



## **Institutional Repository: a case study of ICDDR,B Library**

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## **Executive Summary**

The development of an institutional repository (IR) is a strategic change that shifts the role of the library from an information storehouse to an information provider. The vital contribution of information and communication technology in library is the facility of creation of a digital library that allows long term preservation of materials and access to information sources from anywhere. In Bangladesh, there has been a gradual realization of the usefulness of digitization. This report has focused on the present situation of the digitization status of Bangladesh and critical analysis one of the best institutional repository of the country that is the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B). The critical analysis included community, content, services, management, technology etc.

## Contents

Executive Summary.....	2
1 Introduction .....	4
2 Status of library digitization in Bangladesh.....	4
3 About ICDDR,B .....	5
4 ICDDR,B Library .....	5
5 Institutional Repository of ICDDR,B .....	6
5.1 User Community .....	6
5.2 Content of Institutional Repository .....	7
5.3 Services .....	7
5.4 Managing the IR .....	9
5.5 Technology used .....	9
6 Discussions .....	9
7 Conclusions .....	10
References .....	10

## **1 Introduction**

The development of an institutional repository (IR) is a strategic change that shifts the role of the library from an information storehouse to an information provider (Barwick, 2007). The changing natures of scholarly communication, information technology and software development have made this shift possible through the development of Internet publishing tools and software systems (Campbell-Meier, 2008). IR projects involve a larger stakeholder group and require support from technical services, and administration to succeed. Simultaneously, Open Access facility's efforts to make solutions for the difficulty of information inaccessibility from developing countries due to financial and technological constraints. As a developing country, Bangladesh is not far behind to take the advantages of open access and build institutional repositories with free and open sources software's. This report has focused on the present situation of the digitization status of Bangladesh and critical analysis one of the best institutional repository of the country that is the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B). The critical analysis included community, content, services, management, technology etc.

## **2 Status of library digitization in Bangladesh**

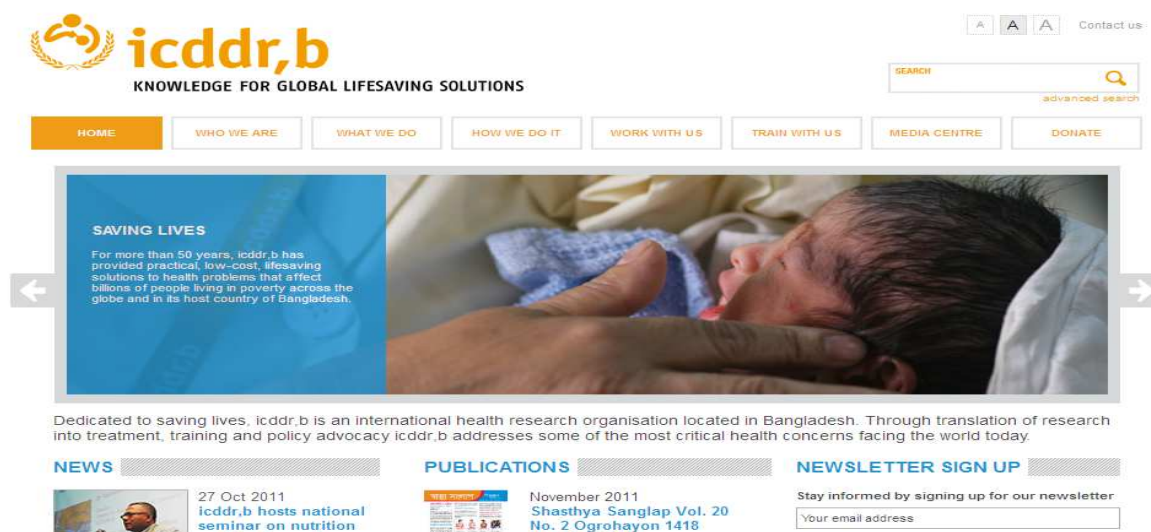
The vital contribution of information and communication technology in library is the facility of creation of a digital library that allows long term preservation of materials and access to information sources from anywhere. In Bangladesh, there has been a gradual realization of the usefulness of digitization (Shoeb, 2010). The digital libraries are libraries with the same purposes, functions, and goals as traditional libraries - collection development and management, subject analysis, index creation, provision of access, reference work, and preservation (Cleveland, 1998). According to this definition, in a real sense there is no existing digital library in Bangladesh. In addition, it is quite difficult to convert the traditional library system to a digital library due to the need of huge amount of finance, expert human resources, appropriate digital library software and materials that are institutions' own or beyond copyright (Ferreira, Rodrigues, Baptista, & Saraiva, 2008). However, there are enhancing demands of the research communities for digital access to information sources and access to full text. To meet the demands some of the libraries started to convert their owned manual documents to digital or storing born-digital materials only. They are also trying to give access to their users to digital materials.

Among the digitization initiatives in Bangladesh, the most mentionable are North South University library that commenced IR in 2003 with their own software, ICDDR,B (International Centre for Diarrhoeal Disease Research, Bangladesh) library in 2005, and BRAC university library in 2008, Independent University Bangladesh have launched IR by the DSpace software. Further, Shahjalal University of Science and Technology, Bangabandhu Sheikh Mujib Medical University and Khulna University of Engineering Technology are in the process of implementing an institutional repository with DSpace software. East West University is using GreenStone software for building digital library, but the nature of content broadly falls under IR categories. Bangladesh Bureau of Educational Information and

Statistics (BANBEIS), Eastern University, Bangladesh National Museum, and Islamic University of Technology (IUT) have taken initiatives to digitize their own collections.

### 3 About ICDDR,B

International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) - an international health research institution located in Dhaka, Bangladesh, established in 1978 as successor to the Cholera Research Laboratory created in 1960.



**Figure 1: Organizational website of ICDDR,B**

The Centre is an independent, international, non-profit organization for research, education, training, clinical services, and information dissemination. It addresses some of the most critical health concerns facing the world today, ranging from improving neonatal survival to HIV/AIDS. In collaboration with academic and research institutions throughout the world, it conducts research, training and extension activities, as well as program-based activities, to develop and share knowledge for global lifesaving solutions. The results of researches conducted over the years at the Centre provide guidelines for policy-makers, implementing agencies, and health professionals in Bangladesh and around the globe (ICDDR,B, 2011b).

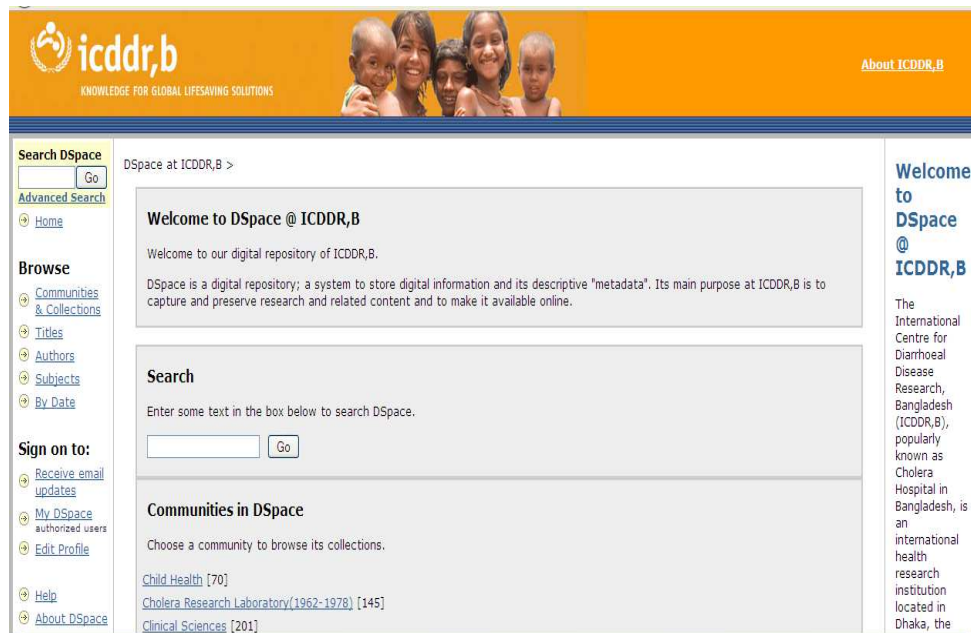
### 4 ICDDR,B Library

The Library and Information Services Unit (LISU) of ICDDR,B is popularly known as ICDDR,B library. It is a special library in nature and dedicated to medical research. Its aims and objectives are to: (a) collect, process, store, and disseminate information, (b) encourages use and flow of information, (c) help promote appropriate research work, and reduce duplication, and (d) Optimize the application of improved practices for information storage, retrieval, publication, and dissemination - all concerned with the issues relating to health, nutrition, and population. The mission of LISU is to make available findings and results of

global health, nutrition, and population research for solving the common health, nutrition, and population problems, especially in the context of the developing world. The library is equipped with the most advanced tools of information technology and equipment for the storage, retrieval, and dissemination of information.

## 5 Institutional Repository of ICDDR,B

Beside traditional library services, the ICDDR,B library launched its Institutional Repository (IR) in 2005, in consideration that it will transform as digital library in the long run. It chooses DSpace software to build the Institutional Repository (Chowdhury, Uddin, Afroz, & Sameni, 2011). The mission of the IR is to capture and preserve ICDDR,B's intellectual output and make them available online for global research community.



**Figure 2: Institutional Repository interface of ICDDR,B Library**

The web address of the institutional repository is <http://dspace.icddr.org/dspace>. It is an institutional repository, but somehow in advance level with a flavor of digital libraries.

### 5.1 User Community

The donor countries, including the Government of Bangladesh are considered as stakeholders in this community. The user community is defined as all the researchers, administrators and staffs of ICDDR,B. The library encourages ICDDR,B's scientists to put their pre-print and post print research articles' in the IR to enrich the system. Besides, the immediate user community, the repository is open for everyone. Six library professionals are well trained and taking care of the IR and among them two persons are dedicated for the administration of the IR with the help of information technology unit. The library professionals have at least

master degree in information science and library management and received several in-house and foreign training on information technology and library management.

## 5.2 Content of Institutional Repository

The IR's content covers a broad area of life sciences, and biomedical literatures. The IR contains mainly journal articles, abstracts, letters, conference proceedings, monographs, reports, and book chapters. However, there are other options like to include video, art, music, photos, etc. The IR preserves both the organization publications and publication in peer-reviewed journals. Still, it has not any formal collection development policy, but focusing on own researches'.

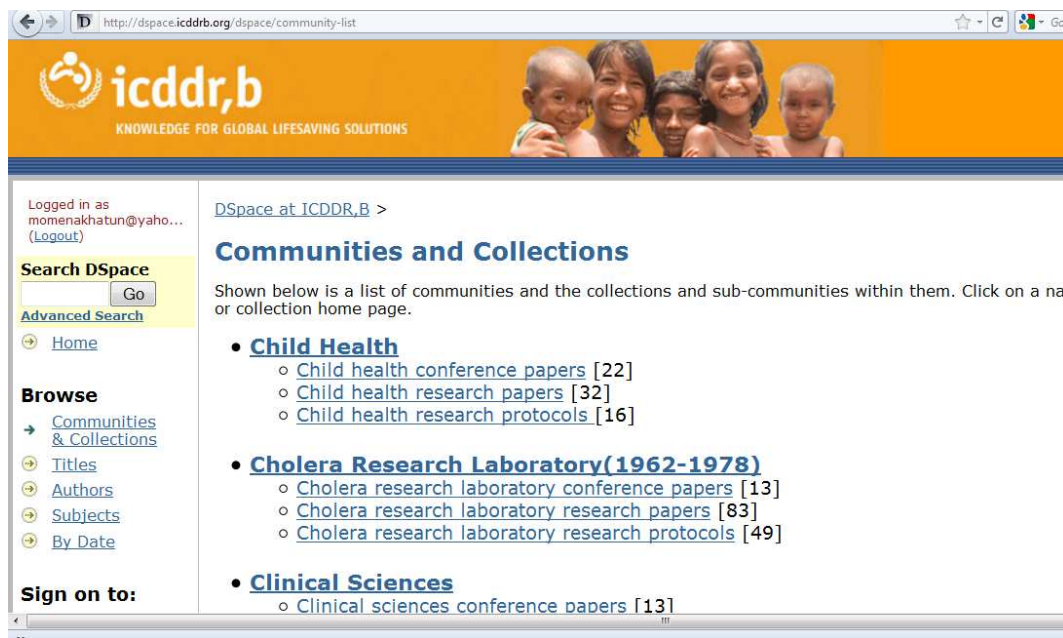


Figure 3: Communities and Collection interface of the IR

The whole collections are aggregated according to 14 major research areas like Child Health, Cholera Research Laboratory, Clinical Sciences, Health & Family Planning System, HIV/AIDS, ICDDR,B's external publications in different journals, Infectious Diseases & Vaccine Science, Information Sciences, Laboratory Sciences, Nutrition, Population Sciences, Poverty and Health, Public Health Sciences, Reproductive Health etc. In addition, all communities have three collection groups: conference papers, research papers, and research protocols (ICDDR,B, 2011a). It has adopted Dublin core metadata scheme as default of the DSpace software. The library management selects the digital resources based on the intellectual output of ICDDR, B researchers. However, the Manager and one Information Assistant can add new collection to the IR. The IR is the part of the physical library, but it does not use any digital pointer/indicator to a physical library.

## 5.3 Services

The access policy of the IR is free and open accesses for anybody. However, the publications of ICDDR.B’s researchers that appeared in peer reviewed journals are maintained under the category ‘ICDDR, B external publications in different journals’. Only the researchers or staff member of ICDDR, B has access to those documents due to the copyright act.

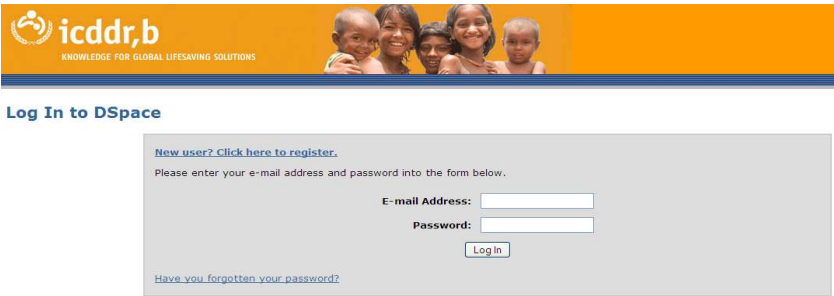


Figure 4: Log In interface for peer reviewed articles

The Center users who are currently working have valid e-mail address and password to explore the whole IR. However, there are some controls in accessing the repository for others. Other than ICDDR,B’s own user none can get access the peer-reviewed articles through IR. In that case they have to contact the library directly. As the library is using open source software DSpace, there are some limitations about the richness of functionality. It is still using the defined basic functionalities of the DSpace software. For institutional repository users, it is quite right, but sometimes it is time consuming to get a specific item. For example, there are simple search box with the option of advance search for expert users. The Instructions for constructing search is not available anywhere, so the users should be an expert on internet use.

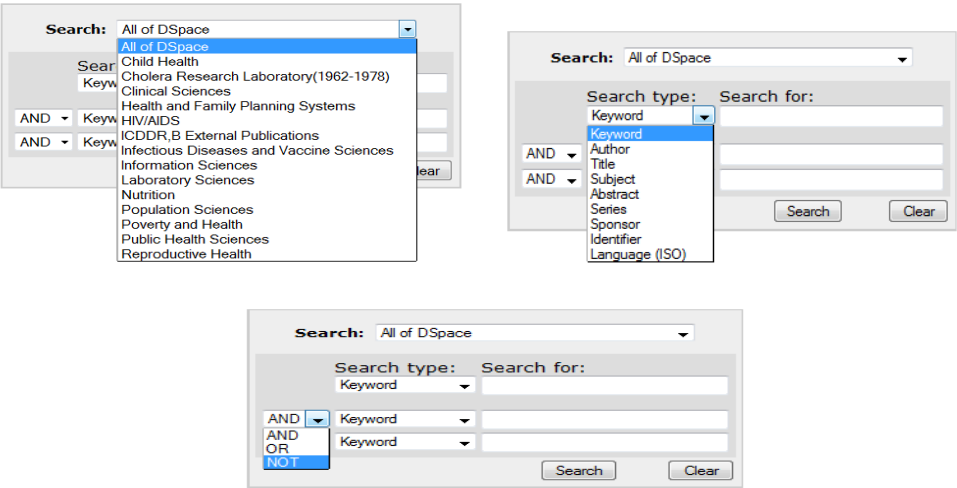


Figure 5: Search interface of the IR

In addition, the simple search cannot be further filtered. Further, the search box appears on the left side top corner of every screen while browsing, and the help option is available on the



IR site as default by DSpace software. The majority of the contents has been categorized according to the user community. Users can browse the articles by communities and collection, titles, authors, subjects and publication date too.

The interface is user friendly, but not all the functionalities are visible at a glance. There is a global navigation bar at the left hand side. The bottom of the site does not provide any other useful links with information. There is no use of web 2.0 technologies that embedded in the site like blogs or twitter or chat. Even there is no option for FAQ or query form. However, the registered users receive updates about their research interest though e-mail. In addition, anyone can send e-mail queries, and these e-mail queries are attended by the dedicated library staffs. Other than these, the IR also provides bibliographical and indexing services too.

#### ***5.4 Managing the IR***

In addition to setting up the software, branding the repository and identifying collections to incorporate the ICDDR,B's IR verify copyright, digitize documents and add the appropriate metadata. Other than English language, there are no other documents in the IR as all the research done by the Center are published in the same language. ICDDR,B's activities are supported by about 55 donor countries and organizations, including the Government of Bangladesh, UN specialized agencies, foundations, universities, research institutes and private sector organizations and companies that share the Centre's concern for the health problems of developing countries and value its proven experience in helping solve those problems. As a result, it is confirmed that the IR is well funded and sustainable. In addition, the Center has extended its hand to other organizations with their technical hands and experiences to the organizations who likes to develop IR with DSpace too.

#### ***5.5 Technology used***

The IR is based on DSpace software. The files/dbs/server(s) reside in ICDDR,B data center's server, which is consist of Dual Core Xeon 3GHZ processor, 2GB RAM, 200 GB HD that is 2950 dell power Edge and using a 1g Network Connection. For interfaces like command/form-fill/menu/direct manipulation/visualizations it is using Java 2 Platform Enterprise Edition based on open Source Software Dspace. It is also maintaining special securities to provide quality services. However, there are certain difficulties like bibliographies are not possible to prepare as per choice, and not easy to edit frequently. In addition, it is difficult to get the preferred statistics from the IR due to the limitation of the software Dspace.

### **6 Discussions**

The institutional repository is facilitating the researchers of ICDDR, B as well as offering free access to the worldwide community. Rather than just be a storage spot, it collects the intellectual output of the Center, adds value to the content. It also reflects discipline specific material at a glance, being able to put stuff out there in a systematic way, make the

intellectual output of the Center digitally accessible and preserve for a long time. It is also a showcase for work that happens at the Center and supports the learning, research and staff community to build bridges among their knowledge process. In addition, it provides a 'space' for and access collections that would not be easily accessible elsewhere. The IR of ICDDR, B took the library in new directions, working with the research community in a new way and providing open access.

## 7 Conclusions

The potential impact of institutional repositories occurs at both the strategic and tactical levels. Establishing an institutional repository program indicates that a library seeks to move beyond a custodial role to contribute actively to the evolution of scholarly communication. Libraries with an organizational imperative to invest in the future, institutional repositories offer a compelling response (Royster, 2008). Assuming the document management tasks that attended in institutional repository often translates into new roles for librarians, one suspect that in practice it is frequently prove incremental to existing staff duties. Still, anecdotal evidence suggests that librarians may welcome these additional responsibilities, as they enhance the quality and frequency of their contact with the user community, which in turn informs and improves their collection development decisions.

## Acknowledgement

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