etc. Hence to cope up with the changing environment and to meet the increasing demand of library users regarding information need the concept of digital library has emerged. Different phrases like 'electronic library', 'virtual library', 'library without walls' have been used to imply the same broad concept interchangeably. The planning of the National Digital Library is also a great relief to the academic libraries to access the national information resources as a whole. The objective of the National Digital Library is to provide access to the resources held by different academic libraries, research institutions and public libraries in a single interface all over India and abroad.

## 2. Digital Library Concept :

One of the most frequently sought words by the men of letters is digital-library. A digital library is a special kind of library with a dedicated collection of digital resources of information that includes text, visual, audio, materials, etc. which are specially stored in digital formats along with means for organizing, storing, and retrieving the files and media contained in the library collection. Digital libraries can vary immensely in size and scope. It can be maintained by individuals, organizations, or affiliated with established physical library buildings or institutions, or with academic institutions.

The term Digital Library, in broad sense, is an automated system where users can search, read, download, save and print their required information in digital format via a computer network locally or remotely.

One of the most popular definitions by Marchinini (1999) which defined that the digital libraries are the logical extensions and augmentation of physical libraries, and those digital libraries are distinguished by focus on integration of services through a holistic treatment of interface location, time, language and system.

Digital Library Federation (1999) defined "digital libraries are organizations that provide the resources, including specialised staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collection of digital works so that they are readily and economically available for use by a defined community or set of communities".

According to Borgman (2000) A digital library (DL), in general, refers to a collection of digital objects (such as digital text, images, and videos) and a set of associated techniques and services that help to collect, organize, retrieve and preserve those digital objects for a community of users.

## 3. Features of a Digital Library :

Some of the specific characteristics of a digital library are as follows-

- a. Accessing a digital library is not bounded by space or time. It can be accessed from anywhere at any time 24x7.
- b. Contents of digital library may be of different formats like textual, image, video, sound etc.
- c. Digital library ideally provides a coherent view of all the information resources contained within a library, no matter its form or format.
- d. Digital library will increase budgetary expenditure on electronic resources in comparison to the print resources.
- e. Expenditure on information has been shifted from ownership to subscription and licensing.
- f. Digital library involves more expenditure on equipment and infrastructure.
- g. Digital library required new job profile, manpower and training.

## 4. Functions of a Digital Library :

- a. Access to large amounts of information to users wherever they are and whenever they need it.
- b. Access to primary information sources.
- c. Support multimedia content along with text.
- d. Network accessibility on Intranet and Internet
- e. User-friendly interface to the users.

- f. Hypertext links for navigation.
- g. Client-server architecture.
- h. Advanced search and retrieval options in accessing the contents of the digital library.
- i. Integration with other digital libraries world-wide with proper resource sharing and cooperation.

#### 5. Purpose of Digital Library :

- a. To save the time of the reader.
- b. To remove space constraints in libraries.
- c. To bring the library to the hand of users at anytime and anywhere.
- d. To provide security to the documents.
- e. Expedite the systematic development of procedures to collect, store, and organize, information in digital form.
- f. Promote efficient delivery of information economically to all users at the same time.
- g. Encourage co-operative efforts in research resource, computing, and communication networks.
- h. Strengthen inter library communication and collaboration among the educational and research institutions, public libraries etc.
- i. Take leadership role in the generation and dissemination of knowledge.

#### 6. Advantages of Digital Library :

The advantages of digital libraries include-

- a. Library beyond four walls of a traditional library.
- b. Nearly unlimited storage space at a much lower cost

- c. No physical boundary unlike traditional library.
- d. Access to unlimited digital information in comparison to traditional libraries.
- e. Round the clock availability.
- f. Multiple accessibility.
- g. Quick and easy information retrieval.
- g. Preservation of some rare and flimsy printed material with easy accessibility.
- h. Global access to the information resources.

#### 7. Planning a Digital Library :

One of the most important aspect in setting up a digital library is the creation of digital objects which are not born digital. This process is known as digitization of the documents which is an inter-linked system of hardware, software, image database, and access sub-system with each having their own components. Tools used for the digital library include several core and peripherals systems and devices like hardware such as server, scanners, computers, and data storage, software (image capturing and editing, digital library software like DSpace, GSDL etc.), internet technology and network technology for data transmission and communication.

Following are the most important areas of consideration in developing a digital library :

- a. **Selection of resources** : Selection of resources for the digital library is very important. Here weightage must be given to the resources which are authentic and are in demand among the users.
- b. **Digital collection** - Proposed digital collection may be of the following types :
  - (i) Digitized collection, converting paper and other media in existing collections to digital format.
  - (ii) Acquisition of original digital resources which are also called born digital created by publishers and scholars. e.g. electronic books, journals, and datasets, presentations, music, videos etc.

- (iii) Access to external digital resources which are not held in-house and may be provided through hyperlink, pointers to websites of other library collections, or publishers' servers.
- c. **Access to external digital collection** - The digital libraries can obtain access permission to digital collection provided by external sources like institutions, resources of the libraries through different agreement and collaboration. For example: e-books and electronic journal through on-line access like Elsevier, ACM, IEEE etc., which provides their journals on-line through websites.
- d. **Access to digital information available on the web** - There are many educational research materials which are free to access on the web. Such resources may be redirected through the digital libraries.
- e. **Copyright Issue** : Violation of copyright is against the ethics of digital library. Collections in the digital libraries must be copyright free or must have proper copyright permission to make it available in the digital library.
- f. **Trained Professional** : For creating the digital library, assigned library professionals must have sufficient training in creation of digital library in both software and hardware aspects.
- g. **High speed local area network and Internet** : Ensuring of high-speed local area networks and fast connections to the Internet.
- h. **Relational Database** : Maintenance of perfect relational databases that supports a variety of digital formats.
- i. **Proper Metadata** : Metadata is important in digital libraries because it is the key to resource discovery and use of any document. Proper creation of metadata of the resources is very important.
- j. **Electronic Document Management** : Proper electronic document management functions is essential which will aid in the overall management of digital resources in the digital library.
- k. **Electricity backup facility** : It is suggested to have 24x7 electricity backup facility for a digital library.

1. **Continuous backup** : Back up of the data in the digital library is very important for any sudden system failure so that backup may be restored to overcome the situation.

## 8. National Digital Library (NDL) :

The National Digital Library (NDL) is a MHRD, Government of India project which is in its initial stage is being run by IIT Kharagpur. The project (Pilot Phase) is to collate large number of e-contents for schools, colleges and higher category students with special emphasis on the e-learning, virtual library and technology enhanced learning design covering the needs of learners with differing abilities, expectations and socio cultural background. The National Digital Library will enable some key national knowledge discovery and immersive learning platforms to the nation. It is designed to hold content of any languages and its interface is devised to support all leading Indian languages (currently Hindi & Bengali). The arrangement is intended to support all academic levels including researchers and life-long learners, all disciplines, all popular form of access devices and differently-abled learners. Further there are provisions to help students for preparing for entrance and competitive examinations. In its final contour the system may serve as a pan-India virtual teaching-learning-evaluation-knowledge discovery and innovation platform, a key national asset. The vision of NDL is to act as a National Knowledge Asset - the key driving force for education, research, innovation, and knowledge.

### 8.1 NDL Features :

Following are the main features of National Digital Library-

- a. Educational materials are available for users ranging from primary to post-graduate levels.
- b. Availability of more than 40 types of learning resources
- c. 15, 00,000+ items have been authorised by 1.5 lakh authors.
- d. Repository hosts contents from multiple subject domains like Technology, Science, Humanities, Agriculture and others.
- e. Items are available in more than 70 languages
- f. Repository integrates contents from different Indian Institutional Repositories.



**8.2 Mission of NDL :**

1. To create a 24 hours enabled integrated NDL as a ubiquitous digital knowledge source of the nation catering to immersive e-Learning at all level in all disciplines.
2. To initiate a movement for integrated digital learning across India.

**8.3 Objectives and Scope of the NDL :**

The main objectives of NDL are as follows :

1. Create a 24 hours enabled Infrastructure for NDL with single window search facility. The infrastructure to include hardware systems, networks, software tools, applications and inter-operability standards.
2. Harvest IDRs (Institutional Digital Repository) across educational institutions of the nation to provide integrated access.
3. Facilitate selected institutes to disseminate existing content and create new digital content.
4. Provide support for immersive E-learning environments at multiple levels.
5. Span across
  - a. All academic levels - school to college to university to life-long learning.
  - b. All disciplines - Science, Arts, Humanities, Engineering, Medical, Law, etc.
  - c. All languages (vernacular) used as medium of instruction.

**8.4 Contributing Institutes of NDL :**

The content contributors of NDL are: IITs, IISc., IIMs, NITs, IISERs, NCERT, ICCR, ICHR, ICAR, NMEICT, NPTEL, INFLIBNET, KRISHIKOSH, LIBRIVOX, etc.

**9. Conclusion :**

Digital library can play a significant role in the growth and development of an educated and refined society. Digital library is necessary for every academic institution

to meet the information thrust of the user community and to serve them with right information and at right time without any delay. The need of the hour is that the library and information science professionals must equip themselves with sound knowledge to design and develop digital library. It is the responsibility of the library authority of every institution to provide full-fledged support to their library staff for creation of the digital library. Again the academic libraries should participate in the National Digital Library with proper MOU and they should register their individual library users at the National Digital Library to make them able to access the valuable resources at National Digital Library.

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## Evolution of Library : An academician's perspective

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A Library is a building or room containing collections of books, periodicals and sometimes films and recorded music for use or borrowing by the public or the members of an institution. It is a collection of sources, made accessible to a defined community or reference or borrowing. It provides physical or digital access to material and may be a physical building or room, or a virtual space or both.

The Books are the real blood of a Library. If one fails to circulate them in time, the library becomes paralyzed just as the human body is paralyzed when the blood circulation stops.

Libraries are products of existing social conditions and treasure house of recorded knowledge. They contain information recorded in different forms of documents, manuscripts, books and periodicals etc. which speak of the achievements and life experiences of the scholars of ages. These are the valuable cultural kits transmitting knowledge from one generation to another. The history of libraries is not only the history itself but the history of civilization i.e., culture and literacy prevailing at a time in the society.

The Vedic Culture is one of the oldest cultures of the world. The Vedas are the oldest books of human knowledge. The date of Vedas goes as far back as 5000 to 20,000 B.C. The Assyrian, Egyptian and Roman cultures had followed the Aryan Culture. There is direct proof of the existence of libraries in Babylon, Assyria and Egypt even before 3000 B.C. But there is no proof of the existence of libraries in India even in the Vedic or the Post Vedic period. But there are some evidences that at Banaras & Patliputra some manuscript libraries were there in the 4th Century B.C. where philosophical discussions and similar functions were held in the temples which were then the centers of social, cultural and educational life in India. So the libraries were very aptly housed at these centers and they were open to all.

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Ancient Indian libraries contained handwritten manuscripts as the contemporary monastic libraries of Europe and of any ancient civilization viz., that of Greece, Egypt and China. There are evidences that many of the Ancient Indian libraries like the Takshashila Library and the Nalanda Library were ruined or destroyed as a result of misunderstanding or cultural conflicts among the people in the 5th Century A.D.

Up till the middle of the 19th century, libraries consisted of wall shelving in a large room in a noble man's castle, or in a University hall or a monastery. Such a room could house all the books, the individual or the institution owned. Sometimes shelves were combined with desks for reading or writing. In larger libraries the use of the galleries permitted high wall shelving, sometimes extending several galleries high. Reading space and storage area were within the same room. Later the reading space was separated from the storage as in the Bibliotheca Nationale, Paris. In 1852, Panizzi developed a circular reading room surrounded by book stacks. This was adopted by the Library of the Congress and British Museum and in India by Banaras Hindu University Library.

Our society is undergoing a process of rapid changes, moving toward what is called the information society, the knowledge society, the network society, the international mode of development refers to the following features of the current period like dynamic and continuous change and transformation.

Books and traditional items have been kept and distributed by the traditional libraries. But the use of ICT (Information and communication tools) has changed the informal distribution to the computer and network based solutions.

The internet is a technology which has gained more popularity in many countries across the world and India is no exception. The internet as a medium of communication and source of information has enabled students, researchers & faculty to access information to enhance their research work more effectively.

Digital library or Electronic library or Virtual library projects started in the early 1990s. They are quite new - about 25 years of age. They have been growing at a fast pace. They store, preserve, distribute and protect contents in different formats and at the same time, they allow interaction between the users and the contents. They are always present both geographically and overtime. They can make work internationally

known, enhancing referencing and citizens. They can make public the products of the educational process and let them be used as inputs for further learning.

An informal definition of a Digital Library is a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network. Again, data base of digitized audio, video and written material, on a physical site and/or a website, giving 24 hours online access to users.

Information is a vital and an indispensable component of any academic environment. For decades faculty and research scholars and students have actively used the library and its resources as their main information source. The role of the library is necessarily dependent upon the educational objectives of the institution. The libraries should be treated as integral and active parts of the educational process and the librarians should be involved in course planning and development of the institution.

Dreams of computer based libraries, which have been around for decades are now practical. Online libraries and journal websites are becoming a boon for us. They have become a source where people cannot only harvest contents but download them when required. There are some College/University libraries which have already spent more than half of their acquisitions budget on electronic resources rather than paper. At the same time, there are some College/University libraries, finding it impossible to maintain their traditional collecting practices within the constraint of their institutional budgets. They look eagerly to the new technology as a solution.

Previously individuals were more inclined to going to a library, checking out the shelves and borrowing the book or noting down the important points. Not only this was time consuming, but people literally had to travel from their home to the library. However, with the advent of the internet, people can relax at their homes and get the required contents instantly. No more they have to wait and go to the physical libraries. With a PC and internet connection, individuals can search for the required content as well as download it. In addition, digital libraries and journal websites have become portals for the researchers to publish their research work and gain information to enhance their researches and experiments. In addition, electronics can offer many advantages to libraries. This includes better access to traditional materials, easy preservation and extension of library collections. But perhaps their most important advantage would be their ability to help society, to

make information more available, raise its quality and increase its diversity. Can digital libraries do that? This will depend on how we fund, regulate and manage digital libraries, the new technologies which drive them.

Today availability of e-resources in a University/College library is very common. But then proper and maximum use is a matter of discussion. In fine, it is recommended that the library should be upgraded to meet recent advancements in research and teaching.

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## DECLARATION

1. Name of the Journal : GRANTHAKUTI
2. Place of Publication : Dibrugarh
3. Periodicity of Publication : Annual
4. Name of the Editor : Mrs. Dipika Das  
Nationality : Indian  
Address : Librarian, Dibru College Central Library,  
Dibrugarh, Assam, India
5. Publisher's Name : Dr. Poresh Boruah, Chairman, IQAC  
Dibru College, Dibrugarh-786 003, Assam  
Nationality : Indian  
Address : Principal, Dibru College,  
Dibrugarh-786 003 (Assam)
6. Printer's Name : Mridul Deb  
Nationality : Indian  
Address : Reeta Binding & Printing Works  
Tarun Samity Lane, Dibrugarh (Assam)

*The above declaration is true to the best of my knowledge.*

Editor : Granthakuti