

Curtin Open Knowledge Initiative

Open Knowledge profile of Uganda higher education and research institutions

Key policy and performance data: Library public access, open access, and open data

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Introduction

This report presents a profile of progress towards institutional open knowledge (OK) in selected universities and research institutions in Uganda. For the purpose of this report, we analysed policy and research publication data from forty educational and research institutions in Uganda, including nine public universities and twenty-six private educational institutes accredited by the Uganda National Council for Higher Education (2018). Five research centres, councils and institutes and one regional universities forum were identified through the GRID identifier website (Digital Science & Research Solutions, 2019) and other sources.

Methodology

Data Sources

Data were collected from several key sources to ascertain the existence of institutional policies, statements, services and facilities supporting open knowledge. We gathered documents from university and research institution public websites relating to library public access, open access, open access publishing funds, institutional repositories, open data repositories, data sharing and research data management.

We employed a Jupyter notebook supported by a small library of Python code to identify and retrieve policy and related documents. Using the Bing search engine API, the notebook tool executes a search against the URL for a specific university website recorded in the Global Research Identifier Database - GRID (<https://www.grid.ac/>). The search returns five pages for each website from which we select, view and download relevant documents or websites.

Manual searching supplemented the automated Jupyter notebook process and directory tools where necessary to find additional documents and to confirm the presence or absence of policies and repositories. In addition, we used the following directories and collections:

Directory of Open Access Repositories (DOAR) (<http://v2.sherpa.ac.uk/opensoar/>)

Registry of Open Access Repository Mandates and Policies (ROARMAP) (<https://roarmap.eprints.org/>)

African Digital Research Repositories (<https://www.internationalafricaninstitute.org/repositories>)

For the Open Access performance data, the Curtin Open Knowledge Initiative (COKI) group collects and analyses DOIs representing institutional research output from bibliographic databases Microsoft Academic, Scopus and Web of Science. [Crossref](#) metadata collected for each DOI identified provides information on publication dates. DOIs are checked against [Unpaywall](#) to determine the open access status for institutional publications.

Search terms and definitions

The following search terms were used to locate documents on websites:

- library access, library membership, external users, borrowing
- open access policy, open access mandate, open access funds, open access publishing
- institutional repository, data repository, open data repository
- data sharing, sharing data, open data
- data research management

We searched and browsed directories by continent, region and/or country, according to the organisation each of the tools used.

Library public access indicates an institutional library is open to external, unaffiliated or non-academic members of the public, as expressed in a policy document, statement or information page. This can include individual

researchers, students from other universities as well as day visitors. Fees for access and membership are charged by most universities for external users access and membership.

Open access (OA) policy or mandate is a publicly available policy document or statement indicating institutional support for sharing and deposit of research publications in an open access repository. The 2003 Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities of 22 October 2003 is one of the milestones of the Open Access movement.

Institutional repository refers to a repository created or maintained by an institution for the purpose of deposit of research publication output. Such a repository may be shared by more than one institution.

OA funds may be made available by an institution to enable academics/researchers to publish research in gold OA by funding or subsidising article processing charges (APCs) or book processing charges (BPCs).

Research data management policies or statements outline the institutional position and guidelines on managing, storing, preserving and accessing data produced as part of research and throughout the research lifecycle. This may include a statement on open access to data and details of data management plans.

A data sharing policy or statement sets out an institutional position on the sharing or open access to research data or datasets, including the deposit of such data in an institutional data repository or external data repositories.

An open data repository is established and maintained by a single institution or multiple institutions providing open access to data and datasets produced as part of research projects conducted by the institution's academics and researchers.

Limitations

The main limitations relate to the inaccessibility of some institutional websites and web pages within them. In addition, the non-standardisation of relevant data on websites and the incompleteness of some documents meant it was difficult to identify the presence of some data. Dates of policy approval are not always present in policy documents. References made to institutional policies in guides and statements on webpages do not always include links to those documents. The lack of connective links between policies and information regarding services and facilities such as repositories required additional searching. The availability of open access funds to cover the costs of journal APCs and book BPCs is assessed through publicly accessible data from websites, and this may not include the provision of funds within faculties and schools that is not publicly advertised.

The presence or absence of a policy, service, facility or repository recorded in this report was as identified at the time of searching (September-October, 2019). If policies, services or facilities were in process, under development or being updated at the time of retrieval this was recorded as a nil presence (No), and a note added to indicate the position. If we were unable to locate a publicly available policy or repository, or for example, if policies or other documents were accessible only through a staff intranet this was recorded in the negative.

The bibliographic data sources used for OA output analysis (MSA, Scopus, Web of Science) have substantial biases and limitations with respect to affiliation sources. We believe these are mitigated through our use of three independent data sources. The precise levels of open access should be treated with caution and comparison to other analyses is not straightforward. Comparisons made using other Unpaywall data and within this report may be considered reliable with the caveat that they measure visibility and indexing and not necessarily the up to date contents of the repository.

Analysis

Library public access

Ten universities provide details on their websites indicating access and membership to the library for the public, community or external users who are unaffiliated with the institution. The access can be on a day visitor basis and/or for longer term research. Fees for membership are charged by three universities which includes borrowing of material. Some also charge for day visitor access. If library public access details were unavailable or not current this was recorded as negative. One research institute indicated public access to its library and did not charge fees. The research institutions that did not publicly indicate a library or information centre are recorded as NA (not applicable).

Institution type	Library public access	Fees charged
Universities	10	3
Research institutions	1	0

Table 1. Library public access

Open access

We did not locate public policies, mandates or statements requiring or recommending OA publication or the repository deposit of research output from institutional members in any universities or research institutions. One university is a signatory to the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (Max Planck Gesellschaft, 2019). There was no evidence of the provision of institutional funds to subsidise or support OA publishing. However, 17 institutions (15 universities and two research institutes) have OA institutional repositories (IRs) providing public open access to research output publications of their members. The majority of universities host their own or share a repository. Connection to some repositories was at times intermittent.

Institution type	OA Policy/mandate	Berlin signatory	OA funds	Institutional Repository
Universities	0	1	0	15
Research institutions	0	0	0	2

Table 2. OA policies or mandates, OA publishing funds, Berlin declaration signatories and institutional repositories

Open access performance

Figure 1 depicts the growth of OA research output DOIs in 2000-2018 as a percentage of total research output for **sixteen** Ugandan institutions included in this report (those with available OA publication data). OA output has grown steadily since 2000. The figures represent the percentage of research available in open access through repositories and published journals. In addition to the total **percent OA**, the figures include percentages of **Green OA** (self-archived in an open repository), **Gold OA** (published in an OA journal where all articles are free to read), **Bronze OA** (free to read on a publisher page, but without a license for reuse of reproduction), and **Hybrid OA** (published in a subscription journal with a free license, courtesy of an article processing charge (APC) paid by authors) (Piwowar et al., 2018). Items can be both Green and Gold, Hybrid or Bronze (published). **Green-only OA** refers to OA output self-archived only in an institutional repository and not published (in the bibliographic sources used).

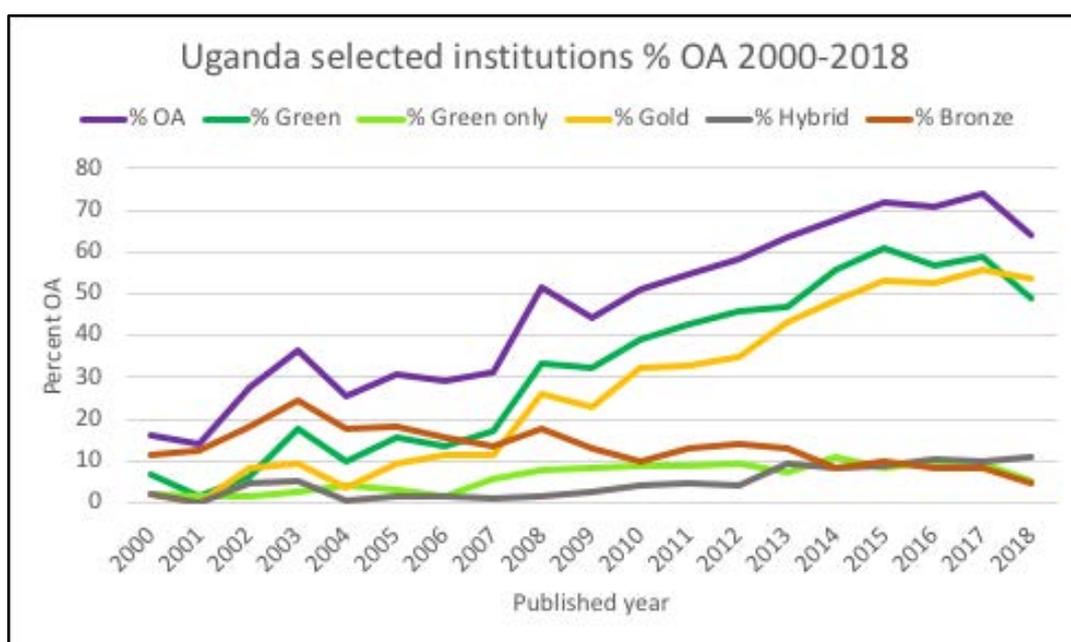


Figure 1: Percentages of OA research output for 16 Ugandan institutions, 2000-2018. COKI analysis, October 2019.

Analysis of Makerere University percentages of OA research output from 2000-2018 (Figure 2) shows a very similar OA output pattern to the 16 institutions in Figure 1, suggesting a majority of the OA output may be attributed to Makerere University.

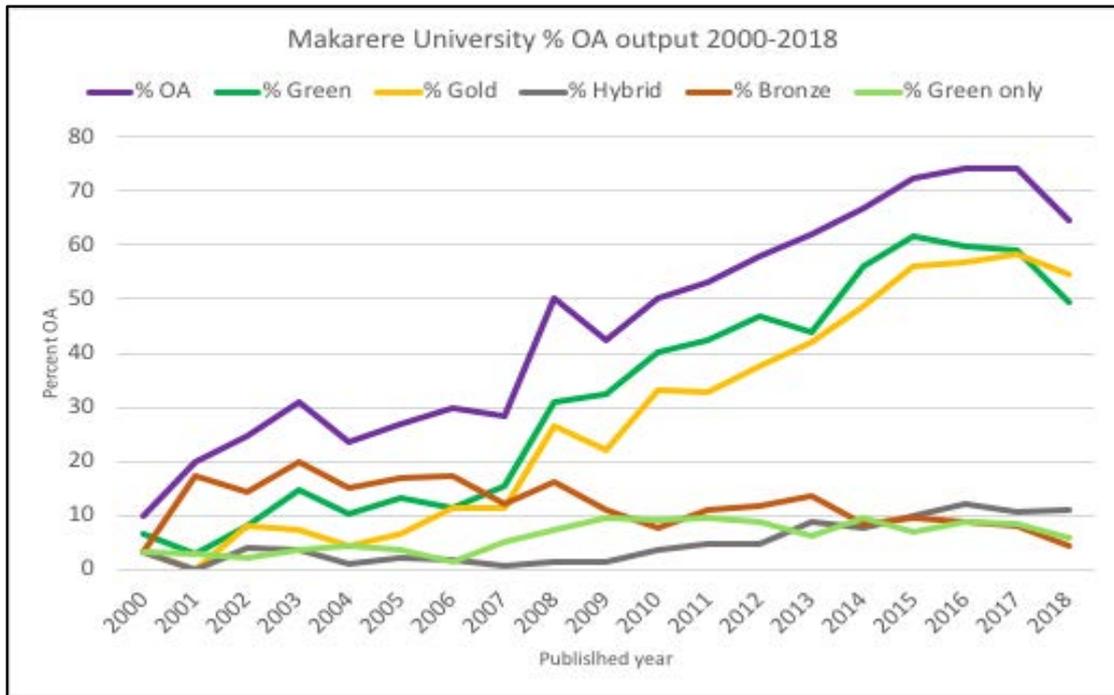


Figure 2: Makerere University OA output 2000-2018. COKI analysis, October 2019.

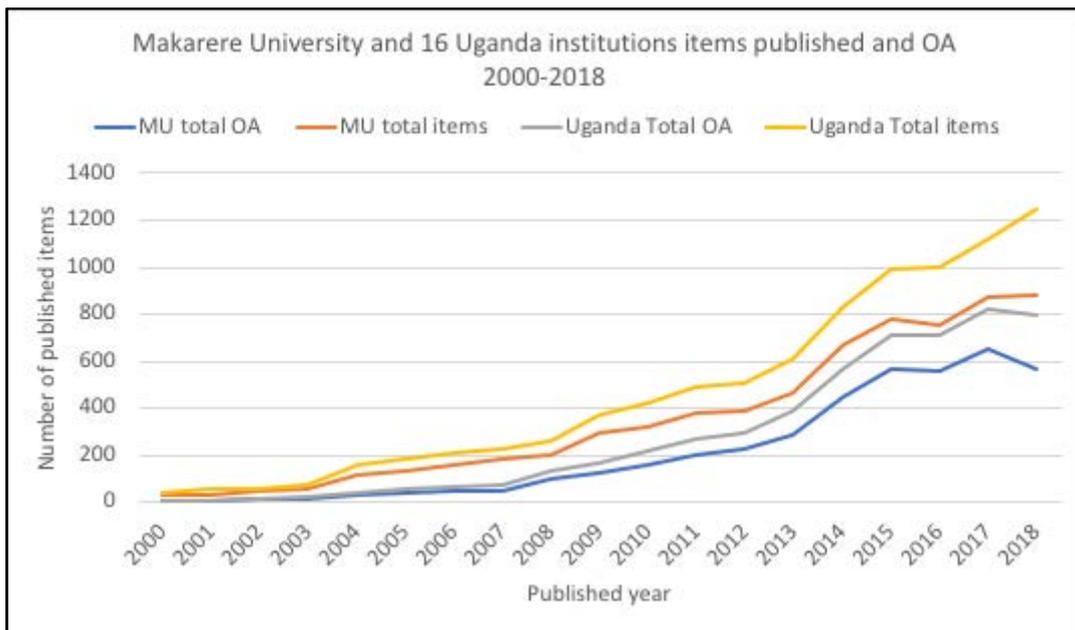


Figure 3: Total items and number of those with OA status for Makerere University versus 16 Ugandan institutions, 2000-2018. COKI analysis, October 2019.

The total number of items with DOIs published and available as OA in Figure 3 indicates Makerere University has contributed a large proportion of the research output for the 16 Ugandan institutions analysed.

Open data

We did not find evidence of publicly available research data management (RDM) policies, data curation policies, or open data repositories for universities or research institutes on institutional websites or in open directories. Mukiibi (n.d.) and Ssebulime et al (2017) draw attention to the need for institutional RDM policies/statements

and the role of libraries in developing them and informing researchers, but evidence of completed policies/statements was not apparent publicly at the time this report was prepared.

Discussion

Ugandan institutions demonstrate some evidence of progress on the path to openness. The presence of institutional repositories (IRs) for the deposit of research publications, theses and dissertations indicates the practice is well established among at least half of the universities in this report. The IRs are reasonably well advertised on institutional websites. The large amount of Makerere University research output (items with DOIs) and available as OA, and the absence of OA policies, mandates or statements suggests the adoption and practice of depositing research output in home institutional OA repositories may be less widespread. Developing and promoting an OA policy will help to boost OA research performance. The promotion and clarification of institutional Open Knowledge policies and practices via public websites and internally will expand and enhance the national position. Appendix 1 summarises the OKI features for the institutions included in this report.

Recommendations:

- Clarify institutional positions on public access to libraries with references to mission statements where relevant
- Develop policies to increase institutional promotion of OA commitment and practices
- Coordinate institutional OA policies, practices and explanations with repository entry pages

Appendix 1: List of institutions and OKI data

Institution	Library public access	OA policy/statement	Berlin signatory	OA funds	IR	RDM policy	Data sharing policy	Open data repository	OA output data
African Bible University	N	N	N	N	N	N	N	N	NA
African Rural University	Y	N	N	N	Y	N	N	N	NA
All Saints University Lango	N	N	N	N	N	N	N	N	NA
Bishop Stuart University	N	N	N	N	Y	N	N	N	NA
Bugema University	Y	N	N	N	N	N	N	N	Y
Busitema University	N	N	N	N	Y	N	N	N	Y
Cavendish University	Y	N	N	N	Y	N	N	N	NA

Uganda									
Clarke International University	Y	N	N	N	Y	N	N	N	NA
Gulu University	N	N	N	N	N	N	N	N	Y
International University of East Africa	N	N	N	N	N	N	N	N	NA
Islamic University in Uganda	Y	N	N	N	N	N	N	N	Y
Joint Clinical Research Centre	NA	N	N	N*	N	N	N	N	Y
Kabale University	Y	N	N	N	Y	N	N	N	NA
Kampala International University	Y	N	N	N	Y	N	N	N	Y
Kampala University	Y	N	N	N	N	N	N	N	NA
Kumi University	N	N	N	N	N	N	N	N	NA
Kyambogo University	Y	N	N	N	Y	N	N	N	Y
Lira University	N	N	N	N	Y	N	N	N	NA
LivingStone International University	N	N	N	N	Y	N	N	N	NA
Makerere University	Y	N	N	Y	Y	N	N	N	Y
Mbarara University of Science and Technology	N	N	Y	N	N	N	N	N	Y

Mountains of the Moon University	NA	NA	N	Y	NA	N	N	N	Y
MUJHU Research Collaboration	NA	NA	N	N	N	N	N	N	NA
Muni University	N	N	N	N	N	N	N	N	NA
Muteesa I Royal University	N	N	N	N	N	N	N	N	NA
National Agricultural Research Organisation (NARO)	NA	N	N	N	NA	N	NA	NA	NA
Ndejje University	N	N	N	N	N	N	N	N	NA
Nile University	N	N	N	N	N	Y	N	N	NA
Nkumba University	N	NA	N	N	N	N	N	N	Y
Regional Universities Forum for Capacity Building in Agriculture	NA	N	N	N	NA	N	NA	NA	NA
Soroti University	N	N	N	N	N	Y	N	N	NA
St. Augustine International University	N	N	N	N	N	N	N	N	Y
Stafford University	N	N	N	N	N	N	N	N	NA
Uganda Christian University	N	N	N	N	N	N	N	N	Y
Uganda Management Institute	Y	N	N	N	Y	N	N	N	Y

Uganda Martyrs University	N	N	N	N	N	N	N	N	Y
Uganda National Council for Science and Technology	Y	N	N	N	NA	N	NA	NA	NA
Uganda Pentecostal University	N	NA	N	N	N	N	N	N	NA
Uganda Virus Research institute	NA	N	N	N	NA	NA	NA	NA	Y
University of Military Science and Technology	NA	N	N	N	N	N	N	N	NA
Victoria University	N	N	N	N	N	N	N	N	NA

*JCRC publications included in Makerere University institutional repository

References

Digital Science & Research Solutions. (2019). GRID: Global Research Identifier Database. <https://www.grid.ac/>

National Council for Higher Education (2018). The State of Higher Education and Training 2015/2016 <https://www.unche.or.ug/state-of-higher-education/> Retrieved September 25 2019

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Mukiibi, Edward. (n.d.). *Research Data Management and data re-use in Uganda*. Retrieved from https://www.academia.edu/31367822/Research_Data_Management_and_data_re-use_in_Uganda

Ssebulime, J. B., Van Deventer, M., & Piennar, H. (2017). *The role academic libraries could play in sensitizing researchers about research data management: A case of Makerere University Library*. Retrieved from <http://library.ifla.org/2297/>