Digital Access to Research:
Prospects of the Technology Bank Project of the United Nations

Onan Mulumba
Country Focal Point – Uganda, Technology Bank of the United Nations omulumba@gmail.com
Caroline Kobusingye
Country Focal Point – Uganda, Technology Bank of the United Nations ckobs.angel@gmail.com
Blessing Mawire
Country Coordinator – Uganda, Technology Bank of the United Nations chataira@gmail.com

Abstract
In 2016, the United Nations General Assembly officially established the Technology Bank Project aimed at supporting and strengthening Science, Technology and Innovations (STI) in selected Least Developed Countries (LDCs). The focus area of the project was to promote digital access to research and technology in LDCs. Working in partnership with research4life, a partnership of 5 UN agencies (WHO, FAO, WIPO, ILO, UNEP), highly rated science publishers, Cornell and Yale Universities, that have been providing free access to global academic research through the five research4life programmes, as well as in collaboration with the Uganda Focal Persons, the Technology Bank aims to achieve its objective. The DAR (Digital Access to Resources) activities of the Technology Bank started in September 2018, in Uganda. The activities were then officially launched in a workshop at Uganda Christian University (UCU) on the 7th of November 2018. Subsequent activities and workshops were held in which the project reached out to many researchers and institutions. This paper, therefore, presents a summary of DAR activities and their spread within the country until December 2018.

Keywords: *Digital access to research; Technology Bank; Research4Life, research, innovation, STI, Uganda.*

Background to Technology Bank and Digital Access to Research (DAR)
In 2011, the Istanbul Programme of Action called for the establishment of a technology bank dedicated to least developed countries, a long-standing priority of the LDCs confirmed in the 2015 Addis Ababa Action Agenda and in Sustainable Development Goal 17 (UN-OHRLLS, 2019).

The Council of the Technology Bank of the United Nations (UN) adopted the programme of work focusing on the Technology Bank in collaboration with other UN entities. This adoption followed a feasibility study that realized the major benefit it would have towards the development of research in the LDCs (United Nations, n.d.). On 23 December 2016 the United Nations General Assembly officially established the Technology Bank (New, 2017; UN-OHRLLS, 2019), and operationalized on 22nd September 2017. The Technology Bank aims at strengthening the science, technology and innovation capacity of the world's 47 LDCs (United Nations, 2017).The Technology Bank's digital access to research activities build on the substantial existing national scientific and technical information access and information expertise, to foster and further enhance national capabilities, and also to promote eventual South-South collaboration.

The Technology Bank joins Research4Life, a public private partnership active in more than 100 low- and middle-income countries, including all the LDCs, since 2002 as a new UN partner ("Technology

Bank for the Least Developed Countries : budget and programme of work for 2018," 2018). Through the DAR activities, the Technology Bank builds on what Research4Life has so far accomplished, and generate results for the LDCs, which have been out of reach to date. Research4Life has proven that online access to the world's high quality published scientific and technical information (STP) is possible in all the LDCs, although not without hurdles that need to be overcome. Through the DAR activities, the Technology Bank aims at ensuring that the LDCs make the best possible use of this access ("Technology Bank for the Least Developed Countries: budget and programme of work for 2018," 2018).

Digital Access to Research (DAR) in Uganda
Digital Access to Research (DAR) Technology Bank of the United Nations activities commenced in September 2018 with virtual meetings with the Country Coordinator, mapping out activities and the way forward. Activities planned included outreach, meetings, workshops and conferences.

Several meetings were held with various research support bodies within the country. On 28th September, a meeting with the Executive Secretary for Inter-University Council for East Africa (IUCEA), Prof. Lyambabaje Alexandre. At the meeting, Prof. Lyambabaje was invited to be a keynote speaker at the Launch of the DAR Technology Bank of United Nations Project at Uganda Christian University, Mukono. He was ably represented by Dr. Phillip Ayoo, the Principal innovation and outreach officer. On same day, IUCEA was registered for Rsearch4life. The Executive Secretary requested for a memorandum of understanding to collaborate with the Technology Bank Project.

While at Mbarara the DAR team reached out to two more organizations/institutions;
1. University of St. Joseph: This is a newly established Catholic University. The visit to this university saw the team having a briefing from the Manager, Quality Assurance, the Deputy Vice Chancellor Academic Affairs and the Academic Registrar. The aim was to lay strategies for future collaborations and involvement in DAR activities.
2. CAMTECH Uganda: This is a centre for innovations at Mbarara University. Their mandate is to nurture innovators and accelerate technology transfer in the medical field. They currently have innovations on market, including a hand sanitizer (Sanidrop) and other medical support services and products.

Meetings with Guest Presenters/Research Support Institutions
On 6th November 2018, meetings were held with various Research Support Institutions. These included: Inter-University Council for East Africa (IUCEA), National Council for Science and Technology (UNCST) and Research and Education Network for Uganda (RENU).

Launch of the DAR Project and Overview of STI in Uganda
Dr. Phillip Ayoo, the Principal innovation & outreach officer, Innovation and Coordination at the Inter University Council for East Africa (IUCEA), officially launched the DAR project in Uganda. He applauded the Technology Bank and Research4life for making it possible for the East African region to access the information at no cost. He also commended the efforts by Technology Bank of UN to build capacity on DAR in Uganda's institutions and for bringing together different local partners, who are also crucial in moving science and technology, and

DAR in Uganda. He further implored all participating institutions to go an extra mile as researchers, ICT specialists, and librarians to identify their institutional gaps in DAR and improve them for realization of a bigger goal of boosting STI in Uganda.

Workshops

Two workshops held in Uganda, on 7th to 9th November 2018 at Uganda Christian University (UCU) and 12th to 14th November 2018 at Mbarara University of Science and Technology (MUST), stem from Work Activity 2 of the Technology Bank. This activity aims at promoting access to research and technical knowledge in selected least developed countries, among which is the Republic of Uganda. This activity was highly supported by the existing information infrastructure build by Research4Life, which is another United Nations supported public-private partnership.

The usage of Research4Life Resources shows that Uganda has a fairly high usage. For example the period of July 2017 to May 2018. Makerere University registered 16,056 logins, Mbarara University of Science and Technology 1,877 logins, Uganda Christian University 1,330, and Uganda Martyrs University 1,431, among many other institutions. Comparatively Uganda has the highest usage in Africa, and globally, and comes only after Nepal and Bangladesh. The high uptake of Research4life resources is also reflected in the number and quality of research output in the country.

Objectives of the Workshops Were to;

- Enable, facilitate and increase online access to costly scientific journals, books and databases at no direct charge;
- Put in place the necessary capacities to create and/or scale up access to and use of scientific and technical knowledge;
- Provide training for librarians, university teachers, graduate students, researchers, IT specialists and other relevant constituencies;
- Create tangible, measurable results quickly through intensive, country-wide campaigns in the least developed countries in order to integrate use of the scientific and technological potential in all relevant activities;
- Lay the groundwork for other activities of the Technology Bank through substantial improvement in the scientific and technical information infrastructure in the least developed countries.

Workshop Venues, Facilitation and Participant Composition

The first workshop was held in Kampala, at Uganda Christian University (UCU). The second workshop was held at Mbarara University of Science and Technology (MUST) in Mbarara. The workshop facilitators included guest presenters, the Country Coordinator and the two Country Focal Points (CFPs), Mr. Onan Mulumba and Ms. Caroline Kobusingye. Tasks were divided amongst the facilitators and support was provided to participants during the practical sessions and group tasks.

The workshop participants comprised librarians/information officers, IT staff, researchers, lecturers, government officials, and administrators. These came from different categories of institutions, including; universities, research institutions, government ministries/bodies, vocational institutions, professional associations, public libraries, and companies. The overall gender distribution stood at 57 (62.6%) male and 34 (37.4%) female.

Discussions and Training Activities

Training activities were preceded by guest presentations from key stakeholders and research support bodies in the national science, technology and innovations strategies, including;

- Uganda National Council for Science & Technology (UNCST) - Ms. Hellen Naluyima Opolot;
- Inter University Council for East African Universities (IUCEA) - Dr. Phillip Ayoo;
- Research And Education Network for Uganda (RENU) - Eng. Isaac J. M. Kasana;
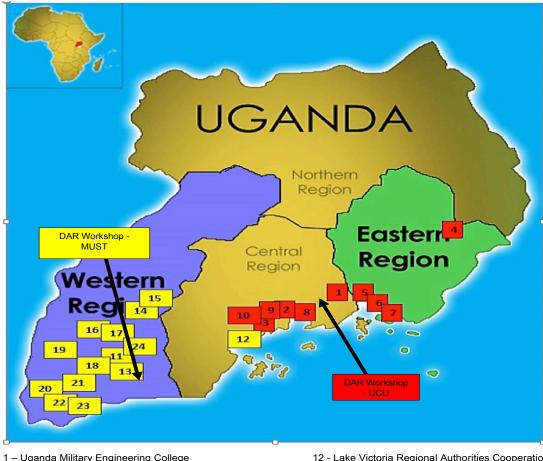- Consortium of Uganda University Libraries (CUUL) – Ms. Jesca Karungi;

- Technology & Innovation Support Centres (TISCs) National Focal Point – Mr. Tonny James Lubwama (from Uganda Registration Services Bureau);
- Ministry of Science Technology and Innovation (MoSTI) - Hon. Elioda Tumwesigye represented by Mr. Patrick Joraam Mugisha;
- Deputy Vice Chancellor, AA (Kyambogo University) & Research4Life knowledge expert – Prof. Maria G. N. Musoke.

Workshop Summary

			Kampala workshop	Mbarara workshop	Total
Workshop participants	Gender	Male	26	31	57
		Female	21	13	34
	Total		**47**	**44**	**91**
Participants' profession	Librarians / Information officers		24	13	37
	IT staff		2	1	3
	Researchers		5	4	9
	Lecturers		6	4	10
	Government officials		5	4	9
	Administrators		4	14	18
	Others		1	4	5
Number and type of organizations represented	Universities		10	10	20
	Research institutions		4	1	5
	Government ministries / bodies		5	4	9
	Vocational institutions		4	1	5
	Professional associations		1	1	2
	Public libraries		0	1	1
	Companies		3	1	4

Table 1. Summary of workshop participants.

Institutional mapping

1 – Uganda Military Engineering College
2 - Aquaculture Research and Development Center, Kajjansi
3 - University of Kisubi
4 - Soroti University
5 - National Fisheries Resources Research Institute (NAFIRRI)
6 - UPDF, Junior Command and Staff College
7 - Uganda Senior Command and Staff College
8 - Makerere University Business School
9 - Nkumba University, Nkumba
10 - Uganda National Council of Science and Technology
11 - Mbarara University of Science and Technology (MUST)

12 - Lake Victoria Regional Authorities Cooperation (LVRLACC)
13 - Bishop Stuart University
14 - Mountains of the Moon University
15 - African Rural University, Kagadi
16 - Kampala International University, Bushenyi
17 - Ankole Western University, Kabwohe
18 - University of St. Joseph
19 - Bundibugyo Community Library
20 - Kachwekano Zonal Agricultural Research and Development Institute, Kabale (KAZARDI)
21 - Bishop Barham, UCU
22 – Kabale University
23 - Uganda College of Commerce - Kabale
24 - Ibanda University

Figure 1. A map showing the institutions trained and their geographical distributions

Conclusion

The inception of the DAR activities were generally welcomed by all organizations and individuals who were engaged in the activities. The workshop activities benefitted a total of 91 participants, both at Uganda Christian University and at Mbarara University of Science and Technology. After the Kampala workshop, a cascading effect started to be realised when one of the participants immediately trained her students on the skills she had gained at the workshop.

It was also noted that there was much welcome for the partnership between the Technology Bank and the stakeholder institutions, and some institutions like the Ministry of Science, Technology and Innovations requested to sign MoUs with the Technology Bank. Furthermore, the workshops saw local partners seeking collaborations amongst themselves.

Finally, the value of the activities invited attention from the government and a request was made to extend the services to the rest of the country.

References

New, W. (2017). UN Establishes Technology Bank For Least-Developed Countries, Including An IP Bank. Retrieved January 12, 2019, from http://www.ip-watch.org/2017/01/06/un-establishes-technology-bank-least-developed-countries-including-ip-bank/

Technology Bank for the Least Developed Countries : budget and programme of work for 2018. (2018). Retrieved from http://unohrlls.org/custom-content/uploads/2018/04/TBLDC-2017-3-Rev1_EN.pdf

UN-OHRLLS. (2019). Technology Bank for the Least Developed Countries. Retrieved January 24, 2019, from http://unohrlls.org/technologybank/

United Nations. (n.d.). Feasibility Study for a United Nations Technology Bank for the Least Developed Countries. Retrieved from https://sustainabledevelopment.un.org/content/documents/2106Feasibility-Study-for-a-United-Nations-Technology-Bank-for-the-Least-Developed-Countries.pdf

United Nations. (2017). Technology Bank for Least Developed Countries Operationalized, 22 September. Retrieved January 20, 2019, from https://www.un.org/press/en/2017/dev3292.doc.htm