

Institutional Repository (IR)-An indispensable organ of Academic Library: A Study in the Perspective of Colleges in Assam

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Abstract:

Institutional Repository (IR) has been drawing significant attention of the library professionals all over the world and also gaining academic interest over the years worldwide. It is a great challenge for the library professionals of the college libraries in Assam to build their IR as a part of their digital library. Due to increase academic activities of the colleges as well as the faculty members and their shifting mode of publications and posting of their research output from print to digital media there happens to be fast development of production of documentary resource. There is an urgent need for having control over these resources and archive them so that those can be preserved, accessed, disseminated and delivered to the users as and when necessary in a global community base. The article has presented a plan for the work of building IR in the colleges of Assam. The author preferred to use of Open source software either DSpace or Greenstone Digital Library (GSDL) for building IR in the colleges of Assam. The author has identified and described the workflow of the IR of the colleges and has also suggested that a group of college librarian should work together in order to build a 'Model Digital Library cum Repository for Colleges in Assam' (MDLibCA).

Keywords: Institutional Repository, Digital Library, DSpace, GSDL, College Library, Assam

1. Introduction:

The rapid development of Information and Communication Technology (ICT) shows a significant impact on the activities of the library and information centres such as collection or gathering, processing, facilitation of searching & browsing, dissemination & document delivery and archiving (Preservation) of knowledge resources. It has been observed that the mode of publications in digital form is increasing exponentially and the faculty members' practice of publishing and posting their research output is shifting from printed media to digital media in a rapid pace. This is encouraged by the digital publishing technology, expanding global networking and availability of sufficient interoperable protocols and metadata standards. Being an indispensable part of the prospering society of our country like India it is a great responsibility of the present day Librarians and library professionals to develop their control over the publications of their institution and institutional member community to make India a well organised treasure of knowledge resources. Thus it demonstrate a desire of convergence of these resources into institutional repository and draws immediate attention and consideration from academic institutions like colleges and their constituent faculty members, management and of course the library professionals. Other wise the intellectual output of the faculty as well as a college will be defused to the vast volume of

scholarly publications. At this juncture I am bringing to light about some kinds of resources, which are lying as worthless resources and being loss years to years due to non initiatives for archiving them. These are none other than the various publications of the colleges, the documents produced and published on the various occasions and events celebrated by the college, and significantly the publications of the members of the college. It becomes essential to archive these resources for preservation, to expose the resources before the global community as well as delivery to the users as and when required. The best solution for archiving these resources as well as for having control over the digital publications of their institutional members is the Institutional Repository (IR), which would be a prestigious part of the library of the college and also support the teaching, research, extension and other academic programmes of the college.

"An institutional repository is an online archive for collection, preserving and dissemination of digital copies of the intellectual output of an institution, particularly a research institution. The development of an IR redefines the production and dissemination of scholarly materials within an academic community"^[1]. Clifford Lynch defines Institutional Repository as "a university based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the management community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long term preservation where appropriate, as well as organization and access or distribution."^[2]

2. The Contents of IR:

There are different kinds of resources that are published every year by the colleges of Assam. The following may be considered as some of the important resources that are published by the college, which may have some valuable component of the college library if those are archived digitally in the form of an IR.

2.1 Category A:

- a. Books authored by the faculty members and other members of the college subject to the copy right issue. If copy right does not allow to keep the full text of the book, then the title page, content pages and other preliminary pages including preface may be archived. And a link should be incorporated for full text access with the original document if digitally available.
- b. Articles authored by the faculty members and other members of the college published in various journals may be archived subject to the copy right issue. In this regard the guide lines of Open Access Initiative may be followed if applicable. Whatever resources are archived should be under the declaration of Fair Use,
- c. Articles authored by the faculty members and other members of the college published in different seminar/conference/workshop proceedings. The same should be archived with prior permission from the respective body of seminar/conference/workshop,
- d. Product of research based activities such as theses, dissertations and project reports etc. of faculty members of the college. In case of theses link to Sodhganga may be provided for full text access.

2.2. Category B:

- a. Books published by the college and by its departments,
- b. Academic journals published by the college and by its departments,
- c. College Souvenir (generally published annually),
- d. News letter(s) and/or Bulletin of the college,

- e. News letter(s) and/or Bulletin of various departments of the college,
- f. Documented class lectures and/or other academic programme of the college, which can also be managed under OER.

2.3. Category C:

- a. Brochure, pamphlet, booklet etc published in various occasions celebrated or organised by the college,
- b. Photographs, Audio/Video programmes of various events of the college, products of any news coverage published in print & A/V media,
- c. Award winning literary products (Stories, essays, poems, critical writings, etc.) of the students in various competitions in side and out side the college,
- d. Important office records/administrative papers of the college,
- e. The estimate and Detailed Project Report (DPR) prepared, submitted and approved for various development works of the college,

3. Collection and Organization of Resources in IR:

It brings a great challenge to the librarian to collect, organize the above materials in such a way so as to organize and disseminate them properly and to provide access through a single window to satisfy the growing information demand of the academic community. These necessitate a well organised Institutional Repository (IR). A few general and needful activities that are to be done by the librarian in order to collect the resources for IR can be described as follows :

- a. Circulation of general notice requesting the member community of the college to submit their publications to the library for archiving in the IR.
- b. Circulation of personal notice requesting each and every member of the college to submit their publications to the library for archiving in the IR. Along with the notice, a pre designed performa information sheet should be supplied to provide details of the publications including the source documents where the respective document is published. The performa information sheet should be designed as per the metadata format followed.
- c. Initiate a drive to collect the resources from faculty and other members and filled up information sheet.
- d. Make a list of college publications in consultation with other faculty members and the departments.
- e. Search the publications of the college like books, souvenir, journals, bulletin etc. in the library with the help of the list and gather them.
- f. The rest of issues which are not available in the library may be searched in the department, in the possession of respective editors and in the office of the IQAC of the college. (The copies may be returned to the respective department or persons after digitization if needed).
- g. Collect the photographs, audio video programmes, pamphlet, etc of various events of the college from the respective convener, office of the principal and in the departments. (The copies may be returned to the respective department or persons after digitization if needed).
- h. Collect the award winning literary products (Stories, essays, poems, critical writings, etc.) of the students in various competitions in side and out side the college from the office of the students' union and/or respective teacher in-charge.
- i. Collect the estimate and Detailed Project Report (DPR) prepared, submitted and approved for various development works of the college from the respective convener and/or principal office.

However, in the long run the faculty members should be oriented to upload their publication themselves in the institutional repository.

3.1. Data creation for metadata:

After collection of the resources one of most important task is to create the data for metadata creation. For textual documents, it is not a complicated task since the data are available in print in the document itself. However, in case of articles it is vary essential to collect the data about the source, i.e. name of the journal/composite book, volume and issue number, month and year, pagination, ISSN/ISBN, Digital Object Identifier (DOI if any) etc.

But in case of non print media like photographs and audio video programmes the data about the objects of the photographs/visuals, events name, occasion, event date, and a brief description is to be prepared for metadata enriching.

4. Hardware and Software requirements:

It is observed that a major number of the college libraries in Assam, except a few, have planed or initiated the process of building Institutional Repository. However, the cost of infrastructure development and the skilled manpower are the two major hurdles in this regard. But, there is no way other than to build their IR as a part of their library to satisfy their users and to preserve the resources in digital form for future generation. Hence, it is required to find out the way to build an IR cum digital library in the colleges in Assam with minimum cost. Thus it needs a proper plan to accomplish the mission of building a well designed IR.

4.1. Hardware infrastructure:

Hardware infrastructure is the basic need of an IR cum digital library. The minimum hardware requirements are

- a. One server computer with 8GB RAM, minimum 2TB, 2 tracks SAS Hard disk, and multi burner for local/physical server; or the library can opt for cloud server managed by various vendors.
- b. Client computer: numbers of it may be as the library can afford.
 - a. One book eye scanner and one flatbed scanner.
 - b. One Laser Printer and one thermal printer.
 - c. LCD Projector and screen.
 - d. Power backup and/or UPS preferably online UPS.

The college library needs a considerable amount for procurement of the above hardware. Some of the colleges of Assam have already received some amount from RUSA or PMUSA for infrastructure development of the colleges from which the expenditure for IR cum digital library may be incurred.

4.2. Software infrastructure:

In order to build an IR cum digital library it is essential to have two kind of software i.e. Operating Software (server version) and IR compatible Digital Library software. The commercial softwares are very much expensive and in many cases they are beyond the reach of most of the college libraries. The commercial software not only includes the issue of initial purchase and licensing fee, but also includes the issues of annual maintenance costs (AMCs), cost of upgraded version which is required time to time and so on. At this juncture the best available choice to adopt is an Open Source Software (OSS) both of operating software (OS) and digital library software (DLS), which has grown tremendously in scope and its popularity. For DLS one may opt for Greenstone Digital Library (GSDL) or DSpace. The server

should have Operating system Linux (Ubuntu, CentOS), Web server Apache http server to serve contents over the web, and database (RDBMS) MySQL, PostgreSQL for structured metadata.

4.3. Network connectivity:

There are two kinds of network connectivity required for functioning of an IR cum digital library. One is Local Area Network (LAN, preferably campus network) and the other is Internet connectivity. Minimum Broadband Internet connectivity is essential. The library should obtain its own domain and its web site. It is better if the library also try to obtain its static IP for launching web enabled digital library.

5. Resource Generation for IR:

The e-resources are the vital component for which the IR is built for. There may be of two kinds of e-resources, one is born digital resources and the other is digitized resources. After collection of the resources the following are to be done for generation of resources.

- a. The born digital resources may either be converted to its required format such as pdf, rtf, etc for textual documents or let be remained in its original format.
- b. The documents in hard/printed form should be digitized to its proper format as decided such as pdf, rtf, etc.
- c. The images/photographs in printed form are to be digitized to its proper format as decided such as jpg, gif, etc.
- d. The audio-visual product, sound objects etc. are to be converted to standard format like mp3/mp4, mpeg4 etc.

After digitization and conversion to standard format the metadata for the resources are to be created properly as per the specification of standard metadata format of respective software and upload the same to the repository.

6. Why DSpace or Greenstone Digital Library (GSDL) for IR:

There are many DL software, commercial as well as Open source. Some of the open source DL software accepted by the international community are GSDL, DSpace, Fedora, EPrints, etc. It is the matter of the library authority to choose which one will prefer depending basically on technical reasons. But this author prefers the use of either DSpace or GSDL.

DSpace is a widely used open source digital repository software. The user can collect and share all types of digital resources in DSpace such as text, video, audio, datasets, working papers and archives. It is managed by a non-profit organization - Duraspace in open platform which is supported by global community of users and developers. There are many reasons to select DSpace for building IR, these include amongst others- Flexible and Customizable, supports interoperability, assure greater visibility and searchability, include a core set of functionality that can be extended to or integrated with complementary services and tools in the larger scholarly ecosystem, manage and preserve all format of digital contents such as pdf, word, jpeg, mpeg, tiff files, etc, interface available in 22 languages, video tutorials, and above all it has a larger community of support.^[3]

GSDL is developed by the New Zealand Digital Library Project Research Group at the University of Waikato led by Dr. Ian H. Witten. It is developed and distributed in cooperation with UNESCO and the Human Info NGO in Belgium under the terms of the GNU General Public License (GPL). GSDL runs on all the versions of Windows, Unix and Mac. It is interoperable and incorporates a server which can serve any collection over Open Archives Protocol for Metadata Harvesting (OAI-PMH). It can ingest

document in METS (Metadata Encoding and Transmission Standards) form. Any collection can be exported to DSpace readily or DSpace collection can be imported into Greenstone. It has predefined standard metadata sets and the user also can design their own metadata set within Greenstone Librarian Interface (GLI). Greenstone supports all popular file formats. It is also compatible to building institutional repository with minimum customisation which can be done at the user level. Various plug-ins are used to ingest external documents in various formats. Greenstone's another strength is its multilingual nature. Sufficient Greenstone documentation and Greenstone supports (E-List and E-Groups) are available for trouble shooting at the time of use. Above all Greenstone is User friendly and GLI based collection building is very simple and quite easy by operating its modules such as Gather, Enrich, Design, Create and Format. These modules facilitate collection, metadata creation, configuration, customization and managing the collections.^[4]

7. Conclusion and suggestions:

It is to be realised that the college librarians have to initiate the process of building institutional repository in proactive manner for the benefit of the present as well as the future generation of user community of the college. The IR will extend life to the intellectual property of the college and preserve and disseminate and keep safe prominently from the ocean of publications by archiving them since IR of college will concentrate on the publications of the college only. It will make easier to demonstrate the social and scientific value of the publications of the college. It will also enable the college to receive appreciation and prestige. The scholarly writings of the faculty will receive citation from academic community and will help in managing and measuring research and teaching activities. Thus the college librarians should motivate themselves and also should motivate the library staff, faculty members and the authority for their support in every aspects of the process of building IR. For empowerment of the librarian as well as the library staffs to enable them to work in the advanced technology based environment, and to convert them as skilled library professionals it is very essential to participate in various workshops and training programme (both preliminary and advanced level) organised for this purpose. It is suggested that the authority of all the colleges in Assam should extend all possible help and cooperation to the librarian in building their institutional repository cum digital library. It is also proposed that a group of college librarian should work together in cooperative venture in order to build a 'Model Digital Library for Colleges in Assam' (MDLibCA), which may be adopted by all the colleges in later period. It will bring the uniformity in the standards and design of the IR cum digital libraries of Colleges in Assam. This will also facilitate cooperative acquisition, cooperative scanning cum digitization and even cooperative preservation and restoration of rare documents, etc by introducing cross institutional repository. Once the IR is built it will capture, preserve and disseminate the college's intellectual capital and will serve as meaningful indicator of the college's academic quality.

References:

1. https://en.wikipedia.org/wiki/Institutional_repository
2. <http://www.arl.org/bm.doc/br226ir.pdf>
3. <https://dspace.org/about>
4. Das, Nabajyoti. (2016). Building digital library in the college libraries in Assam by using open source software with reference to Greenstone Digital Library (GSDL). In: *Ed. Das, Gitika. Digital library: Issues, challenges and opportunities*. Andhra Pradesh; Global publishing house. pp. 47 – 55.

Bibliography:

1. Das, Nabajyoti. (2007). Open source software and building digital library using GSDL software. In: *Ed. Arora, Jagdish. Library as a global information hub: perspectives and challenges: PLANNER 2007 proceedings, December 7 - 8, 2007.* pp. 430 – 440.
2. Greenstone Support for South Asia <<http://greenstonesupport.iimk.ac.in>> accessed on 20th September 2015
3. New Zealand Digital Library Project. <<http://www.nzdl.org>>.
4. SourceForge.Net < [http://www. Sourceforge.net](http://www.Sourceforge.net)> accessed on 25th May 2016.
5. Sreekumar, M. G. (2015). E-Resource management using Greenstone Digital Library Software: Laboratory guide for UGC sponsored National workshop, Sept. 25 to 27, 2015, Tinsukia Commerce College.
6. Stallman, Richard. <http://www.opensource.org/docs/definition_plain.html> accessed on 15th May 2016.
7. Witten, Ian H., Bainbridge, David and Boddie, Stefan J. (2001). Open source digital library software. *D-Lib Magazine.* 7(10), October 2001, Available at <http://www.dlib.org/dlib/october01/witten/10witten.html>.
8. <https://aims.fao.org/news/dspace>