

## **DIGITIZATION OF UGANDA'S MUSICAL CULTURAL HERITAGE: LESSONS FROM MAKERERE UNIVERSITY LIBRARY DIGITAL ARCHIVE**

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### **Abstract**

This paper documents the learning experience of the Makerere University Digital Music Archive. It focuses on issues of digitizing sound, intellectual property management, and sustainability. Abrupt technological changes have rendered certain media obsolete hence limited access to music information. Project tasks included identification, selection, preparation of materials, and collection of basic descriptive metadata to allow retrieval. Internationally recognized standard were used to convert from analogue to digital. To create awareness, sensitization seminars were conducted. Collections to-date include: approximately 3,000 sound recordings, 545 video recordings, and 286 photographs, and 1015 items documented. The pace of digitization is slow due to scarcity of playback equipment, copyright issues, and inadequate technical skills. It is envisaged that digitization will improve preservation and access to the musical cultural heritage. However, adequate equipment, funding, training of staff, enforcement of appropriate laws, and provision of improved facilities need to be put in place for studying music in its various formats.

### **Introduction**

Founded in 1940, Makerere University Library (MakLib) is the oldest and the model academic library in Uganda. In 1956, Makerere was made the official depository of United Nations printed materials (Uganda 1999a: 136). Makerere University Library (Africana Section) became a Legal Deposit Library of Uganda in 1958 by an Act of Parliament. From its inception, the Library embarked on collecting archival materials from prominent Ugandans, colonial administrators, tourists and missionaries. Since then, the archival collection has grown tremendously partly due to the academic activities of lecturers and other scholars that deemed it an honour to have their publications deposited at the Library.

Rapid technological changes have rendered certain media obsolete, thus limiting access to information. Despite the large number of users and limited resources, MakLib has managed to maintain a general level of service delivery. However, there are clear indications that there are

gaps in the development and management of the music collection. Limited access to music materials has been a major challenge to students and researchers at Makerere University. Papakhian (2002:583) observed that "despite these truly amazing developments in the bibliographic control of music materials, music cataloguing and the bibliographic control of music continue to play second fiddle in the library world". This is true because music in its various formats requires skills and knowledge of both music and librarianship. The Library has embraced digitization as a strategy to preserve and promote access to its unique collections.

University libraries are investing in digital projects for several reasons including: to provide access, to reduce over-handling of material in order to preserve it, and for "public relations" to assist in promoting the collections and the institution. By creating digital surrogates of their collections, institutions continue to support the notion that there is value in the materials they house (Kenney & Rieger, 2000). Likewise, Bradley (2005) observed that cultural institutions are committing increasing amounts of time and money to digitization in order to improve access to their collections. Mulrenin & Geser (2001) assert that "conversion of cultural contents into bits and bytes opens up a completely new dimension of reaching traditional and new audiences by providing access to cultural heritage resources in ways unimaginable a decade ago".

Zager observed:

The study of music continues to rely on the interrelated use of three distinct information formats-scores (the notated manifestation of a composer's or improviser's thought), recordings (realizations in sound and sometimes video, of such compositions and improvisations), and books and journals (intellectual thought regarding such compositions and improvisations)... (2000:569).

The critical role that digitization plays in cultural heritage initiatives was recognized in the European Union's eEurope 2002 Action Plan (European Commission, 2000), and summarized by DigiCULT (Digital Heritage and Cultural Content), endorsing the view that:

Digitization contributes to the conservation and preservation of cultural heritage and scientific resources; it creates new educational opportunities; it can be used to encourage tourism; and it provides ways of improving access by the citizen to their patrimony (DigiCULT, 2003).

### **Archiving music in Uganda**

Many organisations in Uganda have not had the opportunity to undertake large digitization projects partly due to lack of funding; playback equipment is scarce and staff lack the technical skills. However, several projects meant to build infrastructure for music archiving have been established.

A study by Isabirye (2004:117) indicated that "a considerable output of music within Uganda is available but in the hands of private individuals". According to Nannyonga-Tamusuza (2007),

radio stations, television stations and newspapers contain a wealth of written, audio-visual materials. She highlighted the fact that the Uganda Broadcasting Service and the Uganda Television have archived music since their inception although not accessible to the general public, and wrote:

As far as the printed archive on Uganda is concerned, there are a few isolated, mostly journalist articles in newspapers, and mainly about musical events, in which the focus is determined by the reporters and not necessarily the presentation of the popular of Uganda's music.

She describes the major challenge of archiving Ugandan music as a document deficit. She argues that archiving of music has been left in the hands of private individuals, while state-owned institutions archive materials other than music. She observed that music recordings exist at the Uganda Museum but that the collection is poorly stored and lacks access points. She attributes this to poor funding and inadequate technical skills possessed by the personnel at the museum.

The Uganda Museum was established in 1908 and contains ethnological, natural history and traditional life collections of Uganda's cultural heritage. The museum contains valuable national resources, both for the scholarly community and the general public. Notable among the collections are musical instruments and field recordings done by Klaus Wachsmann between the 1940s and 1950s. He was the first curator at the Uganda museum, an ethnomusicologist, teacher, and researcher into the music of the Ugandan people. However, the archival collection is poorly preserved and lacks access points.

The Centre for Basic Research (CBR) embarked on the popular Culture Music Archive project in 2002. The aim of the project was to establish an archive of materials relating to Uganda's popular music (Isabirye, 2004:113). The Archive holds a deep collection of commercial recordings related to traditional and popular music traditions of Uganda. However, Isabirye reports that during the implementation of the project, several challenges emerged. Notable was the contentious issue of the term "popular" and how to qualify such music as popular. To overcome the contradiction, the Archive collects only commercial recordings. The popular Music Archive has over 2,000 records and about 950 records have been processed and published in the catalogue (CBR, 2007).

The Global Music Archive (GMA) was founded in 2003 by Gregory Barz, Associate Professor of Musicology (Ethnomusicology) at Vanderbilt University in the United States. It is a multi-media archive and resource centre for traditional and popular song, music, and dance of Africa and North and South America, with particular emphasis on the African Diaspora. The archive maintains a database of the Digital Collection of East African recordings consisting of over 1,600 discrete musical performances recorded by Centurio Balikoowa. Balikoowa manages a network of recording efforts throughout Uganda. An online catalogue is accessible to all, providing a

searchable index of all items available for either online or Archival access. The Archive maintains an active Website that allows users throughout the world to stream audio off the primary resources (Nordstrom, 2008).

### **History of the Makerere University Digital Music Archive**

In 2004 through collaborative linkages with Tufts University, the University of Tennessee, Knoxville and the University of Bergen, Norway, digitization projects were initiated at Makerere University Library. The Uganda Scholarly Digital Library (USDL) is the first comprehensive digital initiative at the Library (Kakai, 2009). The aim of the project was to digitize and make available research materials. These included theses and dissertations, conference and workshop proceedings, working papers and consultancy reports. Music materials were included in the proposed materials for digitization.

Communities, sub-communities and collections were created in Dspace to cater for the different faculties and departments. With the establishment of the collegiate system at Makerere, these faculties have now become colleges. The Music Collection (Sound) was created under the Department of Music, Dance and Drama (MDD) in the Faculty of Arts. The USDL was launched in 2006 and all units were incorporated, thus it became an Institutional Repository (IR).

A team from MDD led by Associate Professor Sylvia Nannyonga-Tamusuza approached Library Management with a proposal to set up a music archive. A proposal had already been submitted to the Norwegian Agency for Development Cooperation (NORAD) for funding under the Norwegian Programme for Development, Research and Education (NUFU). One of the major components of the project was Archiving Music in Uganda. Based on the General Frame Agreement between the University of Bergen and Makerere University signed in 1999, the Grieg Academy of the University of Bergen and the Music Section of the Music, Dance and Drama of Makerere University established collaboration in January 2006.

During that time, MakLib was in the process of establishing a Multi-media Centre with funding from Carnegie Corporation of New York. Equipment had been procured awaiting installation. The facility was envisioned as providing text and image scanning, digital video capture and editing, digital audio capture and editing, and access to the World Wide Web. The proposal was complementary to the Library's endeavours of providing access to its special collections. Establishment of the archive was therefore a prerequisite for creating a high-level research environment, as well as for creating accessible documentation of Ugandan cultural heritage. According to Williams (2001), "preservation of cultural heritage resources is essential to sustainable development and this fits in the library's mission."

Library Management had major milestones to accomplish like identification of space and staff for the archive. The archive was allocated space on the ground floor of the new Library Building extension. The space was conducive for the establishment of the music archive because the floor was specifically designed to accommodate noise. Next to the archive are the discussion

rooms. Partitioning of the space to accommodate a processing room and a listening centre was carried out with funding from NORAD.

In 2008, Library Management appointed a Music Librarian to undertake building of the music collection as well as digitizing the available analogue materials. The next step was to provide training for the Librarian in basic theory and practice of music digitization. The Music Librarian travelled to Norway in 2008 for an attachment to the Arne Bjørndals Samling (Archive), a folk music archive connected to the University of Bergen under NORAD funding. Due to the existing collaboration between MakLib and the University of Bergen Library, the Music Librarian had one week's orientation in music librarianship at the University of Bergen Library. The Librarian also visited the music archives at Oslo University in order to learn best practices.

In 2009, the digital music archive was launched and this provided a platform for publicizing its collection. The mission of the archive is to build a sustainable and accessible music collection in support of study, teaching, and research in Uganda. To carry out this mission, the archive:

- collects and documents all kinds of Ugandan music and dance;
- digitizes Ugandan music recorded on analogue formats;
- provides access to music materials that can no longer be accessed in their original format;
- enhances preservation of records by reducing wear and tear on the originals for reference and reproduction;
- collaborates with institutions and individuals to repatriate Ugandan music collections; and
- conducts training in archiving music and dances and shares knowledge on best practices in archiving.

### **Methodology**

A survey to identify the available music collections at Makerere University was conducted. It was established that music materials existed in different departmental libraries and Book Banks. Makerere University Library (Africana/Special Collections Section) had 227 gramophone records, 241 video tapes, 20 film strips and 50 audio CDs, and approximately 20 music scores. MDD had ten reel-to-reel tapes, 30 music scores and 127 compact cassettes. It was also discovered that lecturers at MDD had private music collections in analogue format. The Arts Library had a sizable collection of printed music with sound recordings as accompanying materials.

Selection of materials for the pilot project was undertaken in the archive. It was agreed that the compact cassettes, reel-to-reel tapes and photographs should be digitized first, with the available equipment. Preparation of materials for digitization was undertaken, as the sound recordings had originally been poorly stored and had accumulated dust.

MakLib had an already established digital infrastructure but specialized equipment for music digitization was procured with NORAD funds. These included: a reel-to-reel player, Apple computers, printer, scanner, stereo cassette player, amplifier, turntable, field recorders and earphones. The American Embassy in Uganda also donated three computers. Steel shelving for storage of sound recordings was also procured. According to Holmes (2002) the physical properties of musical works demand special storage facilities which include particular shelving, packaging, and cleaning procedures. Software discussions were undertaken by all stakeholders with technical advice from Norway. Since MakLib's Institutional Repository was running on Dspace with archiving capabilities, it was adopted for providing online storage. Amadeus Pro was selected for its powerful multi-track audio editor which supports a variety of formats.

Toast 11 Titanium was deemed appropriate because of capabilities that made it easier to capture, burn, copy and convert CDs, and share digital media. Organization of play lists, editing file information, backing up songs onto CDs (Compact Discs), and encoding music in different formats is enabled by iTunes. Having secured enough hardware and software, it was deemed necessary to start digital conversion of materials. Each recording was converted to one or more computer files using a sampling rate of 44.1 kHz and sample size of 16bit in mono or stereo as appropriate. One compact cassette would take approximately 2 hours 30 minutes to digitize. For preservation purposes, Audio Interchange File Formats were used (.aiff) and stored on the server. To allow access to the digitized sound, mp3 files were created. Another digital archival copy was generated on Compact Disc-Recordable (CD-R).

Each photograph was scanned at archival quality 8-bit gray scale (Black and White); or 24-bit for coloured photographs. Tagged Interchange File Format (TIFF) was scanned from each photograph, and JPEG created for use as reference images. The printed text and textual material in the collection was digitized as TIFF image files. Textual materials included music scores, newspaper clippings and sheet music. Basic descriptive and technical metadata collection sufficient to allow retrieval and management of the digital copies and to provide basic contextual information for the user was undertaken. A visit to Makerere University Library by the director of the Wilson Music Library, Vanderbilt University, provided an insight into music metadata management.

To fully utilize the metadata from Dspace, the digitization librarian together with staff from the Directorate of Information and Communication Technologies (DICTs) customized the default template in Dspace to control the indexing and display of the music collection. Customization was vital to fully describe the music formats, and incorporated features such as genre and composition, ethnic group, location of event, costume, collector and performer. The printed music materials were catalogued using the music MARC (Machine Readable Cataloguing) format and entered into the Integrated Library System-Virtua.

Sensitization of music lecturers and researchers was conducted through USDL seminars. Librarians in charge of departmental libraries and Book Banks were tasked to publicize the need for lecturers and other researchers to archive their research output in the institutional repository. A series of four workshops as a collaborative project between six institutions were planned and conducted. These six were: Makerere University; University of Agder, Norway; University of Bergen, Norway; University of Stavanger, Norway; Dhow Countries Music Academy (DCMA), Tanzania; and Tasisi ya Sanaa na Utamaduni Bagamoyo (TaSUBa), Tanzania and the University of Juba, Sudan. These workshops were intended to create awareness of the importance of the digital music archive and to encourage private music scholars to deposit their works to the archive. As a result the Library received donations of music collections on LPs from private individuals for digital conversion and preservation.

A team of three ethnomusicologists is actively involved in collecting field recordings geared towards building the music collection. The sound recordings preserve forms of songs and dances handed down and transformed within diverse community settings and also document the social context for music making of various types. Traditional Ugandan music comprises four integral elements: singing, dancing, playing instruments, and acting. Printed materials related to music and dance of Uganda are also collected. This is based on four major regions, North, East, Central and West and each region is assigned a collector-in charge. To date, the following collections have been added to the archive: 2,039 sound recordings, 119 video recordings, 286 photographs and 1015 documented items. Further expansion of sites for field recordings is currently under consideration. The work of cataloguing and digitizing the music collections is managed by the Library Archivist.

Negotiations for the repatriation of copies of audio recordings, video recordings, and photographs of Ugandan music (and accompanying notes) are undertaken by the archive. In this regard, the British Library Sound Archive has already repatriated 1574 of Klaus Wachsmann's audio recordings from 1949, 1950 and 1954. Peter Cooke audio recordings have also been added to the collection.

The policy of the Archive is to make its collections accessible online. According to Jones (2001), the importance of digital projects is the ability to rapidly and comprehensively search collections from anywhere at any time and this is ideal for the archive. The Library Online Public Access Catalogue (OPAC) acts as a finding aid to the different collections. The different music formats are housed in separate locations. Sound recordings are shelved in the same room as the playback equipment. Library users can access the sound recordings from the workstations within the Archive. Listening and viewing facilities are available in the Archive.

Entry to the Archive is free of charge to registered library users. Listening facilities are provided for accessing sound recordings (audio cassettes, reel-to-reel tapes, LPs, CDs, and digitized sound files). Viewing facilities are available for photographs, and videos. Reading facilities like

discussion rooms are provided in the reading area next to the Archive. Photocopying and other copying services of the resources of the Archive are subject to copyright law. Some materials are kept in closed stacks and are retrieved by the Music Archivist. The Library website and the archive websites are a major source of information about the development and ongoing activities.

### **Lessons Learnt**

This section documents the management of complicated rights clearance processes, human resource development, partnership building, monitoring and evaluation, and sustainability of digitization projects.

### **Procurement process**

Public procurements follow guidelines and procedures laid down in the Public Procurement and Disposal of Public Assets Act (PPDA). The procurement function can be performed either internally or externally. Consultation with the procurement specialists is crucial in case of complex projects. The procurement of equipment and software went smoothly because all equipment was purchased in time using the already established collaboration and use of pre-qualified suppliers. Some of the equipment was in form of donations. In order to avoid delays associated with procurement of goods and services, it is advisable to start the process early enough or outsource.

### **Human Resource Development**

Staff development is a key aspect associated with the implementation of digitization projects. It was agreed that the project would be implemented internally as opposed to outsourcing. This was aimed at building institutional capacity to handle similar digitization projects in future. Training costs were therefore factored in during the project planning stage. Implementation of digitization projects should be looked at as a way of building capacity and visibility for the institution. Mulrenin and Geser (2001) recommended that cultural institutions should place a high priority on their human resources development and develop special courses for key areas such as digital management and preservation. Adequate funding is therefore required in order to achieve quality output.

Training and re-training of library staff is required in order to keep abreast with new technological developments. In addition, the Library and Information Science (LIS) institutions need to review, design and implement quality training programmes in order to adequately meet the demand for qualified library personnel with technical skills that address current needs in the information profession. Mahmood (2003), Ameen (2006) and Rehman (2008) highlight the importance of LIS institutions to produce graduates who can meet the demands of the changing and challenging information market place.

### **Project planning and management**

The project planning process requires the involvement of all of stakeholders. The music archive project lacked involvement of some key stakeholders at the planning stage. Certain technical aspects were overlooked, yet these were crucial to the success of the project. For example certain targets could not be accomplished within a single project. Project objectives have to be Specific, Measurable, Achievable, Realistic and Time-bound (SMART). It is imperative to note that participatory planning is vital because different perspectives are generated from a pool of resourceful people. Every member of staff whose work might be affected should be able to contribute ideas.

Systems and structures need to be put in place to support digitization projects. These will depend on the size and complexity of the project. Complex projects need involvement of at least three different groups of staff in the project process: the steering group, the management group and the project team. Roles and responsibilities of these three groups should clearly be spelt out. Team spirit is essential for a successful project.

### **Technology issues**

The analogue audio records were stored on media which were outdated, and playback equipment was scarce. For example the reel-to-reel player had to be reconstructed in order to digitize the records. It is therefore important to note that technology has a short life cycle. To eliminate data loss and incompatibility, continuous reformatting of storage and processing devices to suitable media should be undertaken. Back-up of files on CD-ROMs and other robust media should be undertaken.

### **Project communication**

The project involved groups of people from different professional backgrounds. Internal communication across teams was inadequate, especially when there was a change of plan, and this created unnecessary tension between the project team members. The project communications process needs to be planned in some detail and at the planning stage it is worth thinking about how the communication process is going to be managed. This involves thinking in broad terms about who, when, whom, what, and how to communicate.

### **Project inputs**

During the life cycle of the project some collections were substituted, for technical or rights reasons. This required rescheduling of activities and reallocation of resources. Some field recordings were not well documented and this was challenging when it came to assigning access points. Risk assessment and management are important aspects in project planning. Risks are about factors that can hinder proper implementation of the project. Such factors include resources, people not being available, technology not working, and outputs that are not of the expected quality. These factors may arise from unchecked assumptions or a lack of realism in the planning, poor organization or complexity of the task. Dependence on resources outside one's control makes a project risky. Project inputs need to be in place so that outputs are realistically planned.

### **Intellectual Property Rights Clearance**

Copyright is an intricate issue that impacts on the selection of materials for digitization. Music copyright exists in both the manifestations of a musical work (mechanical rights) and in the rights to use the work (performing right). Kakai (2009) reports that varying publisher copyright models and policies exist for published articles. Permission had to be sought from individual publishers and the process was time consuming. In digitizing analogue audio, it was envisaged that the music curator, who had a mix of skills and competence, would be responsible for intellectual property clearance. However, the process dragged on for a longer time than had earlier anticipated.

In addition, fear of plagiarism, dubbing and piracy, common in Uganda, deters musicians and scholars from depositing their materials in open access repositories. The existing legal framework (The Copyright and Neighbouring Act, 2006) has many glaring weaknesses. Nannyonga-Tamusuza (2007) points out lack of enforcement as one of the reasons why music piracy is rampant in Uganda. It is therefore advisable to start early negotiations for intellectual property rights. Specialists in Intellectual Property Rights Management should be consulted from the outset.

### **Staff Remuneration**

The project budget process did not take into consideration staff costs. It was assumed that staff would implement projects alongside their daily routines. The project team lacked enthusiasm for putting in extra efforts in order to meet the set targets because they were not motivated. Success of any project is dependent on a committed and hardworking team: in my view, staff costs should be included in the project budget as a way of motivating staff for the extra workload.

### **Partnership building**

Given the complexity and size of the project, there was a challenge of conflicting roles. Roles and responsibilities of the management, consultants, and the lead partner were not clearly spelt out. This affected the decision-making process hence implementation of certain activities. Trust and respect are central to effective partnerships. If the partners do not regard each other as reliable partners, it may be very difficult to work together. Roles and responsibilities for different partners should be clearly spelt out; lead partners should drive the process but not dominate the partnership.

### **Project monitoring and evaluation**

Monitoring and evaluation are important aspects of project planning and management. Monitoring of progress was carried out based on the number of hours of digitization. However, it is important to note that analogue audio is very difficult to estimate in terms of hours without real-time playback. This is because carrier length is often a poor indicator of audio duration.

Carriers were often not filled to capacity; for example, there were many blank sides within a sequence of cassettes. Performance measurement should therefore be based on the number of metadata files created rather than the number of audio hours digitized.

## **Conclusion**

The Makerere University Digital Music Archive has been a success and delivered benefits to the University community, in particular to the music scholars, with minor challenges. It is hoped that the documented learning experience will be of use to future projects in the library.

Digitization of cultural heritage materials is crucial for socio-economic development. The digital music archive is of great importance to ethnomusicologists, music lecturers, researchers, cultural workers, students and the general public in Uganda. Digitization provides visibility and access to these unique collections and an historical context for the appreciation and understanding of Ugandan musical cultural heritage. Institutions need to be aware, however, of the costs associated with digitization, which include costs of hardware and software and human resource development.

There is a need to continue the journey on this revolutionary path towards preserving musical cultural heritage. Challenges should be addressed and opportunities embraced in preserving and promoting access to information.

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