

# Document supply services enhance access to information resources in Uganda

*Maria G.N. Musoke*

University Library, Makerere University, Kampala, Uganda

## Abstract

**Purpose** – This paper aims to highlight the development of document supply services in Uganda, and Makerere University in particular, and the role they have played in increasing access to and use of information resources.

**Design/methodology/approach** – The paper presents DSS at different levels and in different formats. Two major levels are discussed: The first is from international sources through collaborations/partnerships with Makerere University to benefit the Makerere University community; while the second type is within Uganda – from Makerere University to benefit other universities, rural institutions and practitioners/extension workers.

**Findings** – Improved document delivery service has played an important role in resource sharing, which has led to increased access and usage of information resources in Uganda

**Originality/value** – The paper is of value to librarians and other practising information professionals as well as library school students who may need to develop document supply services to under-resourced areas and particularly remote regions.

**Keywords** Uganda, Document delivery

**Paper type** Case study

## 1. Introduction

Uganda is situated at the Equator in Eastern Africa. It is a landlocked country; the nearest port, Mombasa, being over 1,000 miles away in neighbouring Kenya. This contributes to the high cost of reading materials and bandwidth; hence making document delivery a key option for both libraries and their users.

Makerere University was established in Uganda in 1922, making it one of the oldest public Universities in Africa. In 1958, an Act of Uganda's Parliament made Makerere University Library one of Uganda's legal deposit units. In 1972, Makerere University Library became the National Reference Library in addition to its primary role of serving the highest academic institution in the region.

Makerere University Library (Mulib) comprises the Main Library and eight branch libraries. Two of the branch libraries are located off campus, namely: Albert Cook Medical Library serving the College of Medicine, and Makerere University Agricultural Research Institute Library serving the Agricultural farm and institute; while the rest are located at the Main Makerere University campus: Education, Makerere Institute of Social Research, Institute of Adult and Continuing Education, Veterinary Medicine, Social Sciences, and the East African School of Library and Information Science branch libraries.

Mulib has continued to play a leading role in Uganda and in 2001, when Ugandan institutions started subscribing to

electronic journals, Mulib became Uganda's national coordinator for electronic resources. Among other things, Mulib has the responsibility for mobilising other academic and research institutions in sustaining subscriptions to e-resources and it monitors and evaluates their usage of e-resources nationally. Furthermore, Mulib conducts information literacy and practical training sessions for librarians, academics and researchers in the use of global and local information resources.

One of the issues highlighted in the evaluation of e-resources usage was that users were discouraged by the lack of full-text articles. Mulib then revised its strategy by adding a Document Supply Service (DSS) to the electronic resources activity plan and budget. The e-resources are paid for nationally in order to benefit universities and research institutions across Uganda. The DSS was then advertised, a form was put on Mulib website for use by registered users (individuals or institutions) and DSS became an integral part of the information literacy sessions. A librarian and one assistant were assigned to the DSS in anticipation of the expected demand. Furthermore, the Albert Cook Medical Librarians conducted rural outreach information literacy sessions in six districts and 564 rural health workers were trained to access the global knowledge base as well to share the resources available at the Medical Library. Document supply (DS) request forms were distributed during the training sessions. In addition, a DS form was included in the periodical digest that is distributed to health units in Uganda. As a result, DS requests started being made by rural health workers who had never made such requests before (Musoke, 2006).

To address the information and communication technology (ICT) infrastructural challenges in rural Uganda, Makerere

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University Faculty of Medicine, Uganda Chartered Healthnet (UCH) and Satellife (of USA) started a Uganda Health Information Network (UHIN) pilot project in September 2003. This project aims to improve health workers' access to accurate and timely information for informed clinical and managerial decision making. This should lead, among other things, to an improved quality of health service delivery. The project has successfully built a wireless network using handheld computers/personal digital assistants (PDAs), wireless access points, and the GSM/GPRS telecommunications network for two-way communication and data exchange in Rakai, Lyantonde, Mbale, Bududa and Manfwa pilot districts. The pilot project has proved the viability and cost-effectiveness of integrating PDAs, wireless access points (initially, WideRay Jacks, but now Africa Access Point from South Africa) and cellular telephones into a network capable of supporting information delivery in low-resource environments. Building on the initial accomplishments, UHIN expanded to encompass 150 health workers from health units in the pilot districts by March 2006.

This paper focuses mainly on two types of DS: across borders from international sources to Makerere University; and from Makerere University resources to other academic, research and health institutions in Uganda. The documents are delivered in either print or electronic formats depending on the ICT infrastructure and/or the choice made by the requesting institution/individual. Makerere University is also involved in commercial DS services, e.g. from The British Library (print) and Subito (electronic) where it pays annually for the service. The commercial DSS, however, will not be discussed in this paper. The paper focuses on the non-commercial DS activities to highlight how a university, which traditionally served its students and staff, has transcended its boundaries by extending its service to other academic, research and health institutions in Uganda.

Resource sharing and particularly DSS is needed now more than ever before because of the ever-increasing volume and cost of published works. In addition, Uganda has a limited ICT infrastructure compounded by the high cost of bandwidth.

## 2. Document supply and resource sharing remain on the agenda

To some Ugandan scholars and practitioners, information is available but not accessible; while to others, information is neither available nor accessible. Hence, although there is a need to produce more information relevant to African scholars and practitioners, the first challenge is to ensure that the already available information can be accessed. Resource sharing by document supply goes a long way to providing a solution to this problem.

In the recent past, there has been a global and rapid growth of published works and improved methods of information processing and retrieval resulting from developments in technology. These advances have resulted in faster and better methods of accessing information in the developed world. However, in the developing countries, frustration resulting from limited information access continues as the cost of technological infrastructure and bandwidth remain prohibitive. Hence, resource sharing is one of the best available options.

It is therefore not surprising that networking and resource sharing have remained on the international agenda of

librarians for a long time. In the 1970s, these topics were course units in most library and information science (LIS) programmes. Library cooperation in order to foster resource sharing is a concept that has been frequently cited in LIS literature (Kaul, 1999, 2001). Furthermore, the benefits of collaboration, consortia, networks and peer support have been emphasized in LIS literature for a long time. Most of the success stories reported by African librarians (Wanyama, 2002; Demilew, 2001; Gelaw, 1998; Musoke and Kinengyere, 2008), involve collaboration and networking within institutions to lobby policy makers within the country. The purpose being to form consortia and share the subscription of e-resources, implement document supply service and other resource sharing measures, build capacity and obtain professional support. Therefore the actual and potential of networking, cooperation and resource sharing in modifying the functions of acquiring, storing and disseminating information and knowledge to support teaching, learning, research and professional practice need to be reported, discussed and best practices shared.

## 3. Document supply services (DSS) at different levels and in different formats

A dedicated DSS has played an important role in increasing access to information resources both at Makerere University and at other institutions and professionals in Uganda who make requests for documents to Makerere University Library (Mulib). When users gain access to journal abstracts, they often request the full text via DSS. As a result, full text journal articles form the bulk of document requests. As more full-text online journals are accessed by Mulib through increased subscription to e-journals, document supply requests from abroad have tended to reduce.

However the cost of bandwidth has remained too high for many Ugandan institutions, which means that they are not able to access online resources. The African Virtual Universities Consortium is one of the strategies that may assist African Universities to buy relatively cheaper bandwidth in future. Currently, Ugandan institutions benefit from sharing their meagre resources among themselves and from collaboration with international institutions.

Mulib is one the oldest library in the region, as well as being a national legal deposit unit and thus it has a rich collection of local materials and research works, published and unpublished works available in different forms: theses and dissertations, research articles, government and non-government reports, conference and workshop reports/proceedings, periodicals, newspapers, the earliest books and other publications, photographs and other archival materials. These are important sources of information for research and teaching and have attracted the majority of international requests for DSS. At national level, the local materials and full text journal articles attract the highest demand for DSS. The local materials are either photocopied and sent by post, fax or they are scanned and sent as e-mail attachments.

### 3.1 Documents from international sources through cross-border collaboration or partnerships with Mulib

Currently, Mulib handles both the electronic document supply services (EDSS) and the non-electronic DSS from four international institutions after thorough checking of the subscribed databases for local availability. The EDSS sources

are: The University of Tennessee (USA), The University of Bergen (Norway), The Case Western Reserve University (USA) and Kent-Surrey-Sussex health authorities (UK); the last two are exclusively for medical library users.

The non-commercial DSS is provided through partnerships with other Universities. This type of DSS is important as it strengthens the collaboration between the university libraries and it is one of the strategies for sustaining DSS (Musoke and Kinengyere, 2008). Examples of non-commercial cross-border EDSS are:

- Makerere University Library (Mulib) and the University of Tennessee Library (UTL), Knoxville, USA: In a Memorandum of Cooperation set up in May 2002 and renewed in March 2007, it was agreed to develop and support Mulib's EDSS. The services between UTL and Mulib are governed by the IFLA International Lending and Document Delivery: Principles and Guidelines for Procedures: [www.ifla.org/VI/2/p3/illdd.htm](http://www.ifla.org/VI/2/p3/illdd.htm) with mutually agreed revisions. A separate e-mail account was established for the service ([eddsutmul@mulib.mak.ac.ug](mailto:eddsutmul@mulib.mak.ac.ug)). However, due to e-mail quota limitations, a yahoo e-mail was opened ([makerereedds@yahoo.com](mailto:makerereedds@yahoo.com)) after which Mulib staff used web tools, UTL's Catalogue, and the system created to place and track orders: <http://jethro.lib.utk.edu/makerere.html>. In June 2003, the library stopped using Prospero software for selecting documents from UTL and started receiving articles as e-mail attachments via Ariel that was faster. Between September 2002 and September 2005, 414 articles were received. There was a remarkable increase in 2006, when 222 articles were received compared with only 79 articles received in 2005. In 2007, there were 189 article requests made and received by Makerere.
- Makerere University Library and the University of Bergen: In October 2001, Mulib and the University of Bergen Library (UoBL) signed a memorandum of understanding in which both libraries identified areas of collaboration. One of the objectives of the collaboration was to facilitate DSS between UoBL Science library and Mulib also following the IFLA guidelines. This facilitated access to the UoBL through their OPAC, "BIBSYS". Mulib then registered as an official user of UoBL and was given an account to freely access the library holdings through BIBSYS. Since January 2002, there have been information literacy sessions focusing on e-resources, and Mulib users are introduced to the BIBSYS. These sessions have specifically targeted academic staff in the science-based departments. On average, 40 DS requests a year are received from each science department and the documents are delivered from the UoBL by fax. On the other hand, Mulib receives, on average, five requests a year for Mulib local collection materials, which are scanned and sent as e-mail attachments to the UoBL. The collaboration expanded in 2005 to include a digitization project for Mulib local materials to increase their access.
- Makerere University Albert Cook Medical Library and Case Western Reserve University (USA), and Kent, Surrey and Sussex (KSS) Health Authority (UK): Albert Cook Medical library serves over 1,000 medical students and academic staff. It also extends a service to health workers in Uganda.

At the medical library, the majority of DS requests are from graduate students and academic staff. The requests range in

number from 800 to 1,500 annually. The medical library obtains most of the documents it requires from Case Western Reserve University (CWRU) Library initially supported by the Fogarty Foundation. The DSS started in 1994 when the requests were sent by e-mail to CWRU Library and the articles faxed to Albert Cook Medical library. When faxing became too expensive, the documents were sent to Uganda by post, which took between ten and 20 days. This was too long, and a solution to the "snail" postage method had to be found. From October 2004 to-date, a modification to the slow method has been to receive the articles by e-mail. However, this also became problematic due to e-mail accounts having limited capacity. A database was then designed by CWRU Library accessed by username and password, and this is a fast method as the library can receive the articles within a day or two.

KSS document supply service is limited in the number of documents sent because most of the needed documents are not found in their Union list of Serials (showing the holdings in the KSS Library Network). The service has a dedicated fax machine and the KSS partners meet the cost of faxing articles. The medical library sends the requests by e-mail.

The above shows a range of document supply possibilities created by collaborative arrangements with universities in the developed world. These arrangements are critical to resource sharing and need to be supported.

### 3.2 Document supply as an outreach service within Uganda

Academic institutions have been criticised and referred to as "Ivory towers", which concentrate on knowledge creation through research and capacity building through training, with hardly any support given to the immediate community needs or to the wider society. To address this concern, Makerere University extended its mission to include outreach. Although a university library would normally serve its primary users – the university students and staff – Mulib has been involved in document supply as an outreach service aimed at sharing resources to enhance access to information by other universities, research institutions and health units in Uganda.

Mulib has conducted training in the 12 registered public and private universities, as well as the major research institutions such as the Virus Research Institute and the National Fisheries Research Institute. In addition, Mulib supplies print and electronic documents to other Universities. An example of print documents supplied in the past three years indicates generally that the number is decreasing as Table I shows. The decrease in the number of document requests is generally due

**Table I** Print documents supplied to some Ugandan universities by Mulib in the last three years

Institution	Documents supplied per year		
	2005	2006	2007
Gulu Univ. (North) – public	26	15	11
Mbarara Univ. of Sc. and Technology (West) – public	29	20	15
Uganda Christian Univ. Mukono (Central) – private	21	11	10
Uganda Martyrs Univ. (Central) – private	17	16	12
<b>Total</b>	<b>93</b>	<b>62</b>	<b>48</b>

to the increased full text journal articles accessible to the universities and the slowly improving ICT infrastructure.

Furthermore, as pointed out in the introduction, the medical librarians conducted rural outreach training sessions in six districts and continues to distribute a periodical information digest with a DS request form. This has stimulated interest in the DSS that has enhanced access to information resources. Table II gives an example of the documents supplied, the mode of supply, etc. The abstracts are sent to those who request literature searches on specific topics. They can then request full text articles from the abstracts.

### 3.3 Other DS services

The Uganda Health Information Network (2007) provides an electronic DSS using PDAs and is implemented by the Makerere University Faculty of Medicine, Uganda Chartered

Healthnet (UCH) and Satelife as pointed out in the introduction (section 1). There is also a DSS for students with visual impairment.

#### 3.3.1 Electronic DSS using PDAs

One of the specific objectives of the UHIN project is to support health workers in pilot districts to improve the quality of healthcare by providing them with relevant health information on prevention, diagnosis, treatment and the general patient care related to major health problems of the districts. The project has continually delivered relevant and timely continuing professional development (CPD) materials on topical issues selected by the district health service team in consultation with the Ministry of Health (MOH). The project has so far provided the following:

**Table II** Document requests to and deliveries from Albert Cook Medical Library by up-country health workers either after the rural outreach or using the Information Digest form (2004-2007)

Year	Type of literature	No. of docs.	Mode of request	Mode of delivery	Source of info. for doc. request	Recipient
2004	Abstracts	10	E-mail	E-mail	Ug. Health Info. Digest form	Kabale Hospital
	Full articles	4	Telephone	Post (EMS)	Forms given during outreach	Jinja Hospital
	Abstracts	15	Posted form	Post (EMS)	Ug. Health Info. Digest form	Buluba Hospital Nursing students
	Full articles	5	Posted form	Post (EMS)	Forms given during outreach	Buluba Hospital Nursing students
	Full articles	6	Posted form	Post	Ug. Health Info. Digest form	Diocesan Health Coordinator Jinja
2005	Abstracts	98	Telephone	Post (EMS)	Ug. Health Info. Digest form	Bugiri Hospital Doctors
	Full articles	31	Telephone	Picked by requester	Ug. Health Info. Digest form	Bugiri Hospital Doctors
	Full articles	6	Telephone	Post	Ug. Health Info. Digest form	Bugiri Hospital Doctors
	Full articles	2	Form brought by hand	Picked by requester	Knew of the service during postgraduate course	St Luke's Dispensary (Arua)
	Full articles	5	Telephone	Post	Ug. Health Info. Digest form	Lira Hospital (Dr)
2006	Abstracts	60	E-mail	Picked by requester	Ug. Health Info. Digest form	Lecturers, Mbarara Univ. of Science and Technology
		45	Telephone	Post	Ug. Health Info.	Bugiri Hospital Doctors
	65	E-mail	Picked by requester	Digest form Ug. Health Info.		
	40	Telephone	Picked by requester	Digest form	Bugiri Hospital Doctors	
2007 (January-October)	Full articles	52	E-mail	Picked by requester		
		12	Telephone Posted form	Picked by colleague	Former student Ug Health info Digest form	Kabale Hospital pharmacist; Gulu Ug People's Defense Forces Doctors

Note: Ug. = Uganda

- 150 PDAs complete with recharging cables and expansion cards distributed to 150 health workers in Rakai, Mbale, Manafwa, Lyantonde and Bududa districts;
- 70 solar chargers distributed to PDA users without access to Uganda electricity power supply;
- training of 150 health workers in the use of PDAs for data collection and transmission, and accessing content delivered through the network; and
- training of five technical personnel from pilot districts (one from each district core team) to train new PDA users, troubleshoot the network, and use data tools such as MS Access.

The local content has been handled by the Uganda Chartered Healthnet staff, while the international content is handled by the Center for Health Information Technology. Local sources of content include African medical/health journals and credible sources recognised by the Uganda Ministry of Health. In addition, local newspapers/print media are delivered on a daily basis. International content, on the other hand, has been selected from peer-reviewed medical journals with a greater focus on Africa-related or Uganda-specific content. Table III shows an example of regular content delivery.

The above table shows, among other things, that emphasis was put on diarrhoea, pneumonia and malaria because these topics were identified by health workers as major health problems at that time, making it necessary to provide more information for better management of the diseases. Content was delivered on Mondays, Wednesdays and Fridays respectively, and this was supplemented by daily deliveries of news from local print media (some health workers cannot afford to buy daily newspapers and yet they contain important health information). Updated content includes important information not provided in the previous deliveries and new developments, e.g. the DDT public hearing which health workers needed to know about. Some PDA users also reported content loss (loss of “libraries” created on the PDAs). The repeat deliveries were made to replace the lost content.

In summary, the process of document supply involves the following: electronic content/documents are selected from global and local sources by Uganda Chartered Healthnet and the Center for Health Information Technology. The content is then repackaged in either pdf or html format and uploaded

onto a server at the Makerere University Faculty of Medicine. The documents are then delivered to a portable wireless access point (initially Jacks, but now African Access Point) located/deployed in district hospitals and health sub-districts (health centre VI). Health workers with PDAs then go to the access point and download the content onto their PDAs, use the content, share it and may repackage it further and share it with colleagues or health workers in lower units.

Collaborative networks for facilitating experience sharing and problem solving in relation to the use of PDAs have been established in pilot districts. In Rakai district (Southern Uganda), for example, there were two PDA user clubs at the time of writing this paper – one in Kalisozi hospital, and the other at Rakai hospital. Each club has over 20 members from nearby health centres. Members of the PDA user group meet twice a week to discuss content received in that week, and see how best to apply it in their daily practice, and reformatting/repackaging the content in a way suitable to lower level health workers with whom the content is further delivered and shared.

A PDA content user survey findings of March 2007 indicated, among other things, that most health workers acknowledged the commendable improvement in access to current literature/content. The literature/content received had updated their knowledge and consequently improved their day-to-day management of patients. A total of 72 per cent of the health workers reported that the delivery of content three times a week (Monday, Wednesday and Friday) with daily deliveries of local newspapers was adequate and should continue. However, health workers reported that more local articles should be delivered. Furthermore, the survey pointed out that content deliveries were affected by inconsistent electricity supply to power the wireless access points. There is, therefore, a need to find a long lasting solution to the powering of access points.

### 3.3.2 DSS to the visually impaired university students

Through affirmative action, Ugandan public universities admit students with disabilities forming about 1 per cent of the student population. One of the challenges has been to extend DSS to this category of library users. Mulib recently acquired equipment (an embosser) to enhance its DSS to this category of users.

Table III Example of regular delivery of documents from June 2006 to May 2007

Date	Documents delivered
<b>2006</b>	
<b>June-July</b>	Updated content on diarrhoea, pneumonia, and malaria
<b>August</b>	New content on dental health, eye health, and female genital mutilation
<b>September</b>	New content on river blindness, epilepsy, fetal alcohol syndrome, and hydrocephaly
<b>October</b>	New content on burn care, diabetes, HIV/Aids, and parasitic infections
<b>November</b>	New content on parasitic infections, and HIV/Aids
<b>December</b>	New content on HIV/Aids, and malaria
<b>2007</b>	
<b>January</b>	Repeat content on diarrhoea, pneumonia and malaria
<b>February</b>	New content on skin diseases, HIV/Aids; repeat content on pneumonia, diarrhoea and malaria
<b>March</b>	New content on diarrhoea, pneumonia and malaria
<b>April</b>	Repeat content on diarrhoea, pneumonia and diarrhoea, HIV/Aids, skin diseases, and reproductive health
<b>May</b>	Recap all the diseases and provide updated content

#### 4. Conclusion

The paper has highlighted the various DS activities undertaken by Makerere University Library and a successful electronic DSS using PDAs by health workers in rural Uganda. A range of possibilities created by collaborative arrangements with universities in the developed world has also been presented. Although the universities in developing countries have less to exchange, it is hoped that other university librarians in the developed world who read this paper would be inspired to make similar arrangements with universities in developing countries in the spirit of “libraries without borders”.

Indeed DSS remains an important strategy to enhance access and use of information resources. In Uganda, DSS has steadily been growing. As scholars, researchers and practitioners obtain access to more full text online journals, the demand for full-text journal documents may gradually reduce in institutions with a reliable internet access. However, given the current high cost of bandwidth and other ICT infrastructural challenges in Uganda, many academic and research institutions may not easily access online resources. Document supply services will, therefore, remain a key strategy in ensuring access to information resources. Hence, cooperation and resource sharing are likely to remain on the global LIS agenda for sometime. In Uganda, the DSS will continue to be advertised to maximise its benefits.

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#### Corresponding author

Maria G.N. Musoke can be contacted at: [mmusoke@med.mak.ac.ug](mailto:mmusoke@med.mak.ac.ug)