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DIGITIZATION OF HISTORICAL INFORMATION AT THE NATIONAL ARCHIVES OF ZAMBIA: CRITICAL STRATEGIC REVIEW

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Abstract
The paper reviews the digitization project carried out at the National Archives of Zambia. The patrimony of the National Archives of Zambia is immense and of unquestionable historical relevance. However, it has suffered both from a lack of exposure and from an outdated system of record keeping and consultation. While not many interested parties were able to access materials directly, those who did contributed unwittingly to their gradual destruction: combined with other external agents, physical consultation can be greatly detrimental. This paper reveals that the objectives of the project were to safeguard and ensure the preservation of the most valuable and perishable components of the archival patrimony of the National Archives of Zambia; to render them more accessible and facilitate their future use by a broader number of researchers and interested parties; to enable a select group of staff of the National Archives of Zambia to gain theoretical knowledge and practical experience in electronic records management and website design; and to enhance the national and international visibility of the National Archives of Zambia by increasing awareness of its holdings. The paper discusses the activities that were undertaken to achieve each objective and the contribution made by external players, and concludes by assessing the challenges posed by the project, the experience gained and lessons learnt.
Key words: Digitization, District Note books, National Archives of Zambia.

Introduction and Context

Archives administration in Zambia is the mandate of the National Archives of Zambia (NAZ) of the Ministry of Home Affairs. This mandate is derived from the National Archives Act Chapter 175 of the Laws of Zambia, 1995 edition. The Act is meant to provide for the preservation, custody, control and disposal of public archives including public records in Zambia. The archives that were digitized were the District Notebooks.

To understand how these District Notebooks originated, it is important to highlight the historical development of the country in terms of administration. Zambia was a colony of Great Britain and the process of colonizing Zambia started with the British South African Company (BSAC). The BSAC was granted a charter in 1891 that led to the formation of North-Eastern Rhodesia in south Central Africa. With this development, Graham and Halwindi (1970) submit that the office of the administrator was created under the North-Eastern Rhodesia Order in Council of 1900 which formally placed North-Eastern Rhodesia under the BSAC administration. In this regard, the Civil Service as such was

established under the Civil Service of North-Eastern Rhodesia Rules and Regulations by Government Notice 1 of 1901.

Additionally, North-Western Rhodesia in south Central Africa was formed and administered from 1891. In 1899, the North-Western Rhodesia Order in Council was passed, formally establishing the administration and giving statutory rights to the Company. The BSAC amalgamated North-Western Rhodesia with North-Eastern Rhodesia to form Northern Rhodesia in 1911. The amalgamation of the two administrators and departments in North -Eastern Rhodesia and North-Western Rhodesia was meant to be a cost saving measure.

Before the arrival of the BSAC, the administration of the territories was in the hands of chiefs whose authority depended largely on personality and military strength. During this time, information was passed from one authority to another orally and this went on from generation to generation. Oral history played a major role at this stage. "Oral tradition" was a sporadic way of keeping records, hence traditional chiefs had other ways of preserving the national folklore records; they had shrines and relics, the equivalents of archival buildings and archives respectively.

The arrival of the BSAC administration saw the imposition of direct rule over many areas than had been controlled by the traditional chiefs. It is at this stage that we see the beginning of written records. However, Mukula (1982:1) contends that "when the white men came they relied greatly on this oral tradition". They compiled written records from oral tradition. The "oral tradition" form of records management was harnessed with the written word to produce written records about Zambia. Some of the major historical records about Zambia have their source in oral traditions. The BSAC and the appointed commissioners who ran the affairs of the then North-Western Rhodesia and North-Eastern Rhodesia and subsequently Northern Rhodesia created the archives that have been digitized.

While the BSAC's records form the earliest available documentary collection (1890s-1924), the District Notebooks are the most requested items of the National Archives of Zambia's holdings. Mukula (1973) noted that the District Notebooks were a unique and valuable source of historical, political, administrative, ethnographical and anthropological information. They were kept at District administrative stations (bomas) and entries were made in these notebooks by district officials on a wide range of administrative and historical subjects. In many cases they contain the only written sources of tribal histories. The Notebooks, which cover the period from the 1890s to 1964, were vulnerable to wear and tear as a result of heavy usage and their weight. A number of District Notebooks were summarized in "Calendars" for Western Province, Luapula Province, Northern Province and the Copperbelt, but the other five provinces have not been described as yet. The need to create an extensive database for all District Notebooks was obvious.

The District Notebooks have an immense and unquestionable historical relevance. However, many interested parties were not able to access the materials directly, those

who did contributed unwittingly to their gradual destruction. It was therefore hoped that by improving existing systems for the preservation of Zambian cultural heritage and its future accessibility, the digitization project aimed at promoting the growth and diffusion of cultural consciousness, "one of the essential instruments of general development and the improvement of quality of life." To achieve this, the following were the objectives and activities of the project;

Objectives and Activities

1. To safeguard and ensure the preservation of the most valuable and perishable components of the archival patrimony of the National Archives of Zambia through digitization.

- Study the series of colonial District Notebooks and British South Africa Company's materials and recommend them for digitization.
- Installation and configuration of the purchased hardware and software. Thus, the selected records would be transferred on to optical support systems. The resulting digital archive would consist of a series of CDs, which are universally regarded as the most modern and secure form of record keeping. A crucial dimension of the work to be conducted was to ensure the high quality of the images reproduced on computer and their adherence to the originals. The problems posed by the difficult electronic legibility of some of the original documents will be overcome through the adoption of the most advanced image manipulation techniques.

2. To render them more accessible and facilitate their future exploitation by a broader number of researchers and interested parties.

- The task would involve the production of comprehensive summaries and indices for all of the digitized documents. The summaries and indices would enable students and scholars to identify the entries relevant to their researches through simple keyword searches.
- To facilitate the study of the digitized documents, a multimedia room will be established. The software and hardware available there will provide users with the means to consult and, if necessary, print selected documents at a fee to be established.

3. To enable a select group of staff of the National Archives of Zambia to gain theoretical knowledge and practical experience in electronic records management and website design, and in the selection and indexing of archival materials (training on the job).

- The theoretical and practical training to a selected group of National Archives members of staff will be done throughout the duration of the project.

4. To enhance the national and international visibility of the National Archives of Zambia by increasing awareness of its holdings.

- The creation of a website would contribute towards ensuring the attainment of this objective.
- The website will be so structured as to make its exploitation conditional upon the payment of the National Archives of Zambia current membership fee.

5. To assist the National Archives of Zambia in playing a significant role in the sphere of Zambian cultural tourism.

- The digitization would result in the creation of a database of information relating to traditional cultural practices and ceremonies of outstanding tourist potential.
- Since digitization will significantly reduce the need for physical consultation, the most ancient and precious among the District Notebooks and BSAC records will be displayed in a permanent exhibition to be set up upon completion of the project.

The Project Team

The project team consisted of Mr Chrispin Hamooya, who hired two consultants, Dr Marja Hinfelaar, a historian and Mr Mauro Sanna, an information technology consultant. These consultants were assisted by eight members of staff of the National Archives of Zambia.

The specific tasks to be carried out by the appointed historian were to:

- train NAZ members of staff in the selection and indexing of archival records for the purpose of digitization;
- study the voluminous collection of District Notebooks and recommend them for digitization;
- recommend which sections or entries of the collections would be digitized;
- produce comprehensive summaries and indices for each of the sections or entries they selected; and
- produce the contents for the National Archives website and set up a permanent exhibition.

The specific tasks to be carried out by the appointed IT consultant were to:

- train NAZ members of staff in the use of the hardware and software for digitization and in the creation and updating of a website;
- install the hardware and software purchased for the project;
- digitize the District Notebooks recommended by the historian; and
- design a website.

Time Frame

The projected lasted for one calendar year, from September 2009 to September 2010. The actual work was carried outdone as shown:

Month	Historian	IT Consultant
September	Theoretical training of assistants in the study, selection, indexing and summarizing of archival records.	Installation and configuration of the hardware and software. Assembling of the multimedia room.
October	Study and selection of the documents to be digitized in collaboration with assistants. (TOJ)	Theoretical training of research assistants in the use of the required hardware and software
November	Study and selection of documents to be digitized in collaboration with assistants. (TOJ)	Theoretical training of research assistants in the use of the required hardware and software
	Christmas break	Christmas break
January	Compilation of comprehensive indices for the digitized documents in collaboration with assistants (TOJ).	Digitization of the documents selected by the historian in collaboration with assistants. (TOJ)
February	Compilation of comprehensive indices for the digitized documents in collaboration with assistants (TOJ).	Digitization of the documents selected by the historian in collaboration with assistants. (TOJ)
March	Compilation of comprehensive indices for the digitized documents in collaboration with assistants (TOJ)	Digitization of the documents selected by the historian in collaboration with assistants (TOJ)
April	Compilation of comprehensive indices for the digitized documents in collaboration with assistants (TOJ)	Digitization of the documents selected by the historian in collaboration with assistants (TOJ)
May	Compilation of comprehensive indices for the digitized documents in collaboration with assistants (TOJ)	Digitization of the documents selected by the historian in collaboration with assistants (TOJ)
June	Compilation of comprehensive indices for the digitized documents in collaboration with assistants (TOJ)	Digitization of the documents selected by the historian in collaboration with assistants (TOJ)
July	Preparation of website contents (TOJ)	Training of NAZ staff to create and update the website
August	Preparation of website contents (TOJ)	Creation and design of website (TOJ)

September	Planning and setting up of the permanent exhibition with NAZ staff.	Planning and setting up of the permanent exhibition with NAZ staff

TOJ= Job on Training

It is important to note that the actual work was done according to UNESCO, IFLA /ICA (2002:1-5) guidelines for digitization projects for collections and holdings in the public domain, particularly those held by libraries and archives. The guidelines are given below, numbered from one to ten, and comments on how each guideline was met are given.

1. *Reasons for digitization:*

- *To increase access*
- *To improve services to an expanding user's group by providing enhanced access to institute's resources*
- *To reduce the handling and use of fragile and heavily used original materials*
- *To give the institution opportunities for the development of its technical infrastructure and staff skill capacity*
- *To take advantage of financial opportunities, for example the likelihood of securing funding to implement a programme, or of a particular project being able to generate a significant income.*

Comment from National Archives Digitization Project.

The aim of the project was to increase accessibility of historical materials to the public, to reduce the handling of fragile materials and to develop human resources and technical infrastructure

2. *Criteria for selection*

- *Intellectual content of the material*
- *Level of demand from public*
- *For cultural institutions starting their first digitization project, a good rule of thumb is that selecting the most heavily used parts of their collections will normally give the greatest added value because it will satisfy the majority of people they try to serve.*
- *If the material being considered as a candidate for digitization lacks detailed cataloguing or descriptive data, it is essential for future access to such materials to create such data.*

Comments from National Archives digitization Project

The District Notebooks, covering the whole of Zambia, are the most valued and most consulted collection at the National Archives, and were therefore chosen as the first collection of historical documents to be digitized. The District Notebooks are also "a

unique and valuable source of historical, political, administrative, ethnographic and anthropological information." They were kept at district administrative stations (bomas). Entries were made in these Notebooks by district officials on a wide range of administrative and historical subjects. In many cases they contain the only written sources of tribal histories. The Notebooks are vulnerable to wear and tear as a result of their weight. They cover the period from the 1890s to 1964. A number of District Notebooks were summarized in 'Calendars' (for Western Province, Luapula Province, Northern Province and the Copperbelt), but the other five provinces have not been described as yet. The need to create an extensive database for all District Notebooks was obvious.

*3. **Technical requirements and implementation***

- *Image quality*
- *Resolution*
- *Bit depth*
- *Image enhancement processes*
- *Compression*
- *The equipment and its performance*
- *Operator judgment and care*
- *Setting up of standards*
- *Decision on reference points*
- *Spatial resolution*
- *Tonal reproduction*

All image files that are produced by a digital image project must be organised, named and described in a way that fits the purposes of the project.

Comments from National Archives Digitization Project:
The first step in the technical requirements and implementation was to acquire the book Scanner Bookeye. This scanner is specifically designed for this type of work.

To obtain a perfect image with the scanner we had to check the following settings:

- Format
- Type of document
- Brightness
- Contrast
- Resolution

The second step was to clear up the image (image enhancement process) with the graphics software Adobe Photoshop 6.0. With this software we could manipulate all the images to obtain a perfect image without unnecessary details. At the end of this process all the files (images) were then saved in pdf format.

The third and last step was to put all the data inside the database Alchemy to index and to record the digital repository.

Each file was saved with the name of the document. When we put the files in the database the structure was as the follows;
Province (example Luapula)
District (example Kawambwa)

The key fields for each file are the following;
Number of page
Keyword
Province
District
Volume
Reference Number
File Format
File Size

After this process, each document was easy to retrieve and to identify with the internal tools of the software (search tool).

Because of the high standards of the equipment, quality control was already in-built. For the training of NAZ staff, we used the concept of "training on the job", in which we supervised the NAZ staff throughout the process of digitizing (scanning, image enhancement process, indexing) and ensured they kept to the standards set.

4. *Need for pilot project*

Comments from National Archives digitization project:
When all equipment and software was obtained and installed, the consultants and the Director decided to use the digitization of the Luapula Province District Notebooks as a pilot project in which all the technical standards (see 3) were set. After exposing the results to outsiders (historians in and outside Zambia) and making the necessary adjustments, the consultants were now ready to start the training programme and digitize other Notebooks.

5. Legal aspects

If digital images are accepted as replacements for source documents and are intended to serve that purpose, it must be guaranteed before conservation that:

- *The source documents have no intrinsic value;*
- *The informational content (and if needed the physical appearance) of the documents has been adequately captured and cannot be changed;*

- *The legal requirements are met;*
- *The means for retrieving and preserving the digital images are in place.*

However, in most digitization projects and programmes, source documents or analogue surrogates of them are kept and can be scanned if the digital images are lost or corrupted.

Comments from National Archives Digitization Project;
Controls have been put in place to ensure that the images have been adequately captured (see quality control under no. 3). The researcher will read the documents in pdf format, and will be unable to make additions or changes to the image or the database. A back-up system is in place in which the original scan image is preserved. If the researcher insists on checking the original document, the District Notebooks are always accessible.

6. Budgeting

Cost recovery: *Areas of expenditure; staff development facilities management, operational expenses, selection and preparation of source material for digitization, digital conversion, metadata capture, data management, managing storage and delivery systems.*

Comments from National Archives Digitization project;
Maintenance and replacement of equipment has to be carried by a user-fee. The digitized District Notebooks (one Province per DVD) can be bought at a price.

7. Human resource planning

Recommendations:

- *Provide leadership*
- *Empower the right people*
- *Form partnerships with early adaptors for capacity building*
- *Develop new technical and managerial skills*

Comments from National Archives Digitization project:
It was decided that two people be trained at a time, for a period of one month. The training consisted of a short theoretical explanation of the digitization process followed by hands-on-experience. The trainees were engaged in digitizing all District Notebooks of one particular province, carrying out the whole process of scanning, imaging and construction of the database, supervised by the two consultants. An important aspect of the training concerns quality control. In turn they helped the consultants to train the next two members of staff. In this way, it was ensured they had a full understanding of the process.

8. Development and maintenance of web interfaces

- *Developing digital content*
- *Building a web team*
- *Website production and management*
- *Introducing web-based services*

Comments from National Archives Digitization project:
The website was created. The staff of the National Archives of Zambia were trained in how to create a website and maintain it.

9. Preservation of digital content

Recommendations:

- *Associated preservation and access as organizational objectives*
- *Set digital preservation policies before you begin scanning*
- *Adhere to international standards and adopt current best practice*
- *Avoid dependency on proprietary software*
- *Assign administrative, descriptive, structural and preservation metadata to all digital objects.*
- *Identify a trusted digital repository committed to the long-term management of your digital resources.*

Comments from National Archives Digitization project:
The images have been saved in pdf format that is an international standard to read documents. This software is freeware and accessible through internet (www.adobe.com). In order to preserve all the digitized and indexed documents, they were recorded on digital repositories like CD and DVD.

10. Project management

Recommendation

- *Prepare an itemized budget of organizational, operational and staffing costs to assess the feasibility of the project;*
- *Develop a planning matrix to manage the operational tasks;*
- *Establish a tracking system to monitor and report on production.*

Comments from National Archives Digitization project:
The pilot project taught the consultants that it is possible to digitize one Province a month.

Conclusion
The digitization was successfully carried out according to the planned schedule. However, there were a few challenges, amongst which was included the actual training of the assistants. All trainees had a good grasp of the skills involved, but the level of

skills achieved depended on whether the staff members had previous computer experience or not. Unfortunately, most of them had little knowledge about computers. It is therefore recommended that for training in this area, trainees should have some basic computing skills. Furthermore, the National Archives of Zambia is understaffed, the implications of which were that while they were being trained, staff had to do other jobs. The implication of this in turn was that the assistants could not get fully acquainted with some of the technical aspects of the digitization process. The other challenge is the fact that digitization is monotonous work and the assistant made mistakes easily.

Overall, the consultants did an excellent job that led to the continuation of the digitization project through the continued support of the Finnish Embassy. It is thus recommended that highly trained personnel in the area of digitization are hired to do the job. Additionally, the digitization project should be systematically programmed whilst ensuring that work is done according to the outlined schedule.

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