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COLLABORRATIVE APPROCAHES TO BUILDING DIGITAL REPOSITORIES IN AFRICA

A case study of Ethiopia; building national digital repository of theses and dissertations

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Abstract

While there is exponential growth of local generated intellectual output from Africa, remains are challenges to make the local content visible and available at the global level.

By 29th January, 2013, out of 2256 repositories listed in the Directory of Open Access Repositories (DOAR) at www.opendoar.org, only 60 repositories are in Africa, which is 2.66% of total repositories in DOAR. This statistics is consistent with many available studies which indicates that Africa's' contribution to the global knowledge is limited. The report released by Thomson Reuters on April 2010 also confirms that Africa's contribution to the global body of scientific research is very small and does little to benefit its own populations.

With over 30 academic institutions that award bachelors, masters and PhD each year, Ethiopia faces the same challenges, make intellectual output accessible at the global level. Recognizing this fact, Ethiopian major actors in the educational field, in particular, the Consortium of Ethiopian Academic and Research Libraries (CEARL) and the National Education and Research Network of Ethiopia (EthERNet), have been actively exploring ways to address the challenge using the modern technology.

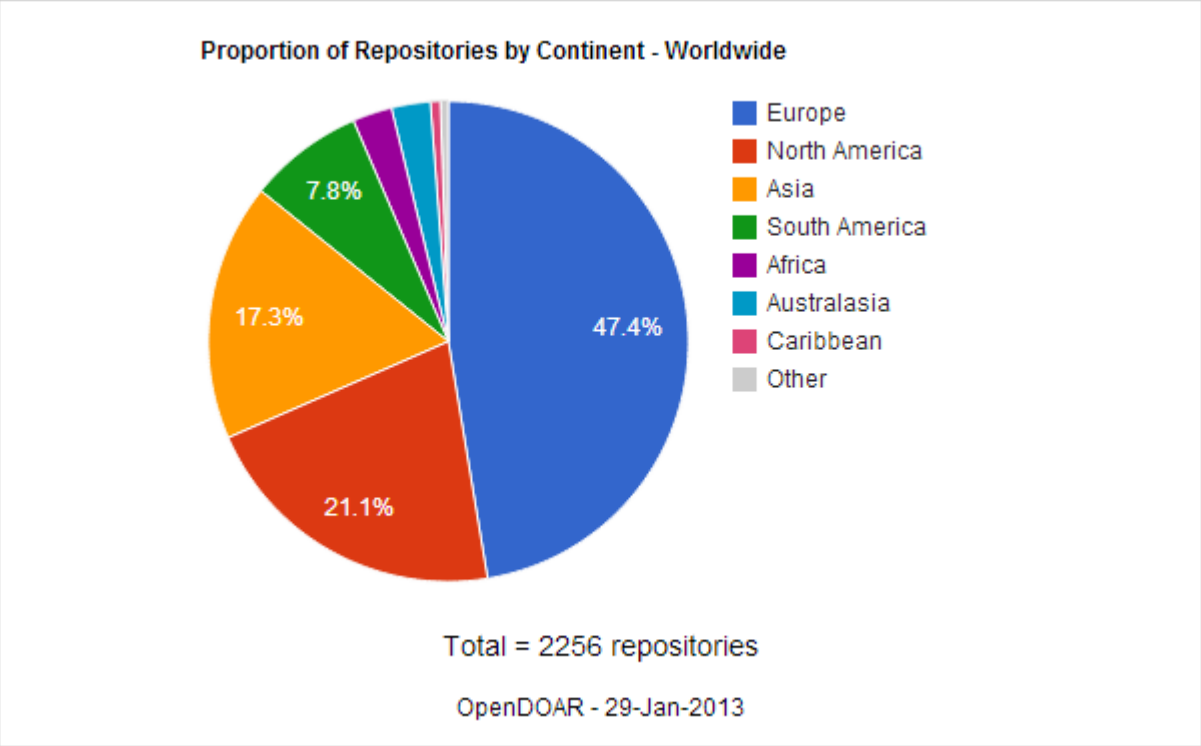
CEARL, as content provider and EthERNet, as infrastructure operator, has been collaborating to unlock Ethiopian academic institutions' knowledge using common digital repository. The collaboration is guided by Memorandum of Understanding (MoU) that harmonizes individual institutional policy framework.

The paper explores the collaborative approaches whereby individual institutions pooled together resources and at the same time, jointly engage international partners specifically the International Network for the Availability of Scientific Publications (INASP), the Royal Tropical Institute (KIT), the African Digital Library Support Network (ADLSN) and the Institute of Development Studies (IDS) to bring about the national repository.

Keywords: *Digital repository, Regional collaboration, Capacity building, Research output, Africa, Ethiopia*

Introduction

Most agree that there is significant amount of research output and heritage resources in Africa. However, only few of them made it to the international scientific journals and due to which most of it is not accessible within and outside Africa. On the other hand, there are very few repositories[1] which can be an alternative for enhancing visibility and access to these research output.



University level education in Ethiopia has begun over 60 years ago with the establishment of the University College of Addis Ababa (now Addis Ababa University) in 1950[2]. Since then the number of public higher learning institutions in Ethiopia has grown to over 30. Many of these universities have Master's and Doctoral degree programmes which require students to submit thesis and dissertations in order to fulfill the requirement for the award of the degree. Specialized research institutes in various fields have also been established. Similarly, resources based learning has become a common place in most of the programmes. All these developments calls for wide access to research results conducted elsewhere, proper

[1] www.opendoar.org
[2] http://10.90.10.76/index.php/about-aau/historical-background

management and dissemination of the research output of these institutions. However, these activities require a good amount of investment in infrastructure and human expertise, which presents huge challenge for individual institution to address in isolation. Quite Number of institutions have already realized this challenge and organized themselves to effectively address the issues of access, manage, and dissemination of the research output.

Building Institutional Repositories (IR) Through Institutional Collaboration and Partnership

In the course of addressing the challenges, the Consortium of Ethiopian Academic and Research Libraries (CEARL), which aims at assisting and facilitating information access and use in Ethiopia, has forged strong ties and partnership with various national and international institutions. Such collaborators, includes, but not limited to INASP, KIT, ADLSN, EtherNet.

The overall objective of the collaborative activities at both national and international level is to establish a national repository based on open access principles. In addition, build and strengthen capacity at institutional and national level on managing and disseminating research output.

More specifically, the objectives of building national digital repository for Thesis and Dissertations are:

- Increase availability, visibility, and access of staff and students research across universities in Ethiopia and for scholars elsewhere in the world;
- Enhance the research quality by providing access to the related research projects carried out in the past;
- Assist in avoiding duplication of effort and resources by providing a tool to researches at home and outside to know what has been done already;
- Digitally preserve the Ethiopian theses and dissertations;
- Train librarians and students of universities in Ethiopia in the technique of digital publishing and electronic access to documents;
- Promote enhanced scholarly communication between universities in Ethiopia and anywhere else and encourage more research collaboration.

Access to Scholarly Information and Capacity Building Collaborations

As pioneer partner, the International Network for the Availability of Scientific Publications (INASP) has been significant contributor in facilitating access to research information in Ethiopia. CEARL collaborated with INASP to license many high quality research output from very many giant publishers and providers in the world which was instrumental to strongly support the activities of the research and academic institutions in Ethiopia.

INASP through the Programme for the Enhancement of Research Information (PERI)[3] has contributed immensely in the area of access to research information, capacity building, and management of research output and dissemination. The activities of CEARL and INASP has focused not only on enabling access to international information sources but also on building mechanisms to organize the local research results and open them up for use by any one in need. To this end, series of capacity building activities in the areas of institutional repository building and research quality improvement has been conducted.

On the other hand, while most of the academic institutions in Ethiopia are aware of the benefits of open access approaches to knowledge and dissemination of research, their thesis and dissertations are not accessible or even well-organized for that matter. These research products are in custody of their respective institutions in paper copy but they are not systematically described so that users within and outside institutions are able to find the printed copies for consultation. This situation obviously leads to duplication of work within and between different universities because there is no mechanism through which faculty and students know the research works done in the past. It is clear that there are some significant breakthroughs provided by some of the Ph.D. researches. However, there is none or insignificant follow up on the part of the concerned university and other bodies on the results due to inaccessibility of the work done.

INASP-supported workshop was conducted in 2011 which helped to produce some technical skills in open source digital repository management software. This workshop was attended by 25 librarians, ICT experts, research and policy makers from over 20 institutions.

[3] http://www.inasp.info/file/5f65fc901786033888288140 2dc594e4/perii.html

Another complementary workshop was also conducted in 2012. This workshop was targeting not only technical skill building but also sensitizing research policy makers and managers of institutions. The aim was to sensitize policy makers about the importance of institutional repositories thereby they can support and promote the effort that may be initiated to build an IR by the technical staff of the institution. The objective of the workshop was to:

- Create awareness about the benefit of building IR among institutional policy makers
- Introduce the basics of institutional repository; basics of metadata; marketing and promotion;
- Develop technical skills in setting up and running IR using Greenstone and Dspace open source software

Accordingly, participants of the workshop were able to draw up some plans that can be considered for implementation by the respective institutions. Therefore, the workshop has said to have laid the foundation for the development of IR as this group of policy makers now know very well the benefit of IR and what it takes to build one. They are all committed to support and spearhead an IR project at their respective institutions. We are confident that this commitment together with the technical workforce, to whom we provided technical skills of building IR, would enable institutions to realize IR soon.

Database of Thesis and Dissertations

The Addis Ababa University participated in the Database of African Thesis and Dissertations (DATAD)[4] project of the Association of African Universities (AAU), which was designed to improve management and access to African scholarly work. Through this project, metadata description of the thesis and dissertations submitted to the University up to the year 2003 has been created. However, access to the physical collection is still remains the main problem. The University also initiated an institutional repository of Electronic Thesis and Dissertations in 2007, with the aim of organizing full-text electronic copies of the thesis and dissertations in an open access environment for broader access[5]. The collection has grown to over 4000, very few compared to the number of graduates every year, 2500 to 3000 on average.

[4] http://www.aau.org/?q=datad
[5] http://10.6.20.92/dspace/

Local Partnership to Overcome Infrastructural Challenges

The Ethiopian Education and Research Network (EthERNet)[6] which was initiated in 2001 as part of a national capacity building program to build and deliver highly interconnected and high performance networks for universities and other educational and research institutions in Ethiopia is one of the main local infrastructure base with which CEARL is collaborating. EthERNet has a network that ties many of the established universities in Ethiopia to enable them to share educational resources and collaborate both within Ethiopia and globally. In addition, a big project to build the next generation network that would provide 300 GBit/sec to each of the public universities and interconnecting them directly to the fiber optic cable at Djibouti without going through the Ethiopian Telecom company has been launched and will be operational very soon.

Currently, it offers the following services using the VPN provided by the Ethio Telecom.:

- Datacenter facility equipped with redundant power, air conditioning, fire protection and physical security systems
- Video conferencing for postgraduate courses, inter-university classes arranged and delivered within Ethiopia, telemedicine, meeting and conferences between universities.
- Electronic library with a collection of e-books and multimedia (audio, video)

Therefore, the EthERNet provides the necessary network infrastructure where we can build a central repository of digital thesis and dissertations. Those institutions which do not have the infrastructure of their own will then input and maintain there collection from a remote on the central repository.

Capacity Building and Resources Mobilization

In addition to soliciting local funding from Consortium member institutions, CEARL is working with other international partners to fulfill resource requirements and enhance its capacity

[6] http://www.ubuntunet.net/ethernet

building efforts. These international partners include the Royal Tropical Institute (KIT)[7], Institute of Development Studies (IDS), and the African Digital Library Support Network (ADLSN).

The Royal Tropical Institute (KIT) in Amsterdam is an independent centre of knowledge and expertise in the areas of international and intercultural cooperation, operating at the interface between theory and practice and between policy and implementation. The Institute contributes to sustainable development, poverty alleviation and cultural preservation and exchange. KIT operates internationally through development projects, scientific research and training, and also provides consultancy and information services.

KIT and CEARL have developed a proposal to build a Collaborative Digital Institutional Repository for Ethiopian Higher Learning and Research Institutions. The proposal has been submitted for funding and very promising results are expected. KIT has also been instrumental in soliciting various supports from IDS and as such a memorandum of understanding (MoU) that govern this various forms of collaboration between KIT and CEARL has been signed in January 2013. As part of the effort, KIT has provided the required expertise to support and run the national workshop organized in Addis Ababa in February 2013. The workshop is resulted in a joint collaborative platform for participating institutions with all the necessary policies and operational details.

The Institute of Development Studies (IDS)[8] is a UK based leading global charity for international development research, teaching and communications. The IDS has been keen in strengthening local capacity to develop, organize and manage research outputs. Accordingly, an expert from IDS attended the 2012 national IR workshop in Addis Ababa with the aim of developing a collaborative platform between CEARL and IDS. Following this, IDS has financed the national framework building workshop organized by KIT and CEARL in February 2013.

CEARL has also forged a strategic alliance with the African Digital Library Support Network (ADLSN) to address its technical skills challenges. ADLSN[9] is the community of practitioners,

[7] http://www.kit.nl/
[8] http://www.ids.ac.uk/
[9] http://www.adlsn.org

managers, small businesses and strategic thinkers that plan implement and sustain the necessary digitization and IT. ADLSN has been around and functioning for more than a year now after starting life as Southern Africa Greenstone Support Network as early as 2007, and has been involved in identifying, customization and implementation of various open source software for building digital repositories and digital libraries of research output and heritage materials of African origin. It has built National Centers as nodes in its Support Network in various parts of Africa including Ethiopia, Kenya, Tanzania, Malawi, Lesotho, Zimbabwe, Namibia, Nigeria and Senegal. Accordingly, practical training on digital repository and digital library building using open source software has been provided to African librarians, archivists and ICT experts at a series of occasions. This bottom-up network has now grown up into a formal non-profit foundation and officially operational as of November 2012. ADLSN has been officially inaugurated in January 2013 in its board meeting in Addis Ababa.

ADLSN is the key technical partner to support the national repository development effort and also one of the players in the organization and delivery of the national IR framework workshop sponsored by KIT, IDS and CEARL.

Conclusions and Recommendations

- Academic and research institutes in Ethiopia are on the right path of repository development by building a national digital repository framework agreement including the suitable repository model and the national steering committee that can drive the process.
- IR building requires resources and commitment which is often difficult to meet by a single institution alone. In order to overcome this challenge, institutions need to work together.
- There is a need for awareness creation among the policy makers as the success of any collaborative approaches need commitment from decision makers
- Collaborative mechanism needs sense of ownership building process and a framework of formal agreement to guarantee success.
- Still there is a need to address the challenge of ownership against access mentality.
- Building local coalition and pull available resources extremely help institutions in Africa with financial, expertise and infrastructure limitations in IR building effort.

- Building partnership with international organizations would provide significant opportunities to develop skills and mobilize resources.
- In order to bring about a successful march towards digital repositories, brining policy makers on board through strong advocacy and sensitization is paramount important.

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